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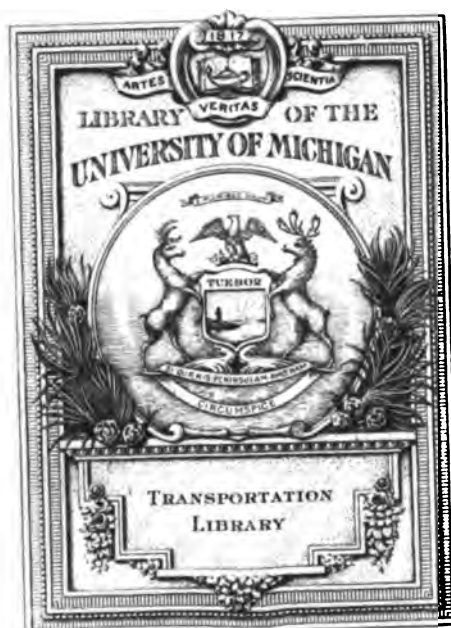
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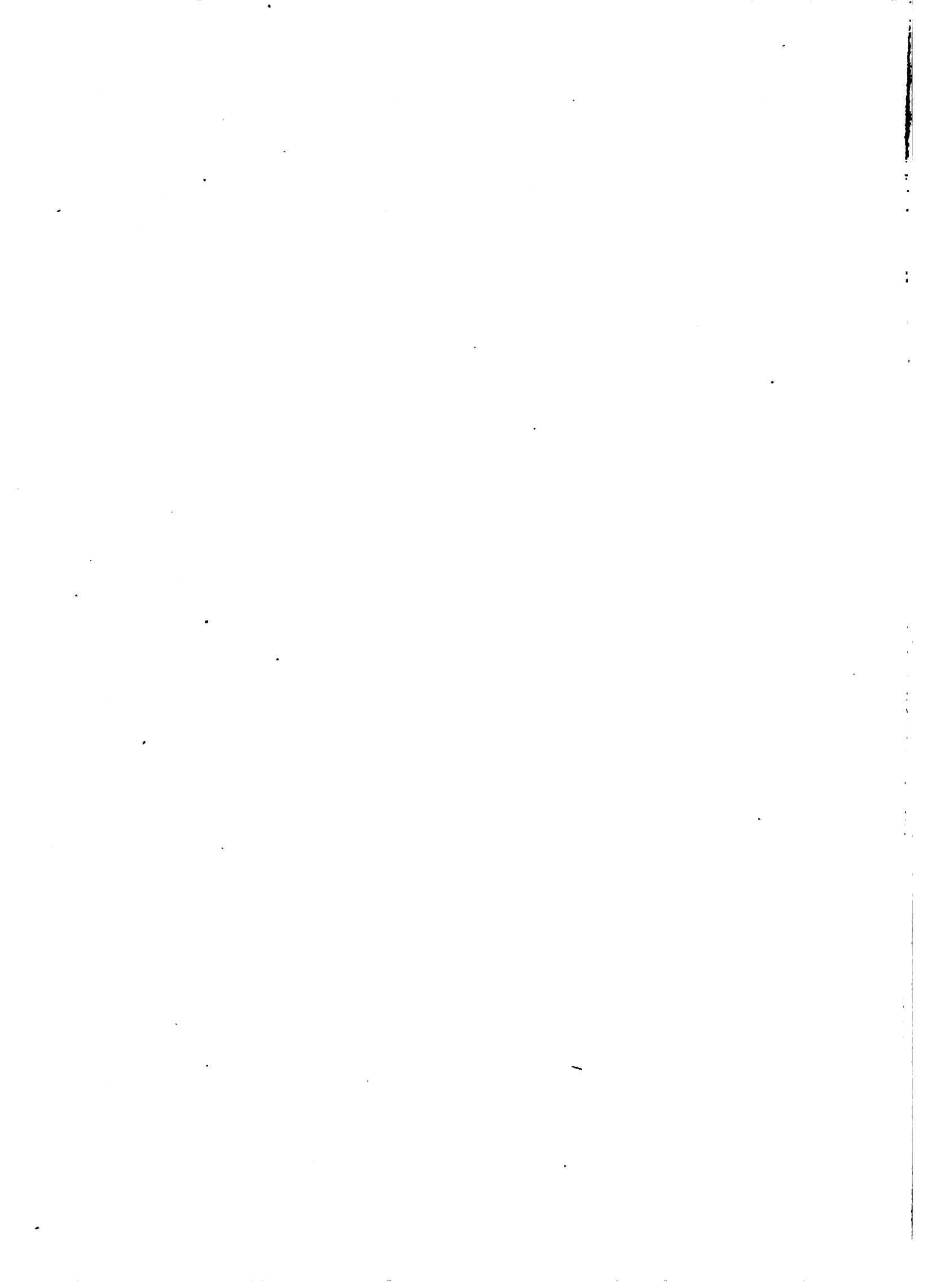
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AMERICAN

RAILROAD JOURNAL,

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AND

ADVOCATE OF INTERNAL IMPROVEMENTS.

JANUARY TO JULY, 1835.

VOL. IV.—PART I.

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It will be observed, on examination, that No. 45, 47, 48, 49 are not paged to correspond with the Volume. They contain precisely the same reading in relation to Internal Improvements, without the miscellaneous reading; and were put up, in half sheets, for a special purpose; but in consequence of the loss, by the late fire, of the whole sheets bearing those numbers, I am compelled to use these half sheets in lieu of whole sheets, or not be able to complete any more copies of Volume FOUR. *Not is deficient 8 pages.*
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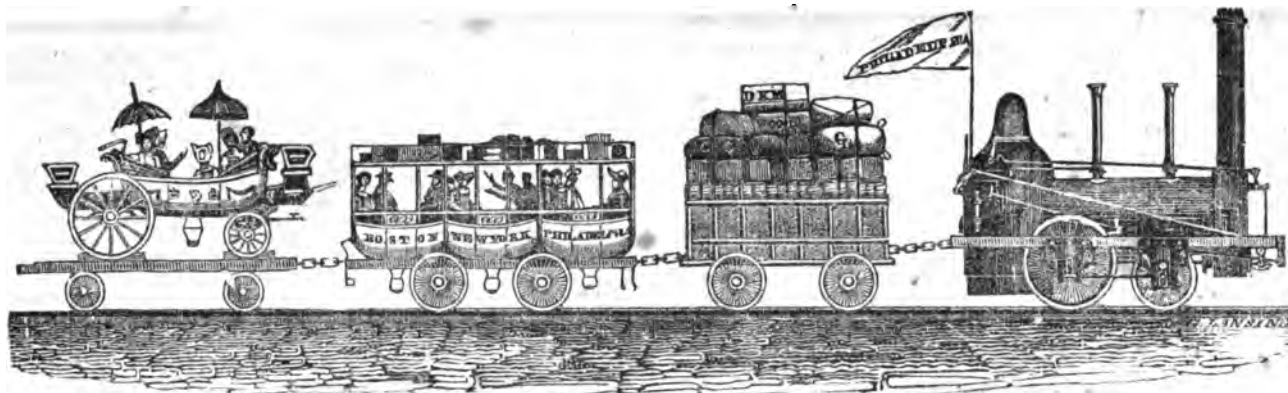
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D. K. MINOR, EDITOR.]

SATURDAY, JANUARY 10, 1835.

[VOLUME IV.—No. 1.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JANUARY 10, 1835.

With this number we commence the 4th volume of the Railroad Journal—which we hope to make more interesting, or at least more valuable, than either of the preceding.

The subject of Internal Improvements begins to attract more than usual attention, as its benefits are more widely extended and more duly appreciated. We hope, hereafter, to find more co-laborers with us in the field, and an increased number of patrons throughout the country. The latter we must, and are resolved to have; and, as an inducement, we offer those who are at this time subscribers, who will take a complete set of the Journal, from commencement up to the 3d instant—or close of the 3d volume,—stitched in half yearly parts, with Title Page, Index, and Cover, to each, and a Railroad Map folded into volume 3d—for SIX DOLLARS; and to those who will now become subscribers, and take the full set from commencement to the end of the current, or 4th volume, with the Map folded into the 3d, for TEN DOLLARS.

We are induced to make these offers by a desire to have it more generally circulated, and to be able to render it more valuable hereafter to those who read it.

☞ We can hardly afford to pay Postage on new subscribers, and payments in advance; how much less, then, can we afford to pay Postage on orders to discontinue the Journal? It is much to be desired, therefore, that the postage on letters should be, as it is, in numerous, we may say most, instances, paid on letters addressed to us on business relating to the Journal.

☞ The communication of —, with its enclosure came duly to hand. The address with which he finds fault, and justly so too, so far as it is connected with the Railroad Journal, was distributed without our knowledge, by the carrier, who made use of an address prepared for another paper,—to which he is also a carrier,—by altering the head.

GOVERNOR'S MESSAGE.—We have received the Message of the Governor of this State, delivered on the assembling of the Legislature. It is an able document. It does not, however, take that decided stand in favor of the great works of Internal Improvement in contemplation, which we hoped it would.

NEW-YORK AND ERIE RAILROAD.—We give in this number of the Journal the proceedings of the Railroad Convention, held at Bath, Steuben county, on the 17th December. The preamble and resolutions are in the true spirit. They evince a due appreciation of the great advantages of Railroads, as well as of the peculiarly favorable position, circumstances of the route through the Southern tier of counties, and also, of their rights as citizens of the State of New-York, which has done so much for other, and so little for their, section of the State; and must, we would fain believe, convince the members of our Legislature, as well as all others of liberal views, that, in a spirit of justice at least, if not in that of an enlightened policy, they are bound to give it the countenance and aid of the State.

Calhoun county, Michigan Territory,
Eckford, December 10, 1834.

To the Editor of the Railroad Journal.

SIR,—I enclose you five dollars on account of the Railroad Journal, a work with which I am highly pleased. I had intended to have prepared a communication for it in relation to a railroad through this Territory, but time has not permitted; and I can now only say that the United States' Engineers have just surveyed a route commencing at Detroit, and thence running nearly west to the mouth of the St. Joseph's, on Lake Michigan, distance 180 miles, mostly through an open flowery region, of great fertility; and although the country is very new, it is settling with great rapidity. This road will give a further spur to it, and will extend the facilities of transportation to the Mississippi. It will only be required to complete the canal, or railroad, from Chicago to the rapids of the Illinois, when a continuous line will be open from New-York city to St. Louis, bringing those two places within 8 or 10 days of each other.

The route through this peninsula just surveyed is peculiarly favorable, the greatest elevation over which it passes being 446 feet near the centre; and from this point, either way, the surface is a gentle inclined plane, facing the east and west, of above 90 miles each.

Will you have the goodness to state in your Journal the rate of tolls on the various railroads now in operation, also as compared with the tolls paid on the canals. It will serve to remove the doubts and prejudices of many who believe that railroads are not adapted to the transportation of heavy produce, especially when the distance is great.

I am, very respectfully, your obedient servant,
A. W.

The suggestion of our correspondent, A. W., is an important one, and we will take the favor of those of our subscribers, who have the means of furnishing the desired information, to communicate it to us at an early date. Particulars relative to the tolls both on railroads and canals, are desired.

Affection.—Real and pure affection is always quiet and deliberate in its attention, and no man of refinement can long love a wife whose demonstrations of attachment are obtrusive and impetuous.—[Mrs. Hale.]

The following very important communication has been furnished us for publication. It exhibits the value of our works of internal communication in a new and more clear light than it has hitherto been. By this statement (made, it is true, only in part from documents, but it is believed that the estimate of 33½ tons to each lockage is entirely within the truth,) it will be perceived that the amount of tonnage in 1834, on the Erie Canal alone, which passed Alexander's lock, exceeds the whole amount of tonnage, both *foreign and domestic*, of the Port of New-York for 1833.

"The immense and increasing trade on our Erie Canal almost exceeds belief, and will readily account for the steady advance

in Real Estate in this city since its completion.

Few would imagine that the tonnage passed and repassed at one lock on the Erie Canal, Alexander's, west of Schenectady, in the business season of seven and a half months, exceeds the entire tonnage, foreign and domestic, which entered and cleared at this custom-house during the year 1833, and will fully equal, if not exceed, the tonnage entered and cleared in 1834, the last quarter of which is not yet made out by the Collector.

I annex you a statement furnished by the Collector, by which it appears, that for the four quarters 1833, there were

Tonnage and Register.	
553 Foreign Arrivals	110,835 tons.
1365 Domestic Arrivals	320,083 "
512 Foreign Clearances	101,512 "
1026 Domestic Clearances	239,416 "
Whole number loaded and in ballast. 771,846 "	

Statement of the number of *American and Foreign vessels*, and their *tonnages*, entered and cleared from the Port of New-York in the year 1833, and the first three-quarters of 1834.

Date.	Foreign Arrivals.		Domestic Arrivals.		Foreign Clearances.		Domestic Clearances.	
	No. of vessels.	Tons.	No. of vessels.	Tons.	No. of vessels.	Tons.	No. of vessels.	Tons.
First Quarter, 1833,....	53	11,599	251	57,374½	53	12,396½	227	51,304
Second " " " " " " " "	167	35,113	438	101,433½	132	27,225	280	63,182½
Third " " " " " " " "	212	40,740½	374	90,299½	202	41,062½	269	67,087½
Fourth " " " " " " " "	121	23,382½	302	70,976½	119	20,828½	250	57,841
	553	110,835	1365	320,083½	512	101,512½	1026	239,415½
	1365	320,083½			1026	239,415½		
In 1833,.....	1918	430,918½			1538	340,927½		
First Quarter, 1834,....	43	8,959	309	68,284½	58	11,115½	241	52,901½
Second " " " " " " " "	178	42,754	444	101,733	142	32,166	295	68,032
Third " " " " " " " "	142	25,962	406	101,642	155	32,050	227	54,114
Fourth—not ascertained.								
	363	77,675	1159	271,659½	355	75,331½	763	175,047½
	1159	271,659½			763	175,047½		
In 1834, (in part,)....	1522	349,334½			1118	250,378½		

The official statement of the boats and floats of timber passed at Alexander's dock, is not yet published; but to the first of September it was 12,551, and it is understood to exceed 24,000 to the close of navigation, equal to a lockage every 12½ minutes, day and night, during the season of navigation; and only allowing the moderate ratio of 33½ tons to a lockage of boat or float of timber, it will give 800,000 tons, without taking into view the large amount of trade in salt, wheat, and lumber, between Buffalo and Alexander's lock.

But, to set the question at rest, I present you with the Collector of Utica's official statement of the comparative view of the property passed Utica on the Erie Canal, in the years 1833 and 1834. By this table you will ascertain that 420,000 tons weight actually floated by Utica during the season of navigation, seven and a half months, which will fully equal the weight carried by the 1918 vessels, entered and cleared at this Custom House, when it is taken into consideration that more than one-third returned in ballast, or were only partially loaded.

By this interesting table it will be perceived, that 1,157,059 barrels flour passed Utica which, with 1,197,304 bushels of wheat, are equal to 1,425,000 barrels of flour, equal in value, delivered at this port, to seven and a half millions of dollars. Of cotton, we perceive 1,221,102 lbs. passed. Merchandise, 140,743,996 lbs.—which, with the other items in this statement, must exceed fifty millions of dollars, valuing the merchandise at only \$300 per ton.

It will be noted that the high tolls have decreased the amount of lumber, particularly ship timber, an important item to the landed interest in the interior.

COLLECTOR'S OFFICE.

Utica, December 26, 1834.

Comparative statement of property that passed Utica on the Erie Canal in the years 1833 and 1834.

Articles.	1833.	1834.	Increase.
Staves.....No.	9,264,523	10,416,705	1,152,182
Flour.....bbls.	967,813	1,157,059	189,246
Provisions.....do.	27,919	39,888	11,969
Salt.....do.	62,860	70,060	7,200
Ashes.....do.	29,508	30,502	994
Beer.....do.	586	638	52
Cider.....do.	284	622	338
Woods.....cords	4,808	5,383½	575½
Wheat.....bushels	1,175,423	1,197,304	21,881
Coarse Wool.....lbs.	1,666,673	1,135,225	31,448
Bran & ship stuffs.....bbls.	300,518	349,303	48,785
Grain.....bushels	320,578	402,216	99,638
Clover & Grass Seed.....lbs.	1,460,628	2,144,551	683,923
Cheese.....do.	1,857,944	3,173,147	1,315,203
Hops.....bales	443,236	487,580	44,344
Fur & Peltry.....lbs.	268,521	399,832	131,611
Stone.....	8,805,039	16,619,735	7,814,696
Clay.....	1,821,565	2,351,153	529,588
Pig Iron.....	1,810,215	2,005,158	194,943
			Decrease.
Dom. Spirits.....gals.	1,609,612	1,461,051	148,561
Timber.....feet	1,733,255	1,522,637	210,618
Boards & scantling	40,804,371	38,290,991	2,513,380
Shingles.....M.	55,287	41,061	14,226
Lime.....bbls.	15,357	6,105	9,252
Gypsum.....lbs.	18,750,501	10,615,023	8,135,478
Butter & Lard....	4,554,215	4,499,008	55,207
Merchandise.....	157,357,547	140,743,996	16,613,551
Furniture.....	7,595,732	10,672,802	3,077,070
Coal.....	6,423,090	4,551,960	1,871,130
Dried Fruit.....lbs.		50,376	
Sundries.....		3,458,190	
Iron Ware.....		1,439,211	
Bar & Pig Lead..		30,300	
Flax Seed.....		1,221,102	
Tobacco.....		538,840	
Hemp.....		1,765,832	
Cotton.....bales		77,891	
Apples.....bush.		729	
Potatoes.....		4,809	
Peas & Beans....	8,260	29,486	

The foregoing account is from the 17th April last.

to the 25th inst. inclusive, during which period there was collected at this office for Tolls, &c. \$59,266 44. In the above account for 1834, it will be perceived there are a number of articles that do not appear in that for 1833; this is owing to there not having been any account kept of these articles, in consequence of there not being any heading for them on the blanks for that year. Of the decrease in Merchandise, about 4,550,000 lbs. is accounted for, by articles heretofore placed under that head, having a heading for them in the blanks for this year. Respectfully, your ob't servant,
THOMAS M. FRANCIS.

This statement, for which we are indebted to J. E. BLOOMFIELD, Esq., of Utica,—who has taken a very active part in promoting the cause of internal improvement,—will certainly surprise many of our most observing citizens, who, although ever ready to admit the favorable influence of our Canal system upon this city, and especially upon its real estate, have not, as we believe, fully appreciated the importance of increasing the facilities, by *enlarging the Canal and the construction of Railroads*, for communicating with the *FAR WEST*.

The time has arrived, however, when every intelligent man must see and feel the importance of action. The period has arrived, and the field is ample. In the South part of the State, a route for a RAILROAD has recently been surveyed, which has been found favorable beyond the anticipations of its warmest friends—a report of which will, we understand, be presented to the Legislature at an early day. In the North, or in the vicinity of the Erie Canal, a STEAMBOAT COMMUNICATION with Lake Erie, if the determined perseverance of its friends and an enlightened public policy prevail, will be opened at an early period. These are works which, when properly completed, will do credit to the State of New-York—in truth, the *Pioneer*, in great works of internal improvement in this country. With a steamboat canal for the bulky products and heavy articles of trade, which will at the same time compete with our Canadian neighbors on the North—and a Railroad for the *hundreds of thousands of passengers*, and light freight, which shall compete with our persevering neighbors of Pennsylvania, by being in operation twelve months to their nine,—will secure to the city of New-York an amount of *internal trade*, the estimate of which, even at this enlightened day, would cause him who should venture upon it to be considered a fit subject for a "straight jacket," or a lunatic asylum.

Such however are the *facts*, and he who lives to compare a quarter of a century hence with the *present* day, as many who read this can the present with the year 1810, will have abundant reason to exclaim, "the half was not told us;" and by way of illustrating in a very small degree the truth of our predictions, we will state a few facts in relation to the increased value of property. The building, a mere shell of an old rookery, in which this Journal is published, was leased in 1816, during a life, for \$500 per annum—it now rents for \$2000! more, *we very sensibly feel*, than it is worth, with the

government between distant portions of the republic; and as a route for the speedy and regular transportation of the public mails; and that as such it merits the favorable regard of the National Authorities.

Resolved, That the citizens of the southern tier of counties, from their liberal support of the Erie Canal, and other public improvements, from the construction of which they have derived no advantage, while other portions of the State have been enriched and made prosperous, have strong and irresistible claims upon the Legislature for a just share of its patronage and bounty; That we recommend to the citizens of said counties, and the counties adjacent, that immediate measures be taken in each respectively, to press upon the Legislature their claims upon the State in the construction of the contemplated Railway.

And, whereas, we are advised and believe, that in case the Legislature will pass a law, authorizing a subscription of two millions of the stock, or loan its credit to that amount for the benefit of the Stockholders of said Railroad Company, that the residue will be taken by individuals in the city of New York, and along the line of the proposed road, and the work immediately progress to a completion. Therefore

Resolved, That this Convention do memorialize the Legislature of this State at the ensuing session, for the passage of a law authorizing said subscription or loan, as shall by the said Legislature be deemed most conducive to the public interest.

Mr. Gibbs, from the Committee appointed for that purpose, reported a memorial, a copy of which is annexed to these proceedings. Whereupon it was unanimously

Resolved, That the said memorial be adopted, and that the same be signed by the members of the Convention.

Resolved, That we earnestly and respectfully recommend to the citizens of the southern tier of counties that petitions in accordance with the views and objects of this Convention, as expressed in its resolutions and memorial, be immediately prepared and circulated in all of the said counties with a view to an early and efficient application to the Legislature at its ensuing session.

Resolved, That William S. Hubbell, William W. McCay, and Henry W. Rogers, of Bath, in the county of Steuben, be a Central Corresponding Railroad Committee.

Resolved, That the proceedings of this Convention be signed by the officers thereof, and that the editors of the several newspapers in this State be requested to publish the same.

The following is an account from the Troy Budget of the Railroad now constructing between Troy and Ballston.

The road leaves Troy at Federal street, by the aid of the bridge which crosses the Hudson river, extending from that street to Green Island. The length of the bridge is 1660 feet. It forms eight arches, exclusive of a capacious draw section. The piers, or abutments, are cut stone from Glen's Falls, Poughkeepsie and Amsterdam. The bridge will stand 30 feet above high water mark. Its frame, built of timber, will be 34 feet wide, and well covered.

From the bridge to Waterford, four and a half miles, the railroad crosses three spouts of the Mohawk river upon durable bridges erected upon stone abutments. Passing directly through Waterford the road follows along the margin of the Hudson to Mechanicville, eight miles. From thence it verges and runs westerly twelve miles to Ballston Spa.

The whole line of the road from Troy to Ballston, save one mile of easy construction, is graded and prepared for the reception of the rails.—The greatest ascent in any one mile on the line of the road is 25 feet. On the first 12.2 miles, from Troy to Mechanicville, the average ascent is less than 10 feet per mile.

The rails are to be of timber, laid on cedar sleepers, and covered with the usual iron-plated rails. These have been ordered long since, are supposed to be on shipboard now, and will doubtless be here early in the spring. Such is the pre-

pointed to nominate officers for the convention. Whereupon the chair appointed Messrs. Davenport, of Steuben, Charles, of Allegany, Smith, of Chataque, and Arnett, of Tioga, who reported the following nominations, viz.:

Hon. Stephen B. Leonard, of the county of Tioga, President;

Hon. Israel Day, of the county of Cattaraugus, and Alpheus Hawley, Esq., of the county of Chataque, Vice Presidents;

Henry W. Rodgers, of Steuben, and Anson Gibbs, of Cattaraugus, Secretaries; who were unanimously appointed by the convention.

The convention was then addressed by several gentlemen relative to the object for which it was called. Communications from highly respectable citizens residing in the counties of Tompkins, Broome, Chenango, Otsego, Delaware, Orange, Sullivan, and New-York, were read and submitted to the convention; from which it appeared that meetings had been held in each respectively, and in most of them numerous delegates appointed to attend this convention; but in consequence of the inclemency of the season, bad state of the roads, and the short notice given, the delegates would probably be unable to attend.

Committees were then appointed to prepare resolutions, and a memorial to the Legislature; which, after a short time, were reported, read, and adopted. Annexed, we give the preamble and resolutions. The memorial has not yet come to hand.

Whereas, we contemplate with just pride and pleasure the sagacity which conceived, and the wisdom and policy which consummated, that splendid monument of the enterprise of our State—the Erie Canal—an enterprise the completion of which constituted and continues to constitute one of the brightest eras in the history of this State, and which has given our country renown, even beyond the Atlantic,—and

Whereas we deem a judicious continuation of that grand system of Internal Improvements which has hitherto been so successfully practised, and the rich benefits of which are every day more and more signally developing themselves, to be in accordance with the dictates of sound policy, as well in regard to the already conceded high reputation of our State for public spirit and enterprise, as to the prosperity and permanent interest of our citizens,—and

Whereas several rival works are now in contemplation, and some of them rapidly advancing to completion, leading into the State of Ohio from points on the Atlantic seaboard south of the city of New York, with a view to divert from that city the extensive and lucrative commerce which it has hitherto enjoyed with the rich and rapidly increasing States and territories north of the Ohio river, avowedly relying upon the greater severity of climate and more northerly latitude of the State of New York, closing the navigation of its canals during so large a portion of the year, —and

Whereas we deem it due to the character of the State, and to the interest of its enterprising citizens, to guard as far as may be, against those rival interests, by using the means which we have in our power, and availing ourselves of the advantages which nature has liberally placed within our reach, and believing as we do, that these objects can in no way be so effectually accomplished, as by the construction of the contemplated Railroad from the city of New York to Lake Erie, through the southern tier of counties, —Therefore.

Resolved, That the proposed work commends itself with peculiar force to the people and to the Legislature of this State, and should excite zealous, vigorous and immediate action—that from its great extent, running as it will, if constructed, through the entire State from east to west, embracing in its route a fertile country, rich in natural resources, as yet but partially developed, and being strongly identified not only with the prosperity and interests of the State, but in the opinion of this convention, partaking largely of a national character and importance, as an avenue from the Atlantic seaboard to the waters, States, and Territories of the west, and to the public lands; as a medium of direct and rapid communication for the military force and munitions of the

present accommodations; yet not 7 per cent. upon what it would sell for at auction to-morrow, even without any building upon it, for it would be worth more without, than with, the present building, if it could be sold. We might also refer to the lot next but one adjoining us, corner of William street, which does not contain but a little over half as many square feet, but has two fronts—which was sold in 1823 for \$17,500, in 1833 for \$41,750! and again, as we understand, a few days since for \$56,000!! What, we would ask, has produced this immense increase in the value of property in this city? Is it not the increase of business? And what, pray, has tended to increase the business to such an enormous extent? Is it not the increased facilities for its transaction, the improved state of our country, and its fertility of soil? Admit this, (and who will dispute it?) have we not as wide a field for enterprise, and twice the enterprise and energy—arising from experience? What then, we ask, will be the value of real estate in this city a quarter of a century hence, should these two great works of internal improvement receive the favorable action of the present Legislature, and be completed at an early period? It would be increased to three times its present value. Who then, we ask, are more interested in their success, than the owners of real estate in the city of New-York? Let them come forward, then, and show that they appreciate their highly favorable position, and are willing to labor in the cause.

RAILROAD CONVENTION.—Proceedings of a Convention of Delegates from the southern tier of counties of the state of New-York, friendly to the construction of a railway from the city of New-York to Lake Erie, held at the Court-House in Bath, in the county of Steuben, December 17th, 1834.

The convention having duly assembled, was called to order by Mr. Dickinson, of the county of Steuben, whereupon Henry M'Cormick, Esq., of Tioga, was appointed Chairman, and Anson Gibbs, Esq., of Cattaraugus, Secretary pro tempore.

The roll being called, it appeared that the following named gentlemen were in attendance as delegates, viz.:

Walter Smith, Alpheus Hawley, Walter Chester, Israel Day, Anson Gibbs, James Stratton, Samuel Harvey, Timothy P. Guy, C. S. Shepard, Daniel Heartwell, Ira Smith, Jonathan Nobles, John G. Collins, Alexander S. Diven, Jesse Angel, Richard Charles, Robert Haight, John B. Church, W. R. Smith, William P. Angel, David Ward, John Arnett, Stephen B. Leonard, Henry M. M'Cormack, Sam. Partridge, Levi J. Cooley, Francis Smith, Wm. W. M'Cay, Henry W. Rodgers, Wm. Kernan, Henry A. Townsend, Ira C. Clark, Wm. Woods, David M'Master, Joseph G. Masten, Wm. Goff, Ira Davenport, John R. Gansevoort, John E. Evans, Levi Davis, Henry S. Williams, John Magee, George C. Edwards, Henry Switzer, James Manderson, George McClure, Wm. J. Neely, Wm. D. Knox, Chauncey Hoffman, James Baldwin, Daniel Groton, David Edwards, Stephen Townsley, Anson Cook, Wm. Card, Isaac Santee, Andrew B. Dickinson, Wm. Stephens, James M'Burney, John W. Whiting, Paul C. Cook, Aaron W. Beach, Seth Wheeler, Johnson N. Reynolds, Burgice Rice, Wm. Baker, Peter Disbrow, John Dow, Wm. H. Lybolt, Matthew M'Dowell, Andrew G. Chatfield, and Theodore Titus.

On motion,

Resolved, That a committee of five be ap-

gress of the work, that the Directors, the Engineer, and the contractors are all confident that the whole line will be completed and ready for the public accommodation by the 15th day of June next.

The Company have contracted for two locomotive engines, to be manufactured in Philadelphia, on a new and, it is believed, much improved model—a model or plan, deemed by the Engineer, who has examined it, superior to any now in use in this country or any other. Eighteen passenger cars and twenty cars for freight and baggage, are also under contract in this city.

Upon Green island, which, by the bridge, is connected with the city, a site has been selected and laid out for a large business place. It is called "North Troy," and a map of it may be seen in many public places, in Troy Albany and New York. We cannot see why in may not populate most rapidly and in a short time become a flourishing ward or village.

The capital of Rensselaer and Saratoga railroad Company is \$300,000, and this sum, it is believed, will be nearly sufficient to complete the 241-2 miles of the railroad, erect a bridge across the Hudson, and three bridges across as many spouts of the Mohawk. Where has a railroad been constructed at so small an expense? The Mohawk and Hudson Railroad, about fourteen miles long has cost nearly \$900,000.

VICKSBURG RAILROAD.—We have been informed that about four hundred thousand dollars have been subscribed in the town of Vicksburg, to the railroad bank. A gentleman just from Clinton informs us, that two hundred thousand have been subscribed at that place, and we feel pretty confident that more than one hundred thousand dollars will be subscribed in this. Before the bank can go into operation, the charter requires that five hundred thousand dollars must be subscribed, and one hundred thousand paid in, so there is a very fair prospect of the bank's beginning operations in a very short period, and of the railroad from Vicksburg by Clinton, to the seat of government, being at least commenced.

Our neighbors of Natchez also are beginning to see the importance to them of a railroad to the interior of the state. They have a port of entry, and require some mode of conveyance for cotton to their wharves. Delegates have been appointed from our town to a railroad convention soon to convene in Copiah county, for the purpose of considering the propriety of constructing a road from Natchez to the interior, and we have but little doubt the work will be accomplished. We are pleased to see such a spirit abroad in the land.—[Jackson Mississippian.]

THE RAILROAD FINISHED.—It affords us pleasure to be able to announce to the public the completion of the Tusculumbia, Courtland, and Decatur railroad.

On Monday last, the cars passed through the whole line to Decatur, 45 miles, and have since been actively engaged, both day and night, in the heavy transportation of cotton, merchandize, &c. The unusual activity which has been thus imparted to trade and business of every kind, through the whole line of the road, embracing one of the most fertile and beautiful sections of the state, cannot but be highly gratifying to those who, by their public spirit and untiring exertions, have secured to North Alabama commercial facilities of such incalculable value. Our farmers now have the means of availing themselves of the highest prices for their cotton; the great barriers to a direct market are effectually removed.

Thirty odd cars are now in operation on the road, but we understand the number is quite inadequate to the amount of business required immediately to be done. Other

cars are being prepared at the railroad foundry, and another locomotive has been received at New Orleans from Liverpool, which is daily expected at this place. In a few weeks, it is thought, the facilities for transportation will be so increased, as to enable the company to render prompt and efficient attention to all the business which may be required on the road.

Expecting at a proper time to be officially furnished with facts and estimates in regard to the cost, profits, &c., of the road, we shall forbear at this time any speculations of our own. It may not be amiss, however, to remark, that upwards of 25 miles of the work have been made during the last year, at an average expense of something less than \$4,500 per mile.—[North Alabamian.]

M'ADAM ROADS.—The following extract from a letter written by J. LOUDON M'ADAM, Esq., who has probably done more than any other man living towards improving the "ways" of his country, will, we hope, be read attentively, and practised upon successfully, by Americans.

To the Editors of the Journal of Commerce

Gentlemen,—Happening to mention, in a letter to my friend and connexion, Mr. Loudon M'Adam, that I was about to construct a road for an approach to a country house, and that a hint from him might be of use, he has very good-naturedly sent me a reply which may be deemed the result of his great experience on the subject of road-making. There is so little apparent resemblance between the roads that are termed M'Adamized here, and those of England, that I am induced to send you an extract from his letter, in the hope that it may be of use to the public. A SUBSCRIBER.

"A road should not be sunk below the adjacent ground, as is too common, but rather elevated above it, if possible.

"The ground upon which the artificial road is to be placed, called by us the *bed* of the road, must be made quite dry, and must be kept always dry.

"There are two sources of wet which are to be avoided—under-water, which oozes from the adjacent soil, and which is the most mischievous and the most difficult to be dealt with, and rain water, or that which comes from above. The first must be kept out by side drains, that are several inches lower than the *bed* of the road. They may be open or covered, according to circumstances. A well constructed road will no more admit rain water than it will find its way through the roof of a house.

The road must be constructed by first shaping the *bed* into the form of a road, having a slope from the centre to the sides of not more than an inch in a yard. This *bed* is to be covered with three coats of broken stones; each coat is to be three inches thick, making nine inches in all, which will settle to seven inches. This covering, laid upon a *clay bed*, will carry any weight that could be brought upon a road. Each of the two first layers of stone must lie to be compressed by the *tréfic*, or if there be no *tréfic*, by a roller, until it gets to be nearly solid, and yet not so solid as to prevent its incorporation with the succeeding coat or layer. This is a nice point; and practice alone can ensure its being well executed. In the absence of this practical skill, you must, of course, make use of your own judgment.

"After the road is made, it must be closely attended to, until it is quite smooth and solid, by a man, or men, whose business shall be to rake the stones after every

wheel-track, in such a way as completely to erase every sign of a rut. But as yours is to be a private road, I recommend the use of the roller, both to settle and smooth the lower coats, so as to be ready to receive the upper, and to compress the upper until the passage of a wheel shall make no impression.

"The stones should be broken so that no piece shall exceed *three ounces* in weight, and to leave as many and as sharp angles as possible. These angles are the means of rendering a road solid. Use no gravel of any size or description *unbroken*. Smooth stones of any size will not become fixed, and your road will loosen. I have not allowed any stone above three ounces in weight to be put on the Bath or Bristol roads* for the last three years, and we have found the benefit of the plan in the smoothness and durability of our work, as well as in economy. Do not allow any one to persuade you to *try coats of stones of different sizes*, as is often done. Larger below and smaller above is plausible and fanciful, but it never succeeds. The stones change places, the larger getting uppermost, and by moving these, they keep the road loose, and admit the water, &c. &c."

We learn from the Charleston Mercury that a young man in the employment of Messrs. Sykes & Sons, Sheffield, England, has made a steam engine which weighs seven ounces. It is so perfect, that with a spirit lamp and two table spoonfuls of water, it will go at the rate of a thousand strokes a minute, and will continue to work until almost the last drop is expended.

Surprising Swiftmess.

M. Delisle has observed that a fly, so small as almost to be invisible, ran over a paper of almost 3 inches in half a second. It was so small that its feet might be reckoned to apply themselves successively upon the whole space that it ran over. And as it appeared to M. Delisle that they might be one-fourth of a line in bigness, it made in the space of a line 15 steps, or 15 motions, and, consequently, it made 540 in the space of 3 inches. How nimble must it be to remove one foot above 500 times in half a second, or more than 1,600 times in one of the common pulsations of our arteries!

Proposed Suspension Bridge between New-York and Brooklyn.

To the Editor of the Railroad Journal, &c.

SIR,—Having occasion to cross the East river every day, between New-York and the neighboring city of Brooklyn, I have been forcibly struck with the many inconveniences attending the present mode of communication between those cities, and have been led to consider whether some less objectionable plan could not be devised. The system of ferriage is extremely well adapted for establishing communications between places separated by a river, when the breadth of that river is so great as to render it impossible to construct a bridge over it, or when the intercourse between those places is so small as to render the construction of a bridge an unprofitable spe-

* Mr. M'Adam commenced his experiments as an amateur, on these roads, and he still retains the superintendence of them.

culution; but in all places where neither of these objections obtain, it ought to give way to the more perfect mode of communication afforded by permanent bridges. My object, therefore, in now addressing you, is to show, through the medium of your valuable Journal, that the construction of a permanent bridge over the East river, between New-York and Brooklyn, is not only practicable, but would be a profitable speculation for any company to be engaged in.

It is evident, that in preparing a design for a bridge in this particular situation, we must keep in view the necessity of interfering as little as possible with the navigation of the river. No bridges are so well adapted to fulfil this condition as those on the suspension principle. For large spans, they are also less expensive. I would therefore propose the erection of a *Suspension Bridge*, as shown in the accompanying sketch.

From the maps of New-York, I find the breadth of the East river, opposite Fulton street, Brooklyn, is about 2000 feet. This I would divide into five openings—the central one of 500 feet, and the others of 315 feet each; these, with the thicknesses of the piers, will make up the whole breadth of the river. According to a chart in "Blunt's Coast Pilot," the central depth of water is $5\frac{1}{2}$ fathoms, or 33 feet. The height, from the under side of the road-way to the level of high water, I have taken at 70 feet: this would, I believe, be a sufficient height to allow nearly all vessels to pass under without lowering their masts, but, if not, it may be increased to the necessary height, without any other difficulty than that of increasing the expense and the ascent of the road-way, both of which it is advisable to keep down as much as is consistent with the free navigation of the river. At the proposed height of seventy feet, the uniform ascent of the road, supposing it to commence on each side at 10 feet above high water level, would be but 1 in 16 $\frac{2}{3}$, which is much less than the rise given to many bridges. The breadth of the platform of the road-way I would make 34 feet, giving 12 feet on each side for a carriage way, and 10 feet in the centre for foot passengers.

In order to prove the practicability of the construction, a reference to what has already been performed in this branch of engineering will suffice. The first difficulty to be contended with is one that an engineer of ordinary practical skill will easily surmount—I refer to the laying the foundations for the suspension towers. These must be done in coffer dams, and will necessarily be attended with considerable expense. On reference to the published accounts of the bridge over the Schuylkill at Philadelphia, it appears that one of the piers of that bridge is founded in a depth of water of 41 feet 9 inches: this, according to the data we have been able to obtain, exceeds the depth of the East river by several feet.

The distance between the centres of the suspension pyramids of the bridge

erected by the late Mr. Telford, in Wales, over the Menai Straits, at Ynys-y-moch, is 579 feet 10 $\frac{1}{2}$ inches. The distance from centre to centre of the suspension towers, in the central opening of our design, we propose to be 545 feet, purposely keeping it a few feet under that of the Menai bridge, in order to prove the practicability of its construction by a reference to works already executed: it being evident, that if a suspension bridge of 580 feet span has been erected, others of less openings can also be constructed.

It was my intention, on commencing this article, to have entered more fully into the details of construction, and to have made an estimate of the expense of the bridge; but, on further consideration, I will defer this part of the subject to a future number, (if you consider the matter of sufficient importance to occupy your pages,) as perhaps some of your readers may be in possession of the correct soundings of the East river in the situation referred to; if so, and they will be good enough to favor me with them, the estimate will be made with more correctness.

It will be seen by the sketch, that I have supposed the bridge to take its rise immediately from each shore, but it is evident that a more magnificent design might be formed were we to commence the rise 1000 feet back from each shore, by the formation of a solid road-way to the water's edge; the ascent would then be but half as great, and less obstruction would also be given to the shipping, as

then the greater number of vessels might pass through the side openings without lowering their masts, whereas, in the present design, all the taller ships must pass through the central opening. This would be decidedly the best plan, and would be attended with, comparatively, little additional expense, as the span under the road-way might be appropriated for stores; but as it would require the streets at each end to be very wide, I have thought it better to give a design which is independent of this circumstance.

The rapidly increasing intercourse between New-York and Long Island will, probably, soon require the formation of a wide street leading from Broadway. What a beautiful connection would such a bridge, as is here described, form between this supposed new street and Fulton street, Brooklyn! It would altogether be one of the most magnificent suspension bridges in the world.

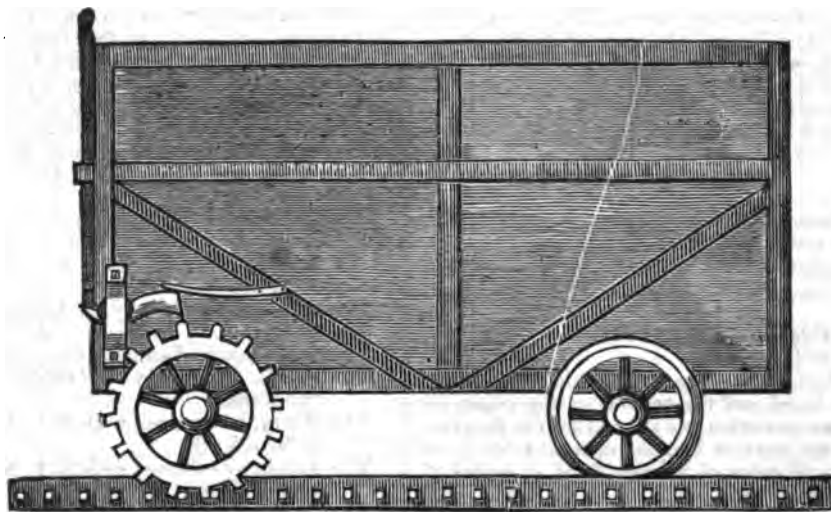
A design of a still more magnificent character might also be formed by extending the central opening to 1000 feet. A bridge of this span has been declared practicable by the late Mr. Telford, and some of the most scientific men in England.

I am, sir, yours, respectfully,

W. LAKE,
Civil Engineer and Architect,
23 Nassau street.

December 9, 1834.

P. S.—A drawing on a larger scale than the accompanying sketch may be seen at my office.



[From the London Mechanics' Magazine.]
Improved Carriage-Stopper for Inclined Planes.

SIR,—I am perfectly convinced of the propriety of Mr. Deakin's remarks, the value of which has induced me to forward the accompanying sketch of a stopper, to prevent the descent of carriages upon *inclined planes*; one of the advantages of which will be, that several of them may be introduced, if required, in the same train, thereby dividing the load, or preventing danger, if any of the coupling chains should break. The falling catch (the action of which may readily

be perceived) has a spring to press it upon the wheel, and secure a correct movement. The rod behind is for the purpose of raising the catch, if not in use, as upon the levels, which may be changed by a very simple contrivance, and save the necessity of doing it by hand. The teeth of the rails would be preferable, and are designed for the inside, but are here shown for convenience of delineation. Trusting I have not trespassed upon your limits and patience, I remain, sir, your obliged servant,

JAMES WOODHOUSE.
Kilburn, Oct. 31, 1834.

Semi-Annual Report of the Direction of the South-Carolina Canal and Railroad Company, to the Stockholders, October 31st, 1834, with Accompanying Documents.

The following Report gives a favorable account of the condition and prospects of this important line of road. We are pleased to learn that they are now constructing embankments with all proper dispatch, wherever the road is built upon piles.

REPORT OF THE DIRECTORS.

To the Stockholders, &c.

The Directors of the South-Carolina Canal and Railroad Company herewith present to the Stockholders, a Balance Sheet of the Books of the Company, made up to the 31st of October, 1834, by J. T. Robertson, Secretary.

An Inventory of the property of the Company, in Lands, Buildings and Negroes, (together with the number, condition and value of the Locomotives, Tenders, and Tanks, Passenger, Burthen and other Cars, Wheels, Axles, Springs, Old Materials, and all other property appertaining to the Workshops at Charleston and Aiken, as reported by Mr. E. K. Dodd, Master of the Workshops,) amounting to \$227,342.76.

A statement, showing in detail, the business done on the Road for the last six months of the year, ending 31st October, by which will be seen the number of Passengers conveyed, the amount of freight and passage money, and the number of Bales of Cotton in each month, by H. Ravenel, Auditor.

And a Report upon the condition of the Road, and the general arrangements for Transportation, by H. Allen, Chief Engineer and Superintendent of Transportation.

By the General Balance Sheet, the total expenditure upon the Road, for Surveys, Buildings, Labor, Material, Machinery, Salaries, and Negroes bought; up to 31st Oct., 1834, is shown to have been \$1,336,615.09

The Receipts from
Stock subscribed, \$900,000
And from business
done, &c. 180,907.51
1,080,907.51

Leaving the Company in debt, \$275,707.58
To which is to be added, for one
month's Salaries and Negro
hire up to 31st Oct., 9,074.20

Making total debt on 31st Oct., 1834, \$284,781.78

And, by the Report upon the condition of the Road, and the general arrangements for Transportation, we learn from the progress of the work of Embankment, that there are now 65 miles of Surface Road, of which 27 miles are filled up level to the Rails; and that such arrangements are made in the Transportation Department as promise general satisfaction.

The work being near completion (one Cotton Depository and several buildings being still wanted) and in profitable operation, the debt due by the Company should cause no anxiety, as a steadily increasing business authorises the belief that it will now gradually decrease, without hindrance to reasonable periodical dividends. Notwithstanding an unusual combination of unfavorable circumstances during the past Summer, the interruption of our intercourse with New-York by Cholera, its appearance at Augusta, the existence of Yellow Fever here, and the want of Locomotive power, all operating directly and seriously against

us, our gross receipts from the 1st of May have been \$83,445.42; and we do not hesitate to express the opinion, that but for the circumstances above enumerated, they would have been \$10,000 more, on passage money alone. The recurrence of such visitations, we may never again witness, and measures being in progress to secure Locomotive Power, our hopes of higher Revenue, during the Summer, for the future, are reasonable, and we trust may be realised.

Since the meeting in May last, two improvements of value have been completed, to wit: A Stationary Engine, by which the labor and expense of our Workshops are greatly reduced, and a Depository, for the reception of up Freight; the arrangement of which facilitates loading, and enables us to forward Freight in the order, as to time, in which it is received. A Cotton Depository being under contract, will soon be erected, near that just described, when the buildings at Line Street will be appropriated exclusively to the construction, repairs, and protection of Engines, Cars, &c.

Agreeably with a recommendation, approved at the last general meeting, the 1,185 Shares, then held by the Company, have been sold, and the proceeds applied to the purposes of the Company. The two Locomotives then reported as looked for shortly, from Mr. E. Bury, of Liverpool, arrived on the 9th September, were immediately placed upon the Road, and we are happy to say, have performed with great profit to the Company and credit to the builder. Four others, ordered from England, on the 3d March last, are expected soon to arrive, when we shall have ample power for present purposes. In anticipation of a great increase of business, an order for six Engines was forwarded on the 4th inst. to Wm. C. Molyneux, Esq., of Liverpool, to be executed with despatch; and arrangements are in progress here, to convert the boilers, and such other parts as are suitable and good, of the Charleston, Barnwell, and South-Carolina, into Engines, upon 4 or 6 wheels. The Board, after much and minute investigation, being of opinion that Six durable Engines of considerable power can be constructed out of the materials, which would otherwise be useless and lost.

The Locomotives now in use are twelve in number, to wit:

The Edgfield, by R. Stephenson & Co. of Newcastle.

The Augusta, by E. Bury, of Liverpool.

The Georgia, do. do.

The Columbia, by Fenton & Co. of Leeds.

The E. L. Miller, by M. Baldwin, of Philadelphia.

The Horry, by contract with E. L. Miller, of New-York.

The Aiken, by contract with E. L. Miller, of New-York.

The Native, by Eason & Dotterer, of Charleston.

The Hamburg, by the West Point Association.

The Edisto, by the West Point Association.

The Phoenix, rebuilt from our own Workshop.

The Constitution, rebuilt from our own Workshop.

Proposals have been made to carry all the Mails that the Post-Office Department may find expedient or advantageous to send upon the line of Road, for the term of four years, from the first of January next, at the rate of \$15,000 per annum. The result of which cannot be known before the 5th.

Agreeably with the notice by the news-

papers, of a public sale of Town Lots at Aiken, the same took place on the appointed day, when 67 Lots were sold, of which no returns have yet been made.

It gives us pleasure to add, that a rapidly increasing trade, the establishment of new houses of entertainment, and the healthfulness of the location, promise soon to make this a place of considerable importance.

Of the accidents which have occurred on the Road, some notice may be expected. We therefore report, that they have originated chiefly in the breaking of Axles under the Tenders and Freight Cars, which experience has shown were too light for the burthen they were required to sustain. That immediately after the first accident to the Axle of the Freight Car, orders were given to increase the size of 100 sets just then contracted for, of which about 40 sets have subsequently been received; and further to ensure safety, directions were given to lessen the weight of each Carload, to be ascertained and adjusted by passing over scales—which will soon form a part of the Road at the Depository.

In conclusion, the Board feel authorised to congratulate the Stockholders on the favorable prospects of the enterprise. A work of such extent, requiring the highest order of mechanical experience and skill, can no where be perfected at once. Occasional failures, delays and losses, are to be expected. No Road in the world is exempt from them, and in proportion to the length of ours, and the numerous difficulties we have had to contend with, we believe that our success is at least equal to that of any other Road of the same class.

Respectfully submitted by the Board.

JOHN RAVENEL, President.

REPORT OF H. ALLEN.

To the President, &c.

GENTLEMEN: At the request of the President, the following information, as to the Road and Transportation Departments, is herein communicated, together with the statements of Mr. Dodd, Superintendent of Machinery, as to the Department under his charge.

I have the satisfaction of reporting, that the system of management adopted for the care and gradual improvement of the Road, continues to effect those important objects in an efficient manner. The details of that system having already been fully communicated, a repetition is therefore unnecessary. Within the last six months, we have been able to carry more effectually into operation the views of the Board, as to the filling up of the Road and the gradual introduction of embankments. A portion of the work of this character has been carried on in cases where the earth could be conveniently obtained at the sides, and the filling in be effected without the use of Embankment Cars, by small contracts with individuals, residing on or near the line of Road. It is found that for all such cases, this is decidedly the most judicious plan, and it is intended to provide for all similar work in the same way. For the removal of work by Embankment Cars, when such are necessary, it is necessary that the force be employed by the Company under competent overseers. In many cases it is expedient to employ horse power for transporting the Cars, and it is believed that it can be done with facility, economy, and with such yearly progress as the Board may decide on.

There are now 65 miles of Road "Surface Construction," of which 27 miles are filled up level with the Rails.

A careful examination of the piles and other wood work has been directed and made within the last two months; which has resulted in the satisfactory reports, that apparently almost the entire Road exhibits few signs of decay, and that the few exceptions are where the timber was originally inferior, or where the Road runs within the first six miles through the dry sand ridges. To all such cases close attention is paid, and in filling up the Road, a particular attention is had to the relative state of the various parts. It is especially satisfactory to know that where the Road is elevated, in consequence of its passing over low grounds, the piles remain unimpaired, and possess to all appearances the same strength and security that have so long stood the test of long trains of Cars and Engines, heavier than it was originally intended to use.

It is also a highly gratifying fact, that of the accidents that have occurred on the Road, not one, to this day, can be attributed to a failure or defect in the Road. It may not be uninteresting to have stated what have been the sources of those accidents that have occurred.

They have been found in three causes. 1st, From the improper position in which the gates and crossing rails of the turnouts were in, when the Engines or Cars have attempted to enter or leave the passing places. Such are therefore attributed to the neglect or mismanagement of the attendants at the turnouts. Our efforts and arrangements to remove this source of accidents, have been nearly successful, and it is believed they will be hereafter of rare occurrence.

Another source of accident has been in the running one Engine against another, and, in some instances, against animals that cross the road before the Engine.

It is however principally from the breakage of Axles that most of the accidents have originated. It is probable that the use of high Cars and elevated loads of Cotton have occasioned the breaking of the same sized axles that have previously, with the low cars, been found adequately strong. Measures were taken some time since to guard against such breakage, by reducing the loads carried by the present cars, and having all the new axles made of larger dimensions.

The breakage of axles on our Road has proved a source of greater inconvenience than was expected, in consequence of the structure of the Road being such as to permit the broken parts of wheels or axles, when they dropped, to become entangled with them, by which means, as the Engine continued to advance, much of the Road may be deranged, and thus the evil be extended to other Cars. It is in reference to this attendant evil (and it is one which frequently may be greater than the original one,) that it becomes of peculiar value that the extent of surface be increased as much as possible, and it is a consideration of great weight, not only that the Embankment operations be carried on at an earlier day and with greater progress than was originally intended, but that all parts of the Road, which can be easily filled up, should be rendered secure in this respect as soon as possible.

The use of Engines occasioning a greater weight in one point than was originally calculated upon, has in some instances gradually pressed the iron plates into the wood; and where the timber has been inferior, rendered a new surface necessary. This is readily done, and is attended to by the overseers and their assistants.

In the Transportation Department much

improvement has been effected in reference to the security of goods from fire and wet, and as our steam power and cars are becoming more adequate to the demands for transportation, greater regularity and certainty is gradually introduced. Manifest advantages as well as economy have been experienced from the new arrangements for the receipt, loading and forwarding goods at the new Depository in Mary street. By means of them, goods are loaded in the order in which they are received, the cars are put in train and dispatched in the order in which they are loaded, and the same order of Cars preserved throughout the line. Thus goods will be delivered at the place of destination in the consecutive order in which they were received. Similar arrangements will be eventually necessary at the more important Depositories. Those for Hamburg, the contracts for the construction of which were entered into some time since, it is expected will soon be in operation, and it is believed generally to the benefit of the Company, and to the dispatch of their business.

Several minor arrangements, having in view the improvement of operations in the Transportation Department, are in progress, and it is hoped ere long, that Department will approximate in its transactions to that regularity and certainty that appears to be expected in a peculiar degree from Railroad transportation. Respectfully submitted.

HORATIO ALLEN.

October 31st, 1884.

Statement of the number of passengers conveyed on the Railroad, the number of bales of cotton brought down on it, with the amount received from freight and passage for the six months ending October 31st, 1884.

	No. bales cotton	Amount of Freight.	Passengers.		Total Amount Received.
			No.	Amount.	
May	3,103	8,545 63	3,401	10,363 72	18,909 35
June	1,679	5,624 20	2,672	6,783 66	12,407 86
July	655	3,581 35	2,556	5,164 66	8,746 01
August ..	1,161	5,304 01	1,652	3,624 08	8,928 09
September	1,844	10,411 79	1,188	3,044 52	13,456 31
October ..	4,314	13,837 99	2,156	7,159 81	20,997 80
	12,756	47,304 97	13,575	36,140 45	83,445 42

Statement showing the Current Expenses of the Road from 1st May to 31st October, 1884.

Expended in Cash, on the current charges against the business done, say in wages, repairs, &c.....	\$43,061 11
Amount of debt due 31st Oct., 1884, as per ac't. c't.....	\$275,707 58
Amount of debt due 1st May, as per ac't.....	168,715 26
Increase of debt from 1st May to 31st October.....	\$106,992 32
Increase of Machinery and other property shown by excess of amount of inventory of 31st Oct. over that of 1st May, 1884.....	\$92,475 82
Construction of road from Ln. to Depot.....	4,000 00
Embankment.....	6,000 00
	\$102,475 82
Showing the difference which has also been expended in current charges against the road.....	4,516 50
Add amount of Salaries, P. Rents, &c. for month of October.....	9,986 06
Making a total of current expenses.....	\$57,508 67
Excess of Receipts over current expenses from 1st May to 31st October, 1884.....	\$5,941 75
Receipts of Road from 1st May to 31st October, 1884.....	\$63,445 42

DELAYS IN CHANCERY.—We frequently read in American papers sneers upon the interminable doubtings and delays in the English Court of Chancery, which would seem to imply that in that particular we are better off. The fact is, however, with respect to this State, that a case in Chancery, heard upon pleadings and proofs, cannot be brought to conclusion in less than TEN YEARS! We question whether my Lord Eldon doubted upon an average longer than this.

[From the Herkimer County Whig.]

THE RAILROAD.—On Tuesday last, the appraisers appointed to ascertain the value of the lands at this place, which the Utica and Schenectady Railroad have taken from R. R. Ward, Esq., after a session of about five weeks, made their report. They estimate the value of said lands at \$4,613. The average valuation which the witnesses on the part of Mr. Ward put upon the property, we understand, is between 17 and \$18,000, and the average valuation of the witnesses for both parties, upwards of \$12,000. It is evident therefore that the appraisers adopted a different rule of valuation from that of Mr. Ward's witnesses, and we believe different from that which the majority of our citizens consider the true one. We heard not much of the testimony in the case; but from what knowledge we have of the location of the railroad and the value of property at this place, we have formed an opinion that the appraisement is altogether too low. We believe the true value of that property to be just what it would sell for at public sale, with all attending circumstances, except that of the railroad passing over it; with the proper previous notice; the credit usually given upon such extensive dealings; and the power of obstructing roads, as much as the railroad will obstruct them. Now we believe that the said property so offered for sale, would command a price at least double that put upon it by the appraisers; not perhaps for the actual use of the purchaser, but for the purpose of re-sale to Mr. Ward. And we are well assured that after this matter is entirely settled, Mr. Ward, or any other person situated as he is, would gladly pay to the Railroad Company, ten thousand dollars for this very strip of land.

We are informed Mr. Ward intends to carry the case before the Chancellor for correction.

In the above notice we by no means intend to call in question the impartiality or the motives of the appraisers. The character of these men would repel any unfavorable imputation. But with proper respect to their opinions we merely offer our own, from doing which an editor cannot well refrain.

The following article is from the Westchester Spy.

POUGHKEEPSIE.—We like Poughkeepsie—perhaps because it has been our home, the scene of our boyish sports, the place where we were caressed and flogged, scolded, flattered, and drubbed into obedience. But no matter about the cause—as we said, we like the place, and on passing through it a few days since we were struck with the changes which have taken place in and about the village. There is indeed a spirit of enterprise and improvement awake which is making it one of the most beautiful and desirable locations within the circle of our acquaintance. Within a few years a great number of new and elegant buildings have been erected, the streets have been handsomely paved, the number of stores have greatly increased, and it has put on an active, stirring, business-going aspect, which is a sure indication of its prosperity. And if, as a western editor has remarked, "the business, character, enterprise, and advantages of a place may very accurately be estimated from its newspapers," Poughkeepsie will rank high on the list of flourishing villages, and present an improvement unparalleled in the oldest settled counties. It seems to us but a short time (we cannot say exactly how long) since the Poughkeepsie Journal and the Dutchess Observer, two small, blue, meagre-looking papers, were all that were issued in the village. Now there are four large and costly printed sheets, some of which, for the beauty of their appearance and the able manner

in which they are conducted, are scarcely surpassed by the best journals in the State.

With a large extent of rich, fertile, highly cultivated land to support it, Poughkeepsie must continue to increase its business; and should the inhabitants succeed in constructing a canal or railroad to Stockbridge, as they contemplate, it will open new sources of wealth and activity and give a new impetus to the growth of the place. Two whaling companies with a capital of \$300,000 each, have been chartered, the stock of which has all been taken up, and one of them is in successful operation with three ships at sea. A reservoir to supply the village with water in case of fire is also in progress, and measures are taken to procure a charter of a third bank, which it is thought will be obtained without much opposition.

The improvements on the north side of the village are particularly worthy of notice. Messrs. Oakly and Cunningham, who jointly owned the land, have laid out a new and beautiful street, and whilst we were in the neighborhood sold 36 lots at auction at an average price of \$300 each, besides several others at private sale. On these lots the purchasers design to build, and it is thought that this will ere long be the pleasantest part of the village. Besides, we perceive that the supervisors have taken measures for the erection of a new and elegant Court House, and an application will probably be made to the Legislature this winter to that effect.

[From the London Mechanics' Magazine.]

Steam-Carriage in Belgium.

ANTWERP, Sept. 28.—This day a trial was made with one of the locomotive machines which have just arrived in this country from England. It was perfectly successful. The carriage started at half past eleven, along the paved road from Antwerp to Brussels, and proceeded as far as Luytgen, where the company stopped for twenty-five minutes. At a quarter to one, the carriage had returned to Antwerp, and was running round the Place de Meir. Notwithstanding this speed, we observed that, on account of its being the first trial on our roads, the carriage was not allowed to go with any thing like the velocity of which it is capable, and we are assured that in future it will be allowed to run even much faster! All along the road the spectators, astonished at a sight so new to them, saluted the steamer with cheers and acclamations. This new carriage does not only run with extraordinary velocity, but it stops and turns and winds about in every direction with astonishing facility. This was particularly remarked during the evolutions on the Place de Meir, amidst crowds of carriages, horsemen, and pedestrians. Many persons had previously thought that the steam-carriage would be the cause of accidents by causing alarm to horses. This objection is proved to be chimerical; it was purposely put to the test in every possible manner. Horses were made to approach it in various ways, and not one, at any time, showed any symptom of fear. Both going from and returning to Antwerp the steam-carriage drew another carriage after it, full of passengers. *Mor. Herald.*—We believe the carriage here alluded to is that of Messrs. Squire and Macerone.

Anecdote.—An honest Hibernian, upon reading his physician's bill, replied to the Doctor that he had no objection to paying him for his medicine, but his visits he would return.

Fig. 1.

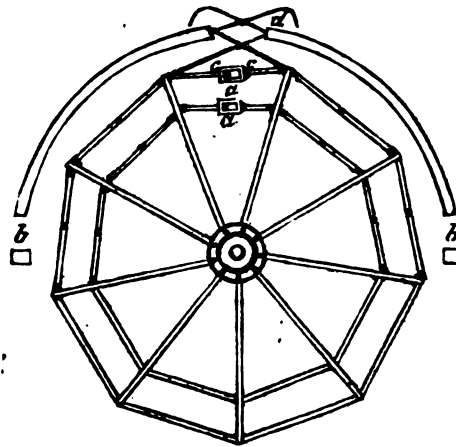
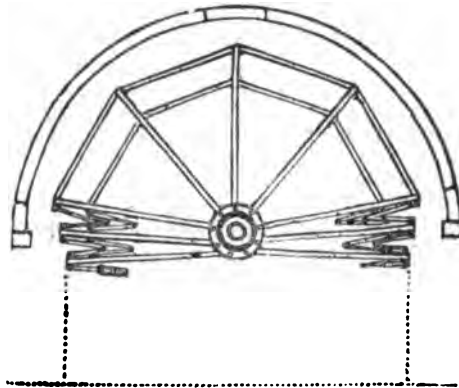


Fig. 2.



[From the London Mechanics' Magazine.]

Shifting Paddle Wheel.

SIR,—I send you the accompanying plan and description of a paddle wheel for insertion in your Magazine. The intention of it is to facilitate the withdrawal, and to remove entirely the wheel from the vessel in a few minutes. It has generally been admired for its simplicity; but from my not having means to produce it on a large scale, I take this opportunity of laying it before the public, imagining that in some cases it will be conducive to the general good.

The wheel is nearly similar to the ordinary one, with the exception of one segment of the boss being so constructed as to allow the radii arms there inserted to revolve on circular bolts, as may be seen in the upper part of fig. 1; and those revolving radii are connected by disjointed rims, which are of course flexible. The two upper radii may be separated by unscrewing the two shackle screws *a a*, which are for the purpose of bringing the moveable segment of the wheel tightly together.

Now, as the wheel is represented in fig. 1, it is connected and ready for use; and to remove it from the water, the screws *a a* are eased down, and the weight of the divided segments is allowed to come upon the tackles *c c*, which are attached to the two upper radii, and the top of the paddle box, through the two scuttles *d d*. They are then lowered down upon the standing part of the wheel, and lashed thereto with chains through the scuttles *b b*. The paddle is then caused to make a demi-

revolution, and is entirely withdrawn from the water, assuming the position of fig. 2.

I will now enumerate the advantages which I think would be derived from my invention.

First, should a vessel be running along a lee-shore, and an accident happen to her machinery, which renders it useless, the paddles could *entirely* be taken off the vessel in a few minutes, and she would be placed under canvass to keep her off the shore.

Secondly, should a steam-vessel be on a long voyage when the fuel must be economised, it would be easy to take advantage of every favorable breeze; or in running down a trade wind, to consume no fuel for days together.

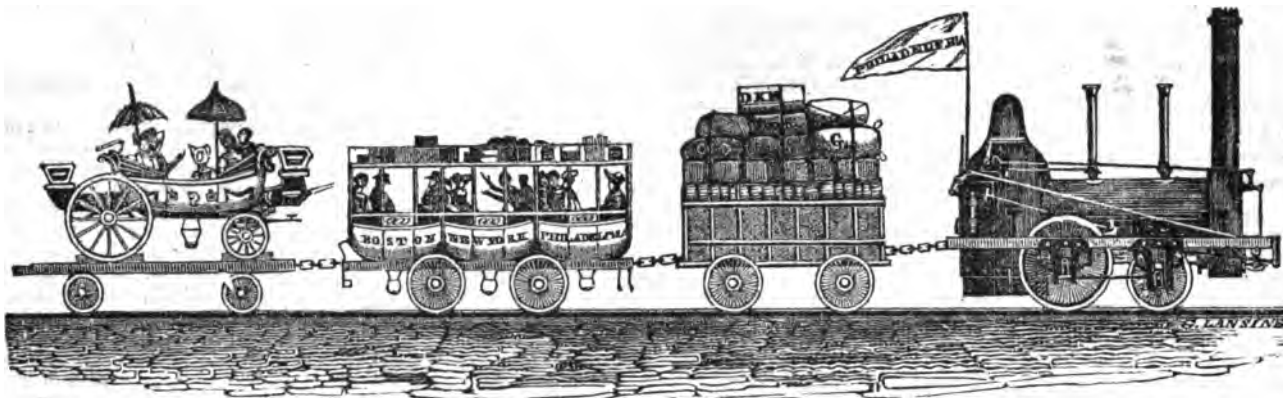
And, thirdly, it would be of great benefit to remove the paddles in case of exposure to ice, as in the Dutch or Russian steam-vessels, which have to encounter the destructive effects of the broken ice when the thaw commences. Or should a steam-vessel be again wanted for another Polar expedition, what an advantage it would be to her to be capable of immediately withdrawing her paddles, in case of being suddenly surrounded with ice, or again quickly applying them on meeting with clear water.

I have constructed a model with the flexible rims formed of crank chain, but which I have been advised to lay aside in favor of my original plan of jointed bars. Trusting it may be approved of,

HENRY CUNNINGHAM.

Cold Harbor, Gosport.

Sept. 15, 1834.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.

SATURDAY, JANUARY 17, 1835.

[VOLUME IV.—No. 2.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JANUARY 17, 1835.

✂ The Postmaster at Desmond, M. T., is particularly desired, after he has read the Railroad Journal, to put it again into an envelope, and forward it to the gentleman who has a right to open it.

✂ We again request those who desire missing numbers of the Journal to give us a list of them when they forward their subscription for the 4th volume.

✂ If "A Reader," or any other friend, will send us a copy of the letter giving an account of the progressing works of the Pacha of Egypt, or other works of internal improvement, we will publish them with pleasure.

To the Editor of the Railroad Journal.

SIR,

The comparison of the foreign and domestic tonnage of this port, with that of the Erie canal, furnished by the collectors of this port and Utica, published in your Journal, has led me to the inquiry of the trade beyond our own State, to and from Buffalo, for the years 1832 and 1833, where the singular fact is presented, that, out of the 967,000 barrels of flour which passed Utica in 1833, only 75,865 barrels came from beyond Buffalo, (not 8 per cent.,) being an increase of 800 per cent., in one year, over 1832. The collector's returns of this year for Buffalo is not yet received; but the increase of flour for 1834, passing Utica, is 189,246 barrels, a large part of which may with propriety be placed to the increased commerce with Ohio, owing to the completion of their canal—A TRADE, TOO, TRULY IN ITS INFANCY, as we find by statements furnished

by A. C. Flagg to C. F. Mercer, Esq., [see Congressional Document, No. 414, p. 225,] that nine-tenths of the bread stuffs, provisions, &c., transported on the Erie canal, are produced by our own state. We find, also, that the Governor, in his last message, observes that it is necessary to "enlarge" the Erie canal, as well as make double locks, and states his regret that a law to this effect did not pass at the last Session. In this opinion I cannot agree with him, as I think that on examination it will be discovered that an attempt to enlarge the Erie canal will be attended with more difficulties than at first meet the eye, with the certainty of destroying one or more years of business, to the ruin of thousands, and injury of this city, by directing the trade into other channels.

It is not ten years since the Erie canal has been completed, and in that short period it has produced its entire cost. In three years more, the comptroller will be in funds, for the cost of the Erie, Champlain and lateral canals. Under this view, and the evident incapacity of the Erie canal to supply the wants of our own State, an enlightened forecast should prompt us to at once commence an enlarged or steamboat canal, 90 feet wide, and 9 feet deep, around the falls of Niagara, from Oswego to the Hudson, to serve the wants of the growing "far West," as it must be clear to any observer, that, even with double locks and enlarging the Erie canal, it will only serve the purposes of our own State for some 10 or 15 years, unless relieved by the "Ship Canal" project, and railroad facilities from Utica.

So soon as the tolls are reduced, as is contemplated, the produce of the finest forests, in ship timber, lumber, &c., and the exchange of commodities throughout the canal, will produce a trade that cannot be imagined, when, ere 15 years, we shall have in this State a population of 4,000,000, now estimated at 2,500,000, of which above 250,000 souls reside in this city.

The table I have alluded to shows that only 28,683,708 lbs. of the 157,357,547 lbs. of merchandize, which passed Utica in 1833, was destined beyond Buffalo; whilst of furniture, farmers' and mechanics' tools, there passed by Utica 7,595,732 lbs., and beyond Buffalo 7,568,846 lbs., showing an increase of transport of 1833 over 1832 of 2,677,425 lbs.; and the year 1834 shows a further increase for that year of 3,077,070

lbs. over 1833, or 10,672,802 lbs. passing Utica: showing clearly the immense current of population setting to the "far West," from whom as yet we have received no returns, and whose wants from the sea-board are yet very limited.

The report of merchandize in 1832 from Buffalo was 13,351,729 lbs.; in 1833, 28,683,708 lbs., being an increase of more than 100 per cent., and there is no doubt it will progress in the same ratio for several years, particularly when such crowds of emigrants are passing to the West; and we find that the Territory of Michigan, by official accounts, has trebled her population in 4 years, and now claims admittance into the Union.

With such facts before the public, the merchants and property holders in this city are deeply interested in the contemplated project of an enlarged and separate canal, to connect the Hudson with the Upper Lake, and thence by the Illinois river to New-Orleans, by steam, and should at an early day give an expression of their sentiments to the Legislature, by a public meeting to adopt measures to promote the object.

J. F. B.

To the Editor of the Railroad Journal:

DEAR SIR,—A few days since I was invited by one of the managers of the West-Point Foundry to inspect a locomotive engine just completed at that establishment, designed for the Tusculumbia, Courtland and Decatur Railroad; and as its construction is somewhat different from others, perhaps a description of it will be interesting to your readers. It is raised on four 4½ feet wheels; the hubs are of cast iron, with wrought iron spokes and tires; the outside frame is entirely iron, securely bolted; the inside rails are of wrought iron—(hitherto, in all engines made in this country, they have been made of wood); all the working parts are of cast steel, and appear to have been finished with great care. The weight of the engine, with the boiler, is 6½ tons; it will carry 80 tons at the rate of 18 miles per hour on a level railroad. The appearance of the engine is by far the handsomest I have ever seen, either in this country, or in Europe; and the managers state that the West-Point Association will guarantee that any that they may hereafter build shall be equal to any made in the world.

I am, &c.

UNITED

New-York, January 15, 1835.

[From the Albany Argus.]

ANNUAL REPORT OF THE COMMISSIONERS OF
THE CANAL FUND.

The annual report of the Commissioners of the Canal Fund, was presented to the house of Assembly yesterday. It is an able and interesting document. We give the following extract:

Erie and Champlain Canal Fund.

The actual amount of revenue received on account of the Erie and Champlain Canal Fund, from all sources, from the 30th September, 1833, to the 30th September 1834; is as follows, viz:

From tolls,	\$1,313,155 84
Vendue duty,	169,337 04
Salt duty,	160,782 98
Interest upon deposits of surplus moneys,	117,092 00
Interest upon loan to Albany, and upon investments in stocks,	4,082 64
Rents of surplus waters,	5,438 50
Sales of lands,	2,441 03
Anonymous,	15 37
Proceeds of sale of a canal boat,	19 40
	\$1,772,364 80

The actual amount of expenditures during the year, has been as follows, viz:

For interest on canal debt,	\$278,173 26
Repairs of the canals, by superintendents,	423,517 10
Payments on account of canals, by Canal Commissioners,	15,006 17
Salaries of weigh masters, assistants, &c.,	4,511 25
Printing for canals,	2,646 68
Tolls refunded,	88 93
Costs of suits for penalties,	56 35
Balance of collectors' accounts,	299 40
Payment to proprietors of Albany basin,	3740 48
Payment to Samuel Young, Canal Commissioner,	509 64
Payment to canal appraisers,	18 00
Salary of 2d Deputy Comptroller, canal department,	1,650 00
Extra allowances,	3,135 32
Sundry miscellaneous payments,	3,247 29
	736,699 88

Thus showing the nett revenue of the Erie and Champlain Canal Fund, after paying all expenses, to amount to the sum of **\$1,035,664 92**

The surplus funds in the hands of the Commissioners, on the 30th September, 1833, as shown in the annual report of last year, amounted to the sum of **\$2,602,694 76**

The amount received by the Commissioners for the year ending 30th September, 1834, from all sources, is, **1,765,147 33**

Making a total sum to be accounted for by the Commissioners, of **\$4,367,842 09**

This sum is accounted for as follows, viz:

Paid for interest upon canal debt, **\$278,173 26**
For purchase of canal stocks, viz:

5 per cents 1837, **\$157,732 88**
do 1837, **269,986 87**
do 1845, **311,110 31**
638,830 06

To canal superintendents, **423,517 10**
To Canal Commissioners, **15,006 17**
To sundry expenditures, as detailed in statement A, **9,739 20**
1,365,265 79

Leaving a balance in the hands of the Commissioners, on the 30th September, 1834, applicable to the canal debt, of **\$3,002,576 30**

Of this balance, there was in deposits and on loan in sundry banks, **\$2,823,823 35**
Loaned and invested in stocks, **178,752 95**
\$3,002,576 30

Thus accounting for the whole amount of the surplus funds under the care and management of the Commissioners.

Canal Debt and Redemption of Stock.

In the last Annual Report, the total amount of Erie & Champlain Canal stock, remaining unpaid on the 30th September, 1833, was stated at **\$5,522,659 29**

Redeemed during the year ending 30th September, 1834, **588,006 61**

Total amount of Erie & Champlain Canal stocks unpaid 30th September, 1834, **\$4,934,652 68**

From this amount deduct the means in the hands of the Commissioners at the close of the fiscal year, applicable to the payment of this debt, as before stated (omitting \$27,153 71 of bonds for lands,) **3,002,576 30**

And there will remain a balance of the Erie and Champlain Canal debt, as yet unprovided for, of **\$1,932,076 38**

It was stated by the Commissioners in the last Annual Report, that if the receipts for each of the next three years should equal those for the year embraced in that report, the funds accumulated would be sufficient to cancel the whole debt contracted for the construction of the Erie & Champlain Canals, nine years before the latest period fixed by the State for the redemption of the stock. This opinion is fully sustained by the receipts for the year ending 30th September, 1834; the sum applicable to the debt, after paying the current expenses of the year, being more than a million of dollars; and leaving a balance of debt to be provided for, of less than two millions. If the annual nett revenue from the canal fund for the two succeeding years, should equal that of the year ending on the 30th September last, the means would be provided for the final extinguishment of the Canal Debt on the 30th September, 1836.

The contemplated improvements, of doubling the locks from Albany to Syracuse, and rebuilding the aqueduct across the Genesee river at Rochester, authorized by the act, chap. 312, of the laws of 1834, will require the expenditure of from six hundred thousand to a million of dollars, and to this extent will diminish the estimated means for the payment of the canal debt within the next two years. But it is believed the proceeds of the canal revenues will furnish the means for these extraordinary disbursements, and also for the payment of the whole debt contracted for the construction of the Erie and Champlain canals, by the close of the fiscal year in 1837.

The Commissioners have continued to purchase canal stock with the surplus funds in their hands, and during the year ending on the 30th September, 1834, have obtained and cancelled stock issued for the construction of the Erie and Champlain canals to the amount of **\$588,006 61**. In 1833, as shown by the last annual report, the Commissioners purchased stock to the amount of **\$1,478,376 71**
Add purchases of 1834, **588,006 56**

And it is shown that within the last two years the Commissioners have redeemed and cancelled stock to the amount of **\$2,966,383 13**
To obtain this stock there has been paid in premiums the sum of **138,756 91**

Total paid from surplus funds to redeem canal stock, within the last two years, **\$2,905,140 09**

When the stock was issued for the construction of the Erie and Champlain Canals, a part of it was made payable in 1837, and the residue in 1845. At the close of 1833, the surplus moneys in the hands of the Commissioners, which were pledged to the redemption of this debt, amounted to something more than three millions of dollars. This sum was principally loaned to various banks in the State at an average interest of 4 1/2 per cent. In this way, the surplus funds destined for the payment of the canal debt, necessarily became interwoven with the business operations of the State. The first instalment on the debt, being \$3,489,000 00, becomes payable on the first day of July, 1837. The withdrawal of this large sum from the business of our citizens on a particular day, it was apprehended by the commissioners, as stated in their former reports to the legislature, might prove a serious inconvenience to those who had accommodations from the Banks, as well as to the banks themselves. By the gradual purchase of the stock, the Commissioners effected the double object of lessening the deposits in the banks, and at the same time of diminishing the amount of the stock redeemable in 1837. Thus far their exertions have been as successful as could reasonably be anticipated. Of the debt of 1837, the sum of \$1,459,982 70 has been paid; leaving of the stock reimbursable in 1837 the sum of \$2,029,007 30; a sum which can be paid in a single year, without much inconvenience. The purchase of stock, however, will be continued, and the sum reimbursable in 1837 will probably be reduced one-half in the year 1835 and 1836. In this way the objects of the Commissioners will have been accomplished, and the debt of 1837 cancelled, without the slightest inconvenience to the business operations of the State.

Management of the Canal Fund Moneys.

The nett revenues of the Erie and Champlain Canal Fund amount to about one million of dollars annually; and there is now an accumulation of the surplus in the hands of the Commissioners, amounting to more than three millions of dollars. The management of these moneys was entrusted to the Commissioners of the Canal Fund by the original law passed in 1827, "respecting navigable communications between the great Western and Northern Lakes and the Atlantic Ocean."

[Here follows a detail of the arrangements made for loaning the surplus moneys from 1827 to 1834, at 3 1/2, 4 1/2 and 5 per cent.]

At the close of the fiscal year, the surplus moneys belonging to the Erie and Champlain Canal Fund were loaned and deposited at rates of interest varying from 3 1/2 to 5 per cent. in the following proportions, viz:

Terms of Deposit.	Amount on Loan of Deposit.	Annual interest.
On Loan at 5 per cent. payable at 60 days' Notice.	\$611,000 00	\$30,550 00
do 4 1/2 do	1,304,784 38	54,215 28
On Deposit at 4 1/2 per cent. payable at sight.	976,861 93	43,958 78
do 3 1/2 do	31,177 04	1,091 19
	2,823,823 35	129,815 26

The efforts of the Commissioners to make such arrangements as would enable them to command the money whenever it should be required, to pay for or purchase stock, and at the same time to realize an interest upon it, have been entirely successful. The Commissioners have drawn upon these deposits to the amount of between 2

and \$200,000 annually, from 1826 to the present time, to pay the interest upon the debt and the repairs of the canals; they have drawn about two millions eight hundred thousand dollars for the purchase of canal stock; and at the same time there has been added to the canal fund more than four hundred and eight thousand dollars, from interest on the surplus monies loaned to and deposited in the Banks during the last nine years, viz:—

Received for interest on deposits,			
do	do	1826	\$4,515 04
do	do	1827	4,987 96
do	do	1828	7,381 20
do	do	1829	7,576 30
do	do	1830	24,000 17
do	do	1831	35,710 31
do	do	1832	84,619 15
do	do	1833	122,236 74
do	do	1834	117,092 00

\$408,018 87

The above sum of \$408,018 87, embraces only the amount of interest paid by the Banks. The fund has been increased by interest on other investments of the surplus, to the amount of \$101,835 65; making a total increase to the fund from interest on investments and deposits since 1826, of \$509,854 52. Add to this the fact, that during the same period, there has been collected for tolls, and auction and salt duties, between eleven and twelve millions of dollars, through the agency of the banks, and of the numerous collecting agents, without loss of a single dollar to the State; and the best evidence is furnished of which the case is susceptible, that the great interests of the State have not been neglected or disregarded by those who have been entrusted with the collection and management of the Canal revenues.

Reduction of Tolls.

The Canal Board, in January last, made a reduction in the rates of toll, on merchandize, of 25 per cent; and a reduction on wheat, flour, salted beef and pork, butter and cheese, of 12 per cent; and a considerable reduction on various other articles.

The following comparative statement of the sums charged on property transported, shows the extent of the diminution in the rates of toll, within the last two years, and the saving which these modifications secure to those who use the canals.

	1832.	1833.	1834.
Toll on 1000 lbs. merchan, from Albany to Buffalo.	\$5.08 2-10	\$4.35 6-10	3.26 70-100
Toll on 1000 lbs. flour and provisions from Buffalo to Albany.	2.54	1.81 5-10	1.62 35-100
Total.	\$7.62 2-10	\$6.17 1-10	4.89 5-100

The toll on an ordinary boat load of 30 tons of merchandize from Albany to Buffalo (363 miles) would amount, by the rates in 1832, to \$304 92 And by the rates in 1834, to 196 02

Gain to the owner of the property on a single load, \$108 90

The toll on 30 tons of wheat, flour, or provisions, from Buffalo to Albany, would amount, by the rates of toll in 1832, to \$152 46 And by the rates in 1834, to 97 41

Gain to the owner by the reduction in the rates of toll, \$55 95

It is thus seen, that on a comparison of the rates of toll as now established, with the rates of 1832, the person who has a cargo of 30 tons of produce to carry from Buffalo to the Hudson River, and carries back a cargo of 30 tons of merchandize, makes a clear saving by the reduction in the rates of toll, of \$163 95.

It has been estimated that the reduction in the rates of toll in 1833, applied to the same amount of property which was transported on the canals in 1832, would produce a loss in the aggregate amount of revenue equal to \$150,000; and that

the reductions in 1834, applied to the property transported in 1833, would occasion a loss to the revenue of more than \$200,000.

The amount of tolls collected upon the Erie and Champlain canals, during the season of navigation for each of the last four seasons, has been as follows:

In 1831, at the old rates of toll,	\$1,194,610 49
1832 do do	1,195,804 23
Total in two seasons	\$2,390,414 72
In 1833, (average reduction of tolls about 20 per cent.)	\$1,422,695 22
In 1834, (further average reduction of 15 per cent) about:	1,800,000 00

Total in two seasons \$2,722,695 22 This statement shows, that notwithstanding a reduction in the rates of toll which is equal to 35 7-8 per cent, within the last two years, such has been the great increase of business upon the canals, that the aggregate amount of tolls collected from the opening to the closing of navigation in the years 1833 and 1834, exceeds the collections for 1831 and 1832, by the sum of \$332,280 50.

We condense from the report the following view of the results in relation to the lateral canals:

Oswego Canal.	
Expenditures	\$33,889 84
Received for tolls	2,240 01
Paid from general fund to make up deficit,	12,649 83
Cayuga and Seneca Canal.	
Expenditures	20,866 17
Received for tolls,	17,104 41
Paid from general fund to make up deficit,	3,761 76
Chemung Canal.	
Expenditures	42,425 46
Received for tolls	1,704 90
Paid from general fund to make up deficit	\$40,723 85
Crooked Lake Canal.	
Expenditures	21,731 49
Received for tolls	1,007 60
	20,723 89

There was a balance of \$7,894 07 in the hands of the Commissioners at the close of the year 1833, and there has been drawn from the treasury for deficiencies in the revenues of this canal, the sum of \$13,829 82.

Suspension Bridges, No. I.

To the Editor of the Railroad Journal.

SIR,—It has occurred to me, since I sent you the drawing of the suspension bridge, for forming a connection between New-York and Brooklyn, that a short descriptive account of the principal suspension bridges now in existence would be interesting to many of your readers. Should you concur with me in this opinion, I will, at my leisure, furnish you with a series of papers on the subject, commencing with the following.

We are informed by travellers, that suspension bridges, formed of chains of iron, are now to be seen in China and the East Indies of great antiquity; but as these are of such a description as to furnish no practical information relative to the mode of constructing modern suspension bridges, we shall not trouble your readers with any account of them here.

With the exception of the Winch bridge, constructed about the year 1741, it does not appear that any bridges on the suspension principle were to be found in Europe till the 18th century. This bridge is described in Hutchinson's antiquities of

Durham, printed at Carlisle in 1794, in the following words:

"About two miles above Middleton, where the river falls in repeated cascades, a bridge, *suspended on iron chains*, is stretched from rock to rock, over a chasm near 60 feet deep, for the passage of travellers, but particularly of miners. The bridge is 70 feet in length, and little more than 2 feet broad, with a hand rail on one side, and planked in such a manner that the traveller experiences all the tremulous motion of the chain, and sees himself suspended over a roaring gulf on an agitated and restless gangway."

The first suspension bridge in this country was built by Mr. Finley, of Pennsylvania, in 1796, across Jacob's creek, between Union Town and Greenburgh. The length of the bridge was 70 feet. Mr. Pope, in his treatise on bridge architecture, describes several others as having been erected by this gentleman. The largest across the Schuylkill is 306 feet long. It is borne by two chains, one on each side, the iron of which is 1 1/4 inch square. Another across the Brandywine at Wilmington is 145 feet long, 30 feet wide, and is borne by four chains, the iron of which is 1 1/2 inch diameter. In the same work we have also an account of a chain suspension bridge of considerable strength erected over the Merrimack, near Newburyport, Massachusetts, by John Templeman, Esq. The span of this bridge is 244 feet. The pieces upon which the timber framed work for suspending the chains is erected are of stone, 47 feet long and 37 feet high. The timber suspension frames are 35 feet high. The bridge is formed of 10 chains, the ends of which are carried down into deep wells in each bank, and are therein fixed to heavy stones; each chain is 516 feet long; and at the top of the suspension frames the chains are tripled and made with short links. The four middle joists rest on the chains, the rest are suspended from the chains by rods to keep the road horizontal. There are two roadways, 15 feet in width each, and the floor is said to be so solid as to admit of horses, carriages, &c. to travel at any speed without occasioning any considerable vibration. The chains are arranged three on each side and four in the middle. The height from the water to the floor of the road-way is 40 feet. It is stated that the whole expense did not amount to 25,000 dollars.

In Mons. Cordier's Historie de la Navigation Interieure, published in 1820, it is stated that 40 bridges on Mr. Finley's plan had been erected, at that time, in this country. He mentions one, built in 1815, on the Lehigh, a mile below Northampton, it consists of two openings and two semi-arches; its whole length is 475 feet. The chains are placed so as to divide the platform into four ways, two for carriages in the middle, and a foot path on each side. The chains were made with iron bars 1 1/2 inch square. The cost, 20,000 dollars.

The attention of British engineers appears to have been first directed to the

subject of suspension bridges in the year 1814, when it was proposed to substitute a bridge over the river Mersey in lieu of the ferry at Runcorn-gap, about twenty miles below Liverpool. From the nature of the navigation it was necessary that the bridge should consist of not more than three openings, the centre one of 1000 feet and two others of 500 feet each, and that its height above the surface of the water should not be less than 60 feet. The celebrated engineer, the late Mr. Telford, having been applied to on the subject, proposed the erection of a suspension bridge. It was to consist of 16 iron cables, each formed of 36 square half inch iron bars; and of the segments of cylinders proper for forming them into one immense cable, which, including the fixings on shore, was to be nearly half a mile long, and about $4\frac{1}{2}$ inches diameter. When this bridge was proposed there existed very little experience in the construction of suspension bridges, and in order to obtain proper data for proportioning the strength of the various parts, Mr. Telford instituted a very valuable course of experiments, some account of which I shall probably give in a future number. This bridge has not yet been erected, but as it served to call the attention of scientific men to the subject, and may thus be considered as the origin of the great extension that has since been given to this mode of bridge building in Europe, I thought this account of it here would not be out of place. W. L.

Dec. 15th, 1834.

P. S.—In making out the design of the suspension bridge over the East river, I have supposed the piers for the suspension towers, &c. to be constructed of masonry: this would evidently be the most durable mode of construction, but I could furnish a design for a very substantial bridge, the piers and suspension towers of which should be wholly constructed of timber. The expense would thus be very greatly reduced, as we could then dispense with the use of coffer-dams for the foundations of the piers. The cost of such a bridge would not, probably, much exceed the receipts of the Fulton Ferry company for one year.

(To be continued.)

[From the Repertory of Patent Inventions.]

Report on the Progress and Present State of our Knowledge of Hydraulics as a Branch of Engineering. By GEORGE RENNIE, Esq., F. R. S., &c. &c. Part I.

The Report of which the following is a part, has appeared in the recently published "Report of the Third Meeting of the British Association for the Advancement of Science," held at Cambridge in 1833." We purpose to present our readers with the whole of Mr. Rennie's review of the history of hydraulics, as applied to engineering, in successive extracts.

The paper now communicated to the British Association for the Advancement of Science, comprises a Report on the progress and present state of our knowledge of hydraulics as a branch of engineering, with reference to the principles already established on that subject.

Technically speaking, the term hydraulics

signifies that branch of the science of hydrodynamics which treats of the motion of fluids issuing from orifices and tubes in reservoirs, or moving in pipes, canals, or rivers, oscillating in waves, or opposing a resistance to the progress of solid bodies at rest.

We can readily imagine that if a hole of given dimensions be pierced in the sides or bottom of a vessel kept constantly full, the expenditure ought to be measured by the amplitude of the opening, and the height of the liquid column.

If we isolate the column above the orifice by a tube, it appears evident that the fluid will fall freely, and follow the laws of gravity. But experiment proves that this is not exactly the case, on account of the resistances and forces which act in a contrary direction, and destroy part of, or the whole, effect. The development of these forces is so extremely complicated that it becomes necessary to adopt some auxiliary hypothesis or abbreviation in order to obtain approximate results. Hence the science of hydrodynamics is entirely indebted to experiment. The fundamental problem of it is to determine the efflux of a vein of water or any other fluid issuing from an aperture made in the sides or bottom of a vessel kept constantly full, or allowed to empty itself. Torricelli had demonstrated that, abstracting the resistances, the velocities of fluids issuing from very small orifices followed the subduplicate ratio of the pressures. This law had been, in a measure, confused by subsequent writers, in consequence of the discrepancies which appeared to exist between the theory and experiment, until Varnignon remarked, that when water escaped from a small opening made in the bottom of a cylindrical vessel, there appeared to be very little, or scarcely any, sensible motion in the particles of the water; from which he concluded that the law of acceleration existed, and that the particles which escaped at every instant of time received their motion simply from the pressure produced by the weight of the fluid column above the orifice; and that the quantity of motion or expenditure is in the ratio of the breadth of the orifice, multiplied by the square of the velocity, or, in other words, that the height of the water in the vessel is proportional to the square of the velocity with which it escapes; which is precisely the theorem of Torricelli. This mode of reasoning is in some degree vague, because it supposes that the small mass which escapes from the vessel at each instant of time acquires its velocity from the pressure of the column immediately above the orifice. But supposing, as is natural, that the weight of the column acts on the particle during the time it takes to issue from the vessel, it is clear that this particle will receive an accelerated motion, whose quantity in a given time will be proportional to the pressure multiplied by the time: hence the product of the weight of the column by the time of its issuing from the orifice, will be equal to the product of the mass of this particle by the velocity it will have acquired; and as the mass is the product of the opening of the orifice, by the small space which the particle describes in issuing from the orifice, it follows that the height of the column will be as the square of the velocity acquired. This theory is the more correct the more the fluid approaches to a perfect state of repose, and the more the dimensions of the vessel exceed the dimensions of the orifice. By a contrary mode of reasoning, this theory became insufficient to determine the motions of fluids through pipes of small diameters. It is necessary, therefore, to con-

sider all the motions of the particles of fluids, and examine how they are changed and altered by the figure of the conduit. But experiment teaches us that when a pipe has a different direction from the vertical one, the different horizontal sections of the fluid preserve their parallelism, the sections following taking the place of the preceding ones, and so on; from which it follows, (on account of the [sensible] incompressibility of the fluid,) that the velocity of each horizontal section or plate, taken vertically, ought to be in the inverse ratio of the diameter of the section. It suffices, therefore, to determine the motion of a single section, and the problem then becomes analogous to the vibration of a compound pendulum, by which, according to the theory of James Bernoulli, the motions acquired and lost at each instant of time form an equilibrium, as may be supposed to take place with the different sections of a fluid in a pipe, each section being animated with velocities acquired and lost at every instant of time.

The theory of Bernoulli had not been proposed by him until long after the discovery of the indirect principle of *vis viva* by Huygens. The same was the case with the problem of the motions of fluids issuing from vessels, and it is surprising that no advantage had been taken of it earlier. Michellotti, in his experimental researches, *de Separatione Fluidorum in Corpore Animalis*, in rejecting the theory of the Newtonian cataract, (which had been advanced in Newton's Mathematical Principles, in the year 1687, but afterwards corrected in the year 1714,) supposes the water to escape from an orifice in the bottom of a vessel kept constantly full, with a velocity produced by the height of the superior surface; and that if, immediately above the lowest plate of water escaping from the orifice, the column of water be frozen, the weight of the column will have no effect on the velocity of the water issuing from the orifice; and that if this solid column be at once changed to its liquid state, the effect will remain the same. The Marquis Poleni, in his work *De Castellis per quæ derivantur Fluviorum Aquæ*, published at Padua, in the year 1718, shows from many experiments, that if A be the orifice, and H the height of the column above it, the quantity of water which issues in a given time is represented by $2 A H \times 0.571$

whereas, if it spouted out from the orifice with a velocity acquired by falling from the height H, it ought to be exactly $2 A H$, so that experiment only gives a little more than half the quantity promised by the theory; hence, if we were to calculate from these experiments the velocity that the water ought to have to furnish the necessary quantity, we should find that it would hardly make it re-ascend one third of its height. These experiments would have been quite contrary to expectation, had not Sir Isaac Newton observed that water issuing from an orifice $\frac{1}{4}$ ths of an inch in diameter was contracted $\frac{3}{4}$ of the diameter of the orifice, so that the cylinder of water which actually issued was less than it ought to have been, according to the theory, in the ratio of 441 to 625; and augmenting it in this proportion, the opening should have been $2 A H \times 0.805$

to have issued on the supposition that the velocity was in the ratio of the square root of the height; from which it was inferred that the theory was correct, but that the discrepancy was owing to certain resistances, which experiment could alone determine. The accuracy of the general conclusion was affected by several assump-

tions, namely, the perfect fluidity and sensibility of the mass, which was neither affected by friction nor cohesion, and an infinitely small thickness in the edge of the aperture.

Daniel Bernoulli, in his great work, *Hydrodynamica, seu de Viribus et Motibus Fluidorum Commentaria*, published at Strasburg in the year 1738, in considering the efflux of water from an orifice in the bottom of a vessel, conceives the fluid to be divided into an infinite number of horizontal strata, on the following suppositions, namely, that the upper surface of the fluid always preserves its horizontality; that the fluid forms a continuous mass; that the velocities vary by insensible gradations, like those of heavy bodies; and that every point of the same stratum descends vertically with the same velocity, which is inversely proportional to the area of the base of the stratum; that all sections thus retaining their parallelism are contiguous, and change their velocities imperceptibly; and that there is always an equality between the vertical descent and ascent, or *vis viva*: hence he arrives, by a very simple and elegant process, to the equations of the problem, and applies its general formulæ to several cases of practical utility. When the figure of the vessel is not subject to the law of continuity, or when sudden and finite changes take place in the velocities of the section, there is a loss of *vis viva*, and the equations require to be modified. John Bernoulli and Maclaurin arrived at the same conclusions by different steps, somewhat analogous to the cataract of Newton. The investigations of D'Alembert had been directed principally to the dynamics of solid bodies, until it occurred to him to apply them to fluids; but in following the steps of Bernoulli he discovered a formula applicable to the motions of fluids, and reducible to the ordinary laws of hydrostatics. The application of his theory to elastic and non-elastic bodies, and the determination of the motions of fluids in flexible pipes, together with his investigations relative to the resistance of pipes, place him high in the ranks of those who have contributed to the perfection of the science.

The celebrated Euler, to whom every branch of science owes such deep obligations, seems to have paid particular attention to the subject of hydrodynamics; and in attempting to reduce the whole of it to uniform and general formulæ, he exhibited a beautiful example of the application of analytical investigation to the solution of a great variety of problems for which he was so famous. The Memoirs of the Academy of Berlin, from the year 1768 to 1771, contain numerous papers relative to fluids flowing from orifices in vessels, and through pipes of constant or variable diameters. "But it is greatly to be regretted," says M. Prony, "that Euler had not treated of friction and cohesion, as his theory of the linear motion of air would have applied to the motions of fluids through pipes and conduits, had he not always reasoned on the hypothesis of mathematical fluidity independently of the resistances which modify it."

In the year 1765 a very complete work was published at Milan by Paul Lecchi, a celebrated Milanese engineer, entitled *Idrostatica esaminata ne' suoi Principi e Stabilita nelle suoi Regole della Mensura della Acque correnti*, containing a complete examination of all the different theories which had been proposed to explain the phenomena of effluent water, and the doctrine of the resistance of fluids. The author treats of the velocity and quantity of water, whether

absolutely or relatively, which issues from orifices in vessels and reservoirs, according to their different altitudes, and inquires how far the law applies to masses of water flowing in canals and rivers, the velocities and quantities of which he gives the methods of measuring. The extensive and successful practice of Lecchi as an engineer added much to the reputation of his work.*

In the year 1764, Professor Michelotti, of Turin, undertook, at the expense of the King of Sardinia, a very extensive series of experiments on running water, issuing orifices, and additional tubes placed at different heights in a tower of the finest masonry, twenty feet in height and three feet square inside. The water was supplied by a channel two feet in width, and under pressures of from five to twenty-two feet. The effluent waters were conveyed into a reservoir of ample area, by canals of brick-work lined with stucco, and having various forms and declivities; and the experiments, particularly on the efflux of water through differently shaped orifices, and additional tubes of different lengths, were most numerous and accurate; and Michelotti was the first who gave representations of the changes which take place in the figure of the fluid vein, after it has issued from the orifice. His experiments on the velocities of rivers, by means of the bent tube of Pitot, and by an instrument resembling a water-wheel, called the *stadera idraulica*, are numerous and interesting; but, unfortunately, their reduction is complicated with such various circumstances, that it is difficult to derive from them any satisfactory conclusions. But Michelotti is justly entitled to the merit of having made the greatest revolution in the science by experimental investigation.† The example of Michelotti gave a fresh stimulus to the exertions of the French philosophers, to whom, after the Italians, the science owes the greatest obligations. Accordingly, the Abbe Bossut, a most zealous and enlightened cultivator of hydrodynamics, undertook, at the expense of the French government, a most extensive and accurate series of experiments, which he published in the year 1771, and a more enlarged edition, in two volumes, in the year 1786, entitled *Traite Theorique et Experimental d'Hydrodynamique*. The first volume treats of the general principles of hydrostatics and hydraulics, including the pressure and equilibrium of non-elastic and elastic fluids against inflexible and flexible vessels; the thickness of pipes to resist the pressure of stagnant fluids; the rise of water in barometers and pumps, and the pressure and equilibrium of floating bodies: the general principles of the motions of fluids through orifices of different shapes, and their friction and resistance against the orifices; the oscillations of water in syphons; the percussion and resistance of fluids against solids; and machines moved by the action and re-action of water. The second volume gives a great variety of experiments on the motions of water through orifices and pipes and fountains; their resistance in rectangular or curvilinear channels, and against solids moving through them; and, lastly, of the fire—or steam-engine. In the course of these experiments, he found that when the water flowed through an orifice in a thin plate, the contraction of the fluid vein diminished the discharge in the ratio of 16 to 10; and when the fluid was discharged through an additional tube, two or three inches in length, the theoretical discharge was diminished only in the

ratio of 16 to 13. In examining the effects of friction, Bossut found that small orifices discharged less water in proportion than large ones, on account of friction, and that, as the height of the reservoir augmented, the fluid vein contracted likewise; and by combining these two circumstances together, he has furnished the means of measuring with precision the quantity of water discharged either from simple orifices or additional tubes, whether the vessels be constantly full, or be allowed to empty themselves. He endeavored to point out the law by which the diminution of expenditure takes place, according to the increase in the length of the pipe or the number of its bends; he examined the effect of friction in diminishing the velocity of a stream in rectangular and curvilinear channels; and showed that in an open canal, with the same height of reservoir, the same quantity of water is always discharged, whatever be the declivity and length; that the velocities of the waters in the canal are not as the square roots of the declivities; and that in equal declivities and depth of the canal the velocities are not exactly as the quantities of water discharged; and he considers the variations which take place in the velocity and level of the waters, when two rivers unite, and the manner in which they establish their beds.

His experiments, in conjunction with D'Alembert and Coudorcet, on the resistance of fluids, in the 1777, and his subsequent application of them to all kinds of surfaces, including the shock and resistance of water wheels, have justly entitled him to the gratitude of posterity. The Abbe Bossut had opened out a new career of experiments; but the most difficult and important problem remaining to be solved related to rivers. It was easy to perform experiments with water running through pipes and conduits on a small scale, under given and determined circumstances: but when the mass or fluid rolled in channels of unequal capacities, and which were composed of every kind of material, from the rocks amongst which it accumulated to the gravel and sand through which it forces a passage,—at first a rapid and impetuous torrent, but latterly holding a calm and majestic course,—sometimes forming sand-banks and islands, at other times destroying them,—at all times capricious, and subject to variation in its force and direction by the slightest obstacles,—it appeared impossible to submit them to any general law.

(To be continued.)

It seems that the tolls on the Pennsylvania Canals and Railroads, are to be reduced twenty per cent. from the time the navigation opens in the Spring.

PUBLIC LANDS.—From one of the documents accompanying the Report of the Secretary of the Treasury, it appears that during the year ending 31st December, 1833, there were sold of the public lands, 3,866,227,056 acres, for \$4,972,284 84; and that the amount received in cash was \$4,559,221 99, in forfeited land stock \$47,230 55, in military land scrip \$365,832 30—making a total of \$4,972,284 84, as above. The amount of incidental expenses was \$153,268 33; and the amount paid into the Treasury, \$3,967,681 55.

During the first three quarters of 1834, there were sold 2,372,931,035 acres, for \$2,996,596 01, of which \$2,821,291 78 were paid in cash, \$19,065 27 in forfeited land stock, and \$156,238 95 in military land scrip. Incidental expenses, \$115,799 79. Paid into the Treasury during the same period, \$3,076,476 50.

* See also Memoire Idrostatico-storiche, 1773.

† Sperimenti Idraulici, 1767 and 1771.

AGRICULTURE, &c.

[From the New-York Farmer.]

WHEAT AND SOIL OF WEST NEW-YORK.

—We do not believe either, theory, or the most improved practice, will bear out the writer in his maxim, at the conclusion of the following extract from the Genesee Farmer. From the experiments that have been made in various sections of our primitive country, and from our notions of scientific agriculture, we believe many farmers who now enjoy good water, will be enabled to raise as good wheat as grows in the Genesee country.

The territory of New-York, included between Lake Ontario on the north, Lake Erie on the west, the line which divides the waters flowing into the lake from those which flow to the Susquehannah and Mississippi, on the south, and the counties of Madison, Oneida and Oswego, on the east—a tract of country about 50 miles in width by 150 in length, and containing not far from 8000 square miles,—is unquestionably one of the finest farming countries in the world, and possesses within itself more sources of agricultural wealth than any portion of the United States. In the amount of quantity, and excellence of quality, of its wheat, it is confessedly without a rival; and owing to peculiar causes, unless there is the most gross mismanagement in the treatment of the soil, this superiority it must retain. Lime and gypsum, two of the substances most relied on for keeping land in good heart, or restoring that which has been impoverished by bad management, are found in almost every section of this district in inexhaustible quantities; and in these two minerals, aided by the other means within the reach of the husbandman, is found a resource, which, if used with ordinary skill, cannot fail to render West New-York for ages, perhaps for ever, deserving its present high reputation of being the granary of America. In this territory wheat is, and probably will be, the great staple; to its culture, then, the attention of our farmers generally is directed; and any thing which has a tendency to prepare the soil for this valuable crop, or prevent the exhaustion of those peculiar qualities, on which the excellence of the wheat grown is founded, will receive a paramount regard. That there is a great difference in the capability for making fine flour in wheat grown on the northern or southern slope of West New-York, is so well known, that no proof of the fact need be adduced. Experienced millers have assured us, that this difference is equal to at least ten per cent. The wheat kernel, to be good, must be plump, thin skinned, and exhibit, whenever cut or broken, a body white of itself, and which is converted into flour by the slightest process. Inferior wheat, on the contrary, will be hard, dark colored, and when cut or broken, appear solid, smooth, and tenacious; such wheat can never make the first quality of flour. It is only on lands where lime is abundant, or where what is termed the hardness of the water indicates its extensive prevalence in the soil, that the finest wheat is produced. It may be set down as a maxim in practical husbandry, that good water, and good wheat land, are incompatible with each other; or in other words, that countries of primitive formation are not by nature adapted to wheat.

CORN—IMPROVED HUSBANDRY.—In the National Intelligencer we find the following

extract from the Journal of a Traveller for agricultural information. We would recommend every young farmer, in particular, to travel in good farming districts, and to keep a diary of all he sees and hears that is, or may be, of importance.

Nov. 1, 1834.—Visited Mr. John Semmes, of St. Mary's county, Maryland, who informs us that his great crop of corn averaged upwards of twenty-five barrels the acre. Respectable judges of the county were appointed to ascertain the quantity of corn; and, after having accurately surveyed one acre, the corn was gathered and measured. First, a barrel being shelled to ascertain the accuracy of the barrel, eighteen or twenty of the respectable gentlemen of the county and of the adjoining county were present, saw the land measured, saw the corn measured, and are ready at any time to testify the fact, that the average acre, measured in their presence, amounted to twenty-five barrels and some pecks per acre. This farm is situated on the Patuxent river, fifteen miles below the "Cool Springs," or Charlotte Hall, and adjoining the farm on which Cole's Tobacco Inspection is—and the third from the Queen Tree. The farm is uncommonly hilly.

Process.—He prepares his ground by clover, the ground laid off from five by two and a half to three feet. The corn then dropped, three grains in the check, followed by persons who drop on the corn, or even if they are in advance of the corn droppers, a handful of two-thirds slacked ashes, and one-third plaster, mixed before it is dropped. Should the corn not come up regularly, he drops one or two seeds more, as may be necessary. He gathers his seed corn from the field before gathering the crop, so as to have a choice of ears. He plants from the 1st to the 10th of April, and ploughs four inches deep.

EARLY CORN AND WHEAT.—The following article was communicated to the N. E. Farmer by the Hon. Samuel Lathrop. We wish it was more general among men of influence to show their respect for agriculture, by communicating to periodicals the results of their experience and observation.

Last year, H. Huxley & Co. 81 Barclay street, obtained this corn from Judge Buel. Mr. D. F. Ames, of New-Jersey, planted it after his neighbors had finished planting their white corn. Mr. A.'s ripened first. Mr. D. S. Mills, of Long Island, planted it so late that other varieties would not have come to perfection. He had a good, though not a full crop.

Dear Sir—The farmers living in the valley of Connecticut river have, within a short period, greatly extended the cultivation of wheat beyond that of former years; a considerable proportion, probably the greater part, is sown after corn. We have suffered great inconvenience, and sustained some loss, from the impracticability of getting off our corn in season to sow the ground. Grain sown very late is more liable to be winter killed, and more exposed to blast, than that which is sown in its proper time. It has repeatedly happened with me, and I have not been behind all my neighbors, that I have not been able to get through the wheat sowing till after the middle of October. This is quite too late to expect a good crop. The business ought to be completed in September, and if it could be done by the middle of

that month, I think we should be more certain of success.

In the summer of 1833, I was conversing with Judge Buel, of Albany, on this subject, when he informed me, that for a number of years, he had cultivated a kind of corn which was about a fortnight earlier than the kind most commonly used, and that he thought it equally profitable for cultivation. In consequence of this information I procured my seed corn of him last spring, and planted no other this season. The crop has exceeded my expectations. I never had a better one from the same quantity of land, and it came to maturity some time earlier than other fields of corn in the vicinity. I think it will prove a valuable species to those who wish to sow their land with wheat. In ordinary seasons, it will have become sufficiently ripe for harvest by the middle of September. It is a species of the twelve-rowed corn, but the growth of stalk is very small, compared with the twelve-rowed corn which I have been accustomed to plant—not exceeding one half the weight; of course, the exhaustion required to sustain an equal number of stalks is much less. This species of corn will bear planting much thicker than any other kind of field corn which I have ever cultivated. I this year planted the hills three feet apart in both directions, intending to have three stalks in each hill. But it may be planted three feet by two and a half, and then the ground will not be more shaded than it is with the corn generally raised here, when planted in squares of three and a half feet. The ears set low on the stalk, grow to a good size, and the grain is heavy. I think it is as valuable for use as any other kind of this grain; and from the fact that it will bear planting so thick, I believe that I can secure a larger product than from any other that I have ever tried. But the circumstance that gives it its chief excellence in my estimation, arises from the fact, that I can gather my corn in season for the sowing of wheat. In the most unfavorable season, the wheat may be sown in September, and in very favorable seasons, early in that month.

I am, very respectfully, yours, &c.

SAMUEL LATHROP.

West Springfield, Oct. 23, 1834.

Gypsum.—Raspail has decided, as the result of a series of experiments, that "it is not the leaves of the leguminous plants that absorb the gypsum which is dusted over them, but the roots, when the dew or rain has washed it into the soil; and hence the advantage which has been found of applying this powder a little before the dew comes on." It was the practice of John Taylor, conspicuously known as the author of *Arator*, and one of the best practical farmers in Virginia, to sow his plaster for tillage crops before the last ploughing, that it might be buried in the soil, where the roots of plants required it. In applying it to grass lands, he recommended, if our memory serves us, that it be applied early, that the spring rains might convey it to the roots. We have, in the pamphlet of Judge Peters, upon the application of Gypsum, another corroboration of the correctness of M. Raspail's conclusions. In many instances, there narrated, where the gypsum was sown at the commencement of a drought, or late in the season, it produced no apparent benefit that year. It would be useful if farmers would satisfy themselves upon this head, by sowing a part of a field early and a part late—a part before the last ploughing, and a part upon the growing crop. So far as our opinions have been formed from practice, they are in favor of sowing on grass in

April, and for tilled crops before the last ploughing.

Mr. Nutt's System of Bee Management.
(From the London Mechanics' Magazine.)

MR. EDITOR,—After the notice of Mr. Nutt's intended publication of a Treatise on the Management of Bees, I anxiously waited for its appearance, and became possessed of a copy. After reading it through I wrote him a long letter, inquiring the cause of the opposition he stated he had met with, and offering my services gratuitously to introduce his system in the West of England. This letter Mr. Nutt (in an answer to a letter sent subsequently to his agent in London,) says he never received, and as the dead letter office has not returned it, the inference is, that it must have been improperly intercepted by some one—by one of those, perhaps, whom Mr. Nutt classes as his very "particular friends." Be this as it may, a misunderstanding between us has been the consequence, and our correspondence has ceased. I shall say little now, either of Mr. Nutt as an author, or of his friends who defend him. My purpose in addressing you is simply to state a few facts favorable to Mr. Nutt's system, which have come within my own experience, and which seem to me to invalidate the principal objections brought against it by your anonymous correspondent J. P. T. Nor should I have condescended to answer a person who seems afraid to be known in his attacks on an inoffensive individual, were it not that the Editor of the Mechanics' Magazine has in a manner identified himself with J. P. T., by the note which he has subjoined to one of his communications.*

First, then, as to "swarming from necessity or choice." I have two sets of collateral boxes, one stocked on the 24th, the other on the 28th of May last. The bees have filled the first with combs and honey entirely. One side box is full of combs, and partly full of honey. The bell-glass is about one third full of combs, and partly supplied by honey also; my bell-glasses will contain twice as much as the largest I have seen from Mr. Nutt. From this it must be evident that my bees must have swarmed "from necessity," had I not prevented this by the "move" recommended by Mr. Nutt, or something else tantamount to it. That they did not choose to swarm is evident from the work they performed after an enlargement was granted them. The swarm in the second set of boxes has filled the centre box and the glass just the same as the other; added to which, each swarm has partly filled another box, and then returned to the colony. (See hereafter.)

Mr. Nutt's glass on the centre box is

* Not so; we only so far sided with our correspondent, as to say that his strictures had led us to think less favorably of Mr. Nutt's system and his book than we originally did, and that these charges had not been met as they might and ought to have been, if unfounded. By the two other correspondents who undertook Mr. Nutt's vindication, and who, we may add, are persons that must be able, if any body can, to vindicate it most effectually.—Ed. M. M.

not an abandonment of "his so much lauded ventilating system," that glass being itself also ventilated.

The comparing Mr. Nutt's prevention of swarming to a farmer preventing his ewes having lambs is not good reasoning. If a farmer could make his ewes to produce mutton and wool without the butcher's knife, then the cases would be parallel; but Mr. Nutt's plan is to get the honey without killing the bees. The moment the bees become too numerous for the box where they are first located, they are permitted to enter another box that is empty; the full one has its contents removed, and again is replaced on the stool until wanted, and so on. How, then, can the comparison be borne out?

I do not know what Mr. Huish means by his bees being "very lively," when the thermometer fell 20° below freezing. My bees are never very active when the thermometer is 20° above freezing. I would also add, that I attribute my success in keeping bees, when many of my neighbors lose them, to the simple circumstance of mine being out of the influence of the sun during winter; in fact, my hives are for weeks, and even months together, as still as if no bees were in them.

In reference to moving bees, we pay no attention to it in this part of the country; we move them to suit our convenience, as in changing of residences, selling or exchanging hives, putting them out on the half, and so on—never supposing but what bees can find their way back to any plate from whence they have once started; we always, when we do remove them, do so after they are quietly housed at night.

Your correspondent says, "Mr. Nutt has so mystified the description of his hive that no person in the world can understand it." Now mark this, sir: my boxes were all made with their appendages according to the directions and plates given in Mr. Nutt's Treatise, since which I have seen a set from Mr. Nutt, sent to a lady near Penzance, and I find that I have not mistaken him in any one point. So much, then, for your correspondent's acuteness of perception. Another striking proof of it is, that he cannot understand the size of the dividing tins to be inserted between the boxes, when preparing to take off a side box. Of what size should they be? Surely, long enough and wide enough to stop the communication between the two. Attend again to what he says of regulating the temperature: "After all the fuss, too, about thermometers, there is no mention made in this chapter, nor any part of the book, where they should be inserted into the hive." Why, into the ventilator, to be sure, which is a perforated tin tube placed there on purpose.

To show, further, how carelessly, as well as with what prejudice, your correspondent must have read Mr. Nutt's treatise, he calls a mere block, or door, if you please, a drawer in common with the feeder, which is a drawer. These block fronts I used this season to try the experiment of taking off a side box, in which

I so far succeeded that I did not injure a single bee, that I could discover. I introduce the dividing tin carefully and slowly between the boxes, as directed by Mr. Nutt, although your correspondent says Mr. Nutt gives no such directions. There is no frame-work needed to support the combs: this I have proved over and over in cottage hives, and never even put a pint through the crown, as some persons do. I have proved it also in the boxes and glasses to my entire satisfaction. My bees, on being admitted into a side box, will take possession without "coaxing" at all. I take the box, clean it well out, rub it with a little honey, the smell of which will remove all other, if any existed, though I know not that it is at all needful; but we always prepare cottage hives to receive a swarm by rubbing it with something to make it grateful to them. I should think in about two or three hours after the communication was opened, in the three cases I tried, bees to the quantity of good swarms took possession of the boxes, and remained quietly to work as in the boxes they before occupied.

I do not recollect Mr. Nutt saying "he cannot himself, without great difficulty, take a box away from his own hive." I had no difficulty, danger, or accident to myself or to the bees, in two experiments tried this season—the boxes with the combs still remain for inspection. Your correspondent also says, in reference to Mr. Nutt's letting a swarm hang with a sheet before them until evening, that "my bees with such treatment would have fled away." A man I know in Breage told me this summer that he has frequently shook his bees after he had returned from Wheel Vor, a distance of three miles, after six o'clock in the evening, and on one occasion they swarmed so early as nine o'clock in the morning. The first swarm of my own, alluded to above, swarmed and settled in an apple-tree, after which a messenger was procured, and sent to me then two miles off. I went myself, and shook them in Mr. Nutt's box for the first time. The reason was I had the key of the room in my pocket, and my friends could not get at the box. The man's bees, above noticed, were left so long because his wife was afraid of them, and his dwelling was in a lonely place.

The above are facts that may be doubted, but cannot be disproved. Another season, I may, if you desire it, favor you with my further progress; or I may, in the mean time, with your permission, point out some other matters your correspondent has very much erred in.

GEORGE WILLIAM WOOD.

Gernoe, near Helston, Cornwall, Oct. 1, 1834.

SCYTHE SNEATHS.—Mr. Silas Lamson of Cummington, has a great reputation for good scythe sneaths. He employs about fifteen hands, and makes nearly two hundred a day. He intends to manufacture fifty thousand a year, and the proceeds of his sale will not fall much short of \$25,000 annually! This is but one specimen of Yankee thrift and industry.

CONVERSION OF SALT WATER INTO FRESH.—An important and completely successful experiment has been made by Mr. Wells, as to the conversion of sea water into a perfectly fresh and pure liquid, fit for every purpose of domestic use. The apparatus consists of a cast-iron cooking machine, about four feet in height, and the same in width, and contains ovens, roasting fires, pots, pans, kettles, &c., sufficient to dress a dinner for seventy or eighty men. The consumption of fuel is about two bushels in twenty-four hours; and by the internal application of the heated air, by means of tubes surrounding the various parts of the machine, roasting, boiling, and baking, are carried on with the utmost regularity and precision. Whilst the cooking is proceeding, the sea water is gradually supplied from a cask or tank, and passing into the interior of the machine, is there submitted to distillation. In its distilled state it flows into a pipe of cast iron, or of copper, tinned, which pipe is led over the bow of the vessel, and along the cut-water into the sea, and thence along the bottom of the vessel, till it returns into the hold, where a common stop-cock draws off the water. The grand improvement is the making the element in which the vessel floats the condenser of the altered liquid, which runs off at about the rate of a quart a minute, perfectly fit for drinking, washing, or any of the other purposes for which fresh water is employed. The patentee then filters it through charcoal, to restore the carbon which has been lost in the distilling. This invention will render the watering of ships unnecessary, and the room hitherto required to stow water may be used for goods.—[Literary Gazette.]

Would not the room required for the stowage of fuel to carry on the process be equal to that required for water?

HABITS OF SPIDERS.—M. Walckenaert related before the Entomological Society of France, the following curious fact, which is given on the authority of Mr. Spence. Having placed a large full grown spider, of the species *Epeira diademata*, on a cane planted upright in the midst of a stream of waters, he saw it descend the cane several times, and remount when it had arrived at the surface of the water. Suddenly he altogether lost sight of it, but a few minutes afterwards, to his great astonishment, he perceived it quietly pursuing its own way on the other side of the stream. *Epeira* having spun two threads along the cane, had cut one of them, which, carried by the wind, had become attached to some object on the bank and so served the spider as a bridge across the water. Mr. Spence believes that spiders, when adult, always use similar means to cross water. M. le Pelletier de Saint Fargere also supported the opinion.—[L'Institute.]

SALTING BUTTER.—The quantity of salt for butter that is not to be eaten for several months after salting, should not be less than half an ounce of salt, mixed with 2 drachms of sugar and two drachms of nitre, to six-

teen ounces of butter. The sugar improves the taste, and the nitre gives the butter a better color, while both of them act with the salt in preserving the butter from rancidity. If the salt is not minutely mixed into the butter, that on which it rests will have a yellow or brownish color, while the rest will be of a white color, which, in dairy language, is termed "pyety butter," that brings an inferior price. But although the butter has to be kneaded among the water, and the salt well mixed into it, care must be taken not to bake or knead it too much, otherwise it will become tough and gluey.—[Quar. Journal.]

[From the Baltimore American.]

The performances of the Ice boat during the past week have not only been completely successful, but have far exceeded any expectations which had been formed of her efficiency. Our eastern friends, whose harbors have all been blocked up by ice, will scarcely credit us, when we tell them that we have a steamboat which has not ceased operations for a single day since the late cold weather set in, but has forced a passage through the ice—thick and hard as it has been—with one or more vessels in tow. The Relief was built by gentlemen of our city, of great practical experience, for the express purpose of keeping open a passage into and out of the harbor in the winter season, and it is no faint praise to say that they have planned a boat which has fully answered this object, and whose operations have been attended with a success which has never yet been attained elsewhere.

The most remarkable performance of the Relief was on Friday last, after we had had a week of the most intensely cold weather experienced here for many years. About noon, she started from the harbour the brig Falcon in tow, and to the astonishment of all who witnessed it, made her way through ice a foot thick and of a flinty hardness. Every inch of her progress was thus impeded until she had traversed the whole length of the Patuxent, and reached the broad expanse of the Chesapeake Bay. Having placed the Falcon in a position clear of ice, from whence she could go to sea without difficulty, the Relief proceeded to Annapolis, where her entrance into the latter harbor was attended with obstacles of the same character that had been surmounted in leaving Baltimore. Her appearance there, we learn, excited no little astonishment, as it was supposed that the harbor was too firmly locked in ice to be opened by any human device. On the following day, Saturday, the Relief started from Annapolis, making a passage as she came out for the steamboat Columbus, bound to Norfolk, and reached Baltimore on the same night. Yesterday morning she started again for Annapolis, taking in tow the brig Ida, for Boston, brig Solon, and schooners Empire and Othello, for New York.

We may well say, therefore, that after the experience of the past week there can be no doubt of the ability to keep open the harbor of Baltimore in the severest winters, and that vessels may enter or depart without the hindrance experienced during the winter season in more northern ports. The achievement of this triumph is of much importance to the trade of our port, and gives to our Railroad, which is also independent of the seasons, great additional value.

For the information of persons at a distance, who may be curious on the subject, we will state that the Relief is a steamboat the model of whose bow has a close resemblance to the bowl of a table spoon. When she is propelled forward, the ice is not thrown before her, as it would be by an ordinary vessel, but passes under her bows and is broken. Her paddle wheels are of wood and iron, and some idea of their strength and adaptation to this peculiar service may be formed when we state that each wheel has in it six tons of iron.

MISCELLANY.

Among new works advertised in London as in the Press, is the Journal of Mrs. Butler, late Miss Kemble.

"THERE IS TIME ENOUGH."

This is one of the most mischievous sentences in the English language. Not that it is bad in itself—for it is strictly true, as we intend to show presently. But its meaning is sadly perverted, and what was meant for good, becomes the occasion of evil.

Many a good thing might have been done had it been begun in season, but because there was time enough it was let alone, and let alone, and so not started until too late, or never moved at all.

But there is such a thing as bringing good out of evil. The bee extracts honey, as sweet, if not as abundant, from the thistle, as from the rose. And he who would profit by studying human nature, and watching divine providence, may learn wisdom from his past errors, and turn over his misfortune to some good account.

The wisest man in ancient days, (and we believe he was fully as wise as people commonly are at present,)—the wisest man of ancient days has given us to understand that there is a time for every thing under the sun. *A time for laughter and for tears, for sorrow and for joy.* A time for business, a time for recreation, and a time for rest, but he does not say a word about leisure time, or time for idleness. He speaks too of a time to die, leaving us to infer, as we may very naturally, that He, who made the sun to rule the day, the moon and stars to govern the night, has given us time enough, just time enough, and none to spare, to perform all our duties, and to enjoy every rational pleasure—to make the world better for our having lived in it—and to become better fitted ourselves, for "Another and a better world."

There is time enough, says the schoolboy,—whose time runs out, and he goes half fitted to the counting room, or enters half fitted, at college.

Time enough,—thinks many a young man, if he does not say so, to commence habits of frugality and economy, and thus provide for future wealth—but the time never, never comes; and and he, to use a homely phrase of Dr. Franklin's, "scratches a poor man's head as long as he lives."

How many designs have we formed, of doing this and that good thing, which fell through, not because we had little time; but because we had time enough, and so wasted one hour after another till the time had passed.

Time enough to work, says the idler, and spendthrift; but his clothes wear out before he finds time to earn new ones; and his pockets are emptied, and he has no time to replenish them.

Franklin has a homely saying to this effect,—that he who looses an hour in the morning, must run all day, and 'tis a wonder if he overtakes his business before night. So, if any one finds himself pinched for time, it is likely he has thrown away an hour, when he thought he had time enough and a little to spare.

Time enough—say we, when in a serious mood, we resolve to be more diligent, more systematic, more punctual; when we resolve upon any reform.

We do not mean to procrastinate; but while we muse the moment passes, it is irrecoverably lost.

Do you say we knew all this before.

No doubt of it. Yet we are apt to think there is not only time enough, but some to spare. But this is an error and should be corrected.

The different length of different lives is nothing against our position, that life is just long enough. The oldest person has enough of duty and enough of pleasure too: if he lives aright, to occupy his three score years and ten—while he whose career goes down at noon, has time enough, if he will but improve it, to make his life here a blessing to others, and that hereafter blessed and glorious to himself.

—"That life alone is long,
Which answers life's great end."

The Ex-Pugilistic M. P.—Mr. Gully, M. P. for Pontefract, who attended the dinner given to the Earl of Durham at Newcastle, is the largest proprietor of the famous Hetton colliery, in the county of Durham. Mr. Gully is said to have invested upwards of £160,000 in that very extensive coal mine.

THE DEEPEST MINE IN GREAT BRITAIN.—The shaft at present sinking at Monkwearmouth Colliery, near Sunderland, has attained a considerably greater depth than any mine in Great Britain (or estimating its depth from the level of the sea, than any in the world). Pearce's shaft at the Consolidated Mines in Cornwall was, till lately, the deepest in the island, being about 1470 feet in perpendicular depth, of which 1150 feet are below the surface of the sea. The bottom of Woolf's shaft (also at the Consolidated Mines) is 1230 feet below the sea; but its total depth is less than that of Pearce's shaft. The bottom of the Monkwearmouth shaft is already upwards of 1500 feet below high water mark, and 1600 feet below the surface of the ground. It was commenced in May 1830. The upper part of the shaft passes through the lower magnesian limestone strata which overlap the south-eastern district of the Great Newcastle Coal-field, and which, including a stratum of "free-stone sand" at the bottom of the limestone, extended at Monkwearmouth to the thickness of 330 feet, and discharged towards the bottom of the strata the prodigious quantity of 3000 gallons of water per minute,—for the raising of which into an off-take draft, a double acting steam engine, working with a power of from 180 to 200 horses was found necessary. The first unequivocal stratum of the coal formation, viz. a bed of coal 1.2 inches thick, was not reached till August 1831 (being about 344 feet below the surface, after which the tremendous influx of water which had so long impeded the sinking operations was "stopped back" by a cylindrical "metal tubing" or casing, fitted (in a series of small portions) to the shaft, and extending from below the above bed of coal to within 26 yards of the surface. The sinking now proceeded with spirit—still no valuable bed of coal was reached, although the shaft had passed considerably above 600 feet into the coal measures, and much deeper than had hitherto been found requisite for reaching some of the known seams. It became evident that the miners were in unknown ground. A new "feeder of water" was encountered at the great depth of 1000 feet, requiring fresh pumps and a fresh outlay of money. The prospects of the owners became unpromising in the eyes of most men, and were denounced as hopeless by many of the coal-viewers! Coal-viewing, however, had as yet been limited to some 200 or 220 fathoms; and the views of the Messrs. Pemberton (the enterprising owners of this colliery) were not to be bounded by such ordinary depths; they considered rightly that the thickness of the coal formation might be vastly greater where protected by the superincumbent limestone, than where exposed to those denudations which in the neighborhood of the "rice" collieries had probably swept away the strata through which their own shaft had hitherto been sunk; that they were therefore, justified in anticipating the larger and known seams at greater depths; and that, in case these larger seams had (as was intimated) been split into smaller strata, the same causes which in other places had produced their subdivision might, at Monkwearmouth, have effected their junction. They continued, therefore, their sinking, and in October last reached a seam of considerable value and thickness, at the depth of 1578 feet below the surface; and presuming that this newly discovered seam was identified with the Benham seam of the Tyne (or Maudlin seam of the Wear), they are rapidly deepening their shaft, in anticipation of reaching the Hutton or most valuable seam at no distant period, but which (if their anticipations are well founded) will be found at a depth approaching 300 fathoms from the surface!! In the mean time, however, workings have very recently commenced in the supposed Benham seam. A party of scientific gentlemen descended into these workings on Saturday last, and, aided by every facility and assistance which could be afforded to them by the Messrs. Pemberton, made several barometric and thermometric observations, the detail of which will be deeply interesting to many of our readers. A barometer at the top of the shaft (87 feet above high water mark) stood at 30.518, its attached thermometer (Fahrenheit) being 53. On being carried down to the new workings (1584 feet below

the top) it stood at 32.280, and in all probability higher than ever before seen by human eye; the attached thermometer being 58. Four workings or drifts had been commenced in the coal; the longest of them, being that "to the dip," 22 yards in length and nearly two in breadth—to the end of which the current of fresh air for ventilating the mine was diverted (and from which the pitmen employed in its excavation had just departed)—was selected for the following thermometric observations. Temperature of the current of air near the entrance of the drift, 62 (Fahrenheit); near the end of the drift, 63; close to the face or extremity of the drift, and beyond the current of air, 68. A piece of coal was hewn from the face; and two thermometers placed in the spot just before occupied by the coal (their bulbs being instantly covered with coal dust) rose to 71. A small pool of water was standing at the end of the drift. Temperature of this water at eleven o'clock, 70; three hours later, 69.2. A register thermometer was buried 18 inches deep below the floor, and about 10 yards from the entrance of the drift; forty minutes afterwards its maximum temperature was 67. Another register thermometer was similarly buried near the end of the drift, and after a similar period indicated a maximum temperature of 70. It was then placed in a deeper hole and covered with small coal; some water oozed out of the side of this hole to the depth of 6 or 8 inches above the thermometer, which, upon being examined after a sufficient interval of time, indicated a temperature 71.2. A stream of gas bubbles (igniting with the flame of a candle) issued through the water collected in this hole; the bulbs of two very sensible thermometers were immersed under water in this stream of gas, and indicated a temperature constantly varying between 71.5 and 72.6. A thermometer was lowered to the bottom of a hole drilled to the depth of 2.2 feet into the floor of another of the workings, and the atmospheric air excluded from it by a tight stopping of clay; this thermometer being raised after the lapse of forty-eight hours, stood 71.2. The above observations will accord with the prevailing (and certainly well grounded) opinion, that the temperature of the earth increases with the depth from the surface. It must not, however, be forgotten that causes may be assigned for an increase of temperature in this and other coal mines, independently of the presumed subterranean heat. Those who are familiar with coal mines must have frequently witnessed the effects of the enormous pressure of the superincumbent strata; and a weight of 25,000 to 30,000 tons, which had lately reposed upon the coal hitherto occupying the drift above described, had suddenly been transferred to the coal situate on the idea of this drift. Hence those constant indications of tremendous pressure—the cracking of its sides and roof, and "heaving of the floor," and the crumbling of their materials, furnishing admission of air and water to innumerable fragments of shale, coal, and pyrites—circumstances which are awkwardly calculated to occasion an increase of temperature, both by mechanical compression and chemical decomposition, although wholly inadequate, as we conceive, to the generation of the temperature recorded on Saturday last; and the presence and lights of the pitmen were obviously inoperative in producing the effects remarked. Other experiments, however, in the prosecution of these inquiries, are, with the obliging permission of the owners, contemplated at Monkwearmouth Colliery; and amongst the minor advantages arising from their magnificent undertaking, will doubtless be the solution of any remaining doubts of the existence of considerable subterranean heat at accessible depths, beneath the surface of the earth.—[Durham Adv.]

REVENUES OF THE GERMAN STATES.—The second part of the fifth volume of the work entitled "Archives of the New Legislation of all the States of Germany," published by M. Alex. Muller and others, contains an interesting account of the actual state of the finances of Austria, Prussia, and the other German States; from whence it results that in the empire of Austria, the real revenue of the State amounts to 205,400,000 florins, and the debt of the State to 793,360,000 florins. The new Budget of Prussia for the years

1822—1834, according to the "Bulletin of the Laws" of 1832, No. 6, is fixed at 51,287,000 dollars. The debt of the State amounts to 170,000,000 dollars.

The revenues and debts of the other States are calculated in French francs.

	Revenue in francs.	Debts.
Bavaria.....	69,723,000	225,900,000
Wurtemberg.....	20,000,000	60,000,000
Hanover.....	37,000,000	64,000,000
Saxony.....	32,000,000	70,000,000
Grand Duchy of Baden.....	30,000,000	39,000,000
Hesse.....	17,000,000	27,000,000
Electorate of Hesse.....	11,000,000	5,000,000
Grand Duchy of Saxe-Weimar.....	4,913,000	16,391,000
Meck-Schwerin.....	6,000,000	30,500,000
Meck-Strelitz.....	1,500,000	3,000,000
Holst-Oldenb.....	3,800,000	
Duchy of Nassau.....	6,000,000	9,500,000
Brunswick.....	6,300,000	8,000,000
Saxe-Coburg-Gotha.....	2,500,000	11,000,000
Saxe-Meiningen.....	1,930,000	8,000,000
Saxe-Altenburg.....	1,522,000	3,000,000
Anhalt-Desau.....	1,400,000	1,600,000
Anhalt-Deubourg.....	1,100,000	1,700,000
Anhalt-Koben.....	630,000	2,100,000
Principality of Reuss-Griz.....	362,000	517,000
Reuss-Schleitz.....	336,000	
Reuss-Lobenstein.....	621,000	1,810,000
Schwarzbourg-Rud.....	800,000	600,000
Schwarzbourg-Son.....	600,000	540,000
Lippe-Deimold.....	1,267,000	1,500,000
Lippe-Schumbourg.....	556,000	1,034,000
Waldeck.....	4,034,000	3,103,000
Hohenzollern-Sig.....	500,000	2,000,000
Hohenzollern-Bec.....	310,000	700,000
Lichtenstein.....	50,000	
Landgrave of Hesse-Hombourg.....	400,000	1,164,000
City of Frankfurt.....	1,624,000	17,000,000
Bremen.....	1,614,000	7,800,000
Hamburg.....	5,600,000	40,000,000
Lubeck.....	1,034,000	8,000,000

It results from the above table, that in Austria each individual pays 13 1.2f to cover the debt of the State; in Prussia, 14f; in Bavaria, 17 1.2f; in Wurtemberg, 12 1.2f; in Hanover, 16f; in Saxony, 18 2.3f; in the Grand Duchy of Baden, 16 2.3f; in that of Darmstadt, 23 1.5f; in the Electorate of Hesse, 16 1.2f; and in the other small states, from 11 1.2f to 23f. In France each individual pays, to cover the public debt, 23f per annum; and in England, 49f.

His Majesty has conferred a baronetcy on Felix Booth, as a mark of approbation at the munificent sum advanced by that gentleman towards defraying the cost of the last expedition of Captain Ross to the polar regions. Mr. Booth, we understand, declined for a long time to accept this mark of distinction, and we believe the honor has been at last voluntarily conferred upon him by the government.

The champagne vintage of the present year is as follows:—Verzenay, 3,000 casks, Verzy and Villers Malmsey 1,500, Reilly, Chexney, and Lude, 1,000, Bowry 1,000, Ambonnay 1,000, Ay 10,000, Mareuil and Azenay 3,000, Haut, Villiers, Dizy, and Camiers 4,000, Epernay 4,000, Pierry 4,000, Moussy 2,500, Chouly 1,500, Cramant 2,000, Avize 8,000, Oger and Mesnil 16,000, Vertus 2,000; total 64,500 casks, containing 220 bottles each, making in all 14,190,000 bottles.—According to the estimate of the number of bottles which can be procured at the different manufactories, it appears that next year, when this vintage comes to be bottled off, there will be a deficiency to the number of 3,390,000. The manufactory of M. de Poilly can furnish 2,000,000, that of M. Daube 1,500,000, that of M. de Coloret 1,200,000, that of M. de Violaine, 1,800,000, that of Messrs. Pallier and Calegois 600,000.—The Auxin factory 400,000, two others in the North 600,000, the four Lorraine factories 2,500,000, and that of Croyen 200,000; total, 10,800,000. The number required is 14,190,000; deficiency 3,390,000.—[Paris Advertiser.]

Liberty a Plant.—During the progress of a political meeting held in the town of Cambridge, it so happened that the late Dr. Mansel, then public orator of the University of Cambridge, but afterwards master of Trinity College and Bishop of Bristol, came to the place of meeting just as Murgrove, the well known political tailor of his day, was in the midst of a most pathetic oration, and emphatically repeating, "Liberty, liberty, gentlemen!" He paused,— "Liberty is a plant."—"So is a cabbage!" exclaimed the caustic Mansel, before Murgrove had time to repeat his sentence, with so happy an allusion to the trade of a tailor, that he was silenced amidst roars of laughter.

NEW-YORK AMERICAN.

JANUARY 10—16, 1833.

LITERARY NOTICES.

THE NEW ENGLAND MAGAZINE, for January.—Boston.—It was a bold and difficult enterprise for untried powers, to assume the editorship of this magazine, which under its founders had won its way to the highest place among American monthlies. We wish their boldness may be rewarded with success, but as yet must ascribe to the Magazine the lament,

Non sum qualis eram.

THE WESTMINSTER REVIEW, No. VII., being the 3d number of Foster's republication. New York: F. FOSTER.—The Westminster rather affects American subjects, and particularly American principles—and aims, we believe, more than any other; European periodical, to acquire authority for its opinions, by referring to our example and practices. The first paper in this number is on the controversy concerning the Bank of the United States, in which it takes the side of "the brave old man" who waged, and is still waging, war against that institution, with as little perception of, or regard to, the real merits of the questions involved in the discussion, as any other headlong and passionate old man, intent upon gratifying personal resentments at any rate, would be likely to have.

As compared with either the Quarterly or Edinburgh, this whole number of the Westminster is feeble and uninteresting. From an article on the English language, we make two extracts—curious in their way.

Dr. Johnson was the first who culled from received authors some of those words to which they had given their approbation. The words comprised in his dictionary may truly be called a mere selection from those which form the language of England, when there are found in Shakespeare alone upwards of 1000 words which he rejected [*Chalmers's Apology for the Believers* &c. p. 210], and the Rev. Gilbert Wakefield, in a letter to Mr. Fox, stated that he had collected from Milton upwards of 500 solid and nervous words not in that dictionary. By the way, this may account in some measure for the inability of foreigners to appreciate, or even understand, the great national dramatist and poet. Mr. Todd has added 'several thousand words' to the number given by Johnson;—not new coinages of his own, but sterling English words;—many of them contained in writers to whose works Johnson must have had access, but which his fastidiousness induced him to discard. Mr. Chalmers, in his *Abridgement of Todd's Johnson*, has ventured to call it 'a complete glossary of the early English writers; but very erroneously. Milton's *Areopagitica* alone has a considerable number of words, there appear 32, not in the Dictionary; of which there are at least a dozen good words, some of them in daily use now, such as the adjective 'Eutopian.' A calculation has since been made by a late accurate philologist, that there are at least 13,000 words in common use in England, which do not appear in any dictionary of the language. Collections of many of these, amounting already to at least 5000, have been made in local vocabularies; and their derivations, in many instances, have been traced from those languages of which they once formed parts, and in the composition of which they were used as perfectly correct.

Another point for examination is the manner in which many of the verbs are used. Learn me, —for Teach me. To learn is the English of the Saxon verb *laeran*, which implied 'doceat' as well as 'discere' and has been employed accordingly by some of the best writers. It will be found in the 25th and 119th Psalms in the Common Prayer Book. In Richard II, the Bishop of Carlisle says, 'Then true noblesse would learn

him forbearance from so foul a wrong; and the same phrase occurs in *The Tempest*, *As You Like It*, and elsewhere.

To 'remember' another of anything, has also many good authorities in its favor, though it is now banished from polite discourse. Richard II's Queen objects to her lady telling tales of joy to her, because it will 'remember her the more of sorrow.' In *King John*, Constance says that grief 'remembers her' of Arthur. In the second part of *Henry IV*, Worcester 'remembers' the King, who were his first friends. And, nearer the present times, Richardson has the word in the same sense, in the 3d volume of *Sir Charles Grandison*, p. 157 of the 7th edition.

To 'fetch' a walk has also, though used only by the untaught in the present day, been approved by high authorities. By Milton,

When evening gray does rise, I fetch my round
Over the mount, and all this hallowed ground.

In *Cymbeline*, the Queen says, 'I'll fetch a turn about the garden,' &c. *Acts*, ch. 15, v. 13.—'And from thence we fetched a compass round,' &c.

To 'ruinate,' though used by Shakespeare and many authors of his age, and still later, by Lord Bacon,—"Philip and Nabie were already ruined,"—is among the proscribed verbs; as are various inflections of others in general usage, such as the following,—"It *snew*," for *It snowed*; which is particularly used in Norfolk and Suffolk, where the common people say, it *snow* and it *friz*. Holinshed, under the year 1583, describing the performance of a tragedy, says that among other devices, it 'snew an artificial kind of snow.' Dr. Wallis, in his *English Grammar*, published in 1653, mentions that *snew* was used as the perfect tense of the verb to snow, 'sed et utrobique, *snowed*.' Chaucer has 'it *snowed*.'

The next No. of this republication will be issued in about ten days, and will furnish, we are glad to find, the last London Quarterly, which has some capital papers, from one of which a long and interesting article will be found in another column.

PINNOCK'S IMPROVED EDITION OF GOLDSMITH'S HISTORY OF ENGLAND, with a continuation to the year 1832. First American from the 23d English edition. 1 vol. Philadelphia: Key & Biddle.—This is well got up, with a variety of wood cuts, explanatory notes, and with questions for examination at the end of each section. Yet we must say, as an American school-book, we prefer the *English History* we had occasion to notice some weeks ago by the author of "American Popular Lessons." The style and narrative of Goldsmith are more striking; but these are almost all lavished upon dissensions civil broils and bloodshed, while little attention is given to moral character and institutions, or to domestic and social history. In these particulars, which lead the young mind to consider other national characteristics than proneness to, and prowess in war, valuable, we consider that the "English History" above referred to, is entitled to the preference we have expressed.

MUSEUM OF FOREIGN LITERATURE, &c., for January; E. LITTELL, Philad.—This periodical, than which none affords more, or more varied reading, appears in an enlarged form, and henceforth will be under the direction, as to the selections, of the editor of that capital and cheap work, *Waldie's Library*. There is a good plate in this number of our old friend *Grant Thorburn*, which, if not very like as to the face, is unmistakable as to the feet. The literary contents are of the best of all the foreign magazines.

From the latest London Quarterly, we make the following extract:

PERSONAL HISTORY OF LOUIS PHILIPPE.

The journal begins with the entrance of the young Duke de Chartres (the present King Louis Philippe) into the Jacobin club, an event of con-

siderable importance in a public view, as marking his father's adhesion to the principles of that society, and which was also the occasion of serious family dissensions. The Jacobins, we find, were so much pleased at seeing the Duke de Chartres among them, that they presented him a formal address, of which the first sentence is curious:—"Sir, we congratulate ourselves! should we not also congratulate you? You have been our prince,—you are now our colleague, &c." But that which was a matter of congratulation to the Jacobins was a source of deep affliction to his amiable and excellent mother; and became the immediate cause of an open rupture between her and Madame de Genlis, by whose counsels that princess believed that her son had taken this unhappy and degrading step. Madame de Genlis, in her Memoirs, attributes it solely to the Duke of Orleans himself; but it is, we think, clear that she must share the responsibility. We have the young Duke's evidence, that his father only approved his own proposition; and we shall see, as we proceed, that this too docile and overaffectionate pupil would never have thought of making such a proposition without Madame de Genlis's previous concurrence. Her husband, M. de Sillery, proposed him,—her personal friends and the attendants whom she had placed about him all became members also. When in a year or two after, she, with her niece and Pamela, accompanied Madlle. d'Orleans to England, they designated themselves the four Jacobin emigrants. In short, it is clear that she countenanced, and probably advised, her pupil's entry into the Jacobin club; which, however, as she justly observes, had not at this period attained its subsequent ferocity and infamy. There is another circumstance in this affair that corroborates the opinion that the plunges of the Duke of Orleans into the successive depths of democracy were chiefly prompted by moral cowardice—the Duke de Chartres became Jacobin at the moment of that violent excitement which followed the duel of Messrs. de Castries and Lameth; but the father himself did not become a member of the club till the commotion occasioned by the flight of the King, when, not without some demur, he was admitted. Again, it was amidst the massacre of the 10th of August that he solicited the change of his name to *Egalité*. We say moral cowardice, for he showed more than once, and particularly at his last hour, personal firmness. We are tempted to quote from the little known relation of an eyewitness the account of his last hours. On the 6th of November, 1793, he was brought before the revolutionary tribunal, and, after a mock trial, condemned, on a series of charges, of all of which he was notoriously guiltless. He treated the dreadful mockery with contempt, and begged, as an only favor, that the sentence might be executed without delay; the bloody indulgence was granted, and he was led, at four o'clock, when the daylight was almost failing, from the court to the scaffold. 'I confess,' says the editor of the Orleans's correspondence, 'I had the barbarous curiosity to see him go to execution; I took my station opposite his palace, that I might observe the effect which, at his last moments, these scenes of former splendor and enjoyment might have on him. The crowd was immense, and aggravated, by its reproaches and insults, the agony of the sufferer. The fatal cart advanced at so slow a pace, that it seemed as if they were endeavoring to prolong his tortments. There were many other victims in the same cart; they were all beat double, pale and stupefied by horror. Orleans alone—a striking contrast—stood upright, his head elevated, his countenance full of its natural color, with all the firmness of innocence. By a refinement of cruelty, the cart was stopped at the gate of his palace; I saw him run his eyes over the building with the tranquil air of a master, who should be examining whether it required any additional ornament or repair. This air was, no doubt, studied and put on. I, as well as everybody else, could see that it was; it was even said, that he had prepared himself for it by wine; but, with all that, I was astonished. I am still astonished to think how such a man as Orleans could, by any means, have subdued his natural character, and worked himself up to such an appearance of courage and tranquility.' We return from this

digression to observe, that as to the rupture between the Duchesse of Orleans and Madame de Genlis, the latter in her memoirs, does tardy and rather reluctant, but yet complete, justice to the former. The cause, says she, of the duchess's coldness to me was evidently a difference of opinion on the politics of the day; and I am now ready to acknowledge that her fears, which at the time appeared to me so exaggerated, and even so unjust, were but too well founded. She did not permit her imagination to lead her astray—she did not abandon herself to romantic visions—her judgment, alas! was better than mine. With these preliminary observations on the state of the family, which will tend to explain some things which might otherwise obscure, we proceed to the journal itself:

We have only room to day for some extracts from this—

"Journal of Louis Philippe, Duke de Chartres."—Oct. 23, 1790.—I dined at Mousseaux—next day my father having approved my anxious wishes to become a member of the Jacobin Club, M. de Sillery proposed me on Friday, Nov. 2.—I was yesterday admitted to the Jacobins, and much applauded. I returned thanks for the kind reception that they were so good as to give me, and I assured them that I should never deviate from the sacred duties of a good patriot and a good citizen. Paris, Nov. 9.—Left Chateaufort at eleven at night, and arrived at Bellchasse at ten next day. I got on horseback at Angerville, nine leagues off; it was still dark, and I rode to Paris. In the evening I attended the Jacobins. They appointed me censor. As the hall is much too small to contain the friends of the constitution (the formal title of the club which derived its popular name from meeting at the convent of the Jacobins) whose members increase daily, a committee was named to look out for another place. They were discussing the King's household troops. M. de Mirabail, a young man, spoke remarkably well. I learned that I had been named one of the deputation to convey to the National Assembly the proposition relative to the Tennis Court. Nov. 10.—Yesterday my father sent for me, received me most kindly, and gave me fifty louis, of which I gave my brother ten. My father desired me to call on Madame de Lamballe, I went directly; and from her to the Assembly, and from that, with my father's approbation, to dine with M. Bonne-Carrete, who had been spokesman of the deputation to the Assembly.—He had invited the whole deputation and several members of the Assembly. The dinner was very gay, very patriotic, and very decent. Nov. 16.—At the Jacobins. I rose to speak, and said that I had had the honor of being admitted last year (though under age) into the Philanthropic Society. This society was in the habit of distributing 400,000 per annum; but this year the funds had fallen off by one half, because several very affluent persons had retired under pretence that the revolution prevents their contributing four louis a year. In this they have two objects—the first to discredit the revolution for having destroyed so good an institution; and secondly, to make it enemies of all the poor whose pensions should be thus stopped, by saying, it is the revolution deprives you of your bread. I said I thought that it was worthy of the club to support the Philanthropic Society, and I invited all who could afford four louis a year to belong to it, and those who could not, to contribute what they could afford. I was much applauded, and, on the motion of M. Faydel, a subscription which had been raised a month ago, for a poor man who had refused it, was transferred to the Philanthropic Society.—Nov. 19. This evening at the play to see (Voltaire's) Brutus, the audience made many allusions. When Brutus says, "Give me, ye Gods, death rather than slavery," the house rang with shouts of applause—great waving of hats. It was magnificent. Another line ended with these words, "Free and without a King." Some applause was heard, in which neither I nor any one in our box joined. Then there was a cry of God save the King, but it being observed that this cry was unconstitutional, they substituted the trill cry, which sounds so sweet in patriotic ears—God save the nation, the law, and the King and liberty for

ever. It was clear from all that passed that the patriots had a great majority over the aristocrats; three or four of these latter would have applauded some congenial allusions, but they were reduced to silence. 8th Jan. In the morning to the assembly—at six in the evening to the Jacobins. M. de Noailles presented a work on the revolution by Mr. Joseph Towers, in answer to Mr. Burke. He praised it highly, and proposed that I should be appointed to translate it. This proposition was adopted with great applause. I, like a blockhead, consented, but expressing my fear that I should not fulfil their expectations, I returned home at a quarter past seven. At night my father told me that he did not approve of it, and that I must excuse myself to the Jacobins on Sunday. June 27th. The great events which have occurred have prevented my continuing this journal. Thursday, the 23d, I attended at the head of the regiment, the procession of the Holy Sacrament. I had been required by the municipality to double the guard, to stop all carriages, and to employ the best energies of the brave patriots that I commanded to maintain the public peace. At noon I had brought back the regiment, but with orders not to unhut or unsaddle. I asked Messrs. Dubois, D'Albis, Jacquemin, and Phillippe, to dinner. They brought us word that the people had collected in a mob and were about to hang two priests. I ran immediately to the place—I came to the door of a tavern, where I found ten or twelve national guards, the mayor, the town clerk, and a great many people, crying they have violated the law; they must be hanged *à la lanterne*. I asked the mayor what all this meant, and what it was all about. He replied, —it is an old priest (that is a priest who had not taken the new oaths) and his father, who have escaped into this house; the people pretend that they have insulted M. Buisson, a priest, who has taken the civic oath, and who was carrying the holy sacrament, and I can no longer restrain them. I have sent for a carriage to convey them away. Have the goodness to send for two dragoons to escort them. I did so immediately. There was the Mayor motionless before the door, and not opening his mouth. I therefore addressed some of the hottest of the mob, and endeavored to explain how horrible it would be to hang men without trial; that moreover they would be doing the work of the executioner, which they considered infamous; that there were judges, whose duty it was to deal with these men. The mob answered that the judges were aristocrats, and that they did not punish the guilty. I replied, that's your own fault, as they are elected by yourselves; but you must not take the law into your own hands. Upon this there was a great confusion; at last one voice cried—we will spare them for the sake of M. de Chartres. Yes, yes, yes, cried the people; he is a good patriot; he edified us all this morning [by having attended the procession of the constitutional priest.] Bring them out we shall do them no harm. I said, do you promise me? Yes, yes, we shall do them no harm. I went up to the room where the unhappy men were, and asked them if they would trust themselves to me—they said ye. I exhorted the people not to forget what they had promised. They cried out again,—be easy, they shall receive no harm. I called to the driver to bring up the carriage; upon which the crowd cried out, no carriage; on foot, on foot, that we may have the pleasure of hooting them, and expelling them ignominiously from the town. Well, I said, on foot, be it so, 'tis the same thing to me, for you are too honest to forfeit your word.—We set out amidst hisses and a torrent of abuse. I gave my arm to one of the men, and the Mayor was on the other side. Not thinking at the moment, I took the direction towards Paris. All the people followed, singing the song of the Champ de Mars, and making a dreadful uproar. One man ran up crying *à la lanterne* with the rascals.—He narrowly escaped being hoisted up himself for saying so, because, said the people, we have promised M. de Chartres, and we will keep our word. We passed a little wooden bridge of a few planks without rails: there the mob cried to throw them into the river, and endeavored, by putting sticks across, to trip them up into the water. I again reminded them of their promise, and they became quiet. The crowd was still in-

creasing. It is but justice to the people of Vendôme to say that they kept their word, and tried to induce the peasants to do no violence to the men. Seeing, however, that if I had continued my march some misfortune must inevitably occur, I cried, we must take them to prison; and then all the people cried, to prison, to prison.—Some voices cried, they must ask pardon of God, and thank M. de Chartres for their lives. That was soon done, and we set out for the prison.—As we went along, one man came forward with a gun, and said to us stand out of the way while I fire on them. Believing that he was really about to fire, I rushed forward in front of my men, saying, you shall kill me first. As the man was well dressed, M. Pieyre said to him, but how can you act so. I was only joking, says the man; my gun is not charged. We again continued our way. On arriving at the prison, there was a great crowd assembled. The dragoons were mounted by M. de Lagondie's orders.—I ordered them to dismount, saying, that the people had promised me, and that I needed no help but their word. The two men were lodged in the prison. When they were there, the people wanted to attack the Oratoire (a religious house), the superior of which has not taken the oath, and whose church was the resort of the refractory [those who did not approve of the new constitution of the clergy], and those whose children had not attended the procession—in short, of the aristocrats. I observed, that that was not the way to proceed; that they ought to request the Mayor to suggest to the superior of the Oratoire that they were displeased at seeing his church filled with the refractory. They answered, a fig for the Mayor—you may do it. I answered that I was ready to accompany the Mayor. I did so. The superior was very obstinate: he would not yield at that time, but he went off next morning. After dinner I went to the municipality, and stayed while they were drawing up the account of what had happened. I went again next day and signed it—3d August. Happy day, I have saved a man's life, or rather have contrived to save it. This evening, after having read a little of Pope, Matiasio, and Emile, I went to bathe. Edward and I were dressing ourselves, when I heard the cry of help, help! I am drowning? I ran immediately to the cry, as did Edward, who was farther off. I came first, and could only see the tops of the person's fingers; I laid hold of that hand, which seized mine with indescribable strength, and by the way in which he held me, would have drowned me, if Edward had not come up and seized one of his legs, which deprived him of the power of jumping on me. We then got him ashore. He could scarcely speak; he expressed great gratitude to me, as well as to Edward. I go to bed happy."

At seventeen, this Journal, we repeat, is not discreditable to any man, be he Prince or Jacobin, or both.

SUMMARY.

The Legislature of Massachusetts met at Boston on Wednesday last. Benjamin T. Pickman, of Suffolk, was chosen President of the Senate by 30 out of 32 votes, and on the second ballot, Julius S. Rockwell was chosen Speaker of the House by 362 out of 504 votes.

LARGE CARGO.—The British ship Adam Lodge, Captain Page, cleared from Charleston on the 2d instant with a cargo of 1725 bales of cotton—65 tierces of rice—870 barrels of tar, &c.—valued at \$94,200 59.

The keeper of the Montreal jail, recently detected in some sausages brought to the prison by the brother of a condemned convict named Lane, six small files, not intended certainly for internal consumption.

The wife of Mr. David Avery, of Westminster, Vt. has presented her husband with five children within fifteen months!

Abiza Snow, of Brunswick, Me. was presented by his wife on Sunday last with three boys, weighing 21 lbs. all well at last dates.

A very important movement has been recently made among the Cherokees in Georgia, the particulars of which are given in the Southern Recorder. On the 27th November, a Council of the Nation, composed of the Chiefs and Head men who are opposed to State jurisdiction, and in favor of removing to another country, was held at Running Waters. Elias Boudinot, who is, we believe, the most influential man among the Cherokees, presided. The Council declared it to be their unanimous opinion,—and a most sound and wise opinion it unquestionably is,—that their people "cannot exist amidst a white population, subject to laws which they have no hand in making, and which they do not understand." Nor could they long exist even with entire political independence, where they are surrounded by whites, and consequently subject to their social and commercial influences.

Among the reasons assigned, in the resolutions adopted by the Council, for the opinion that the nation cannot be re-established in its present location, is stated, "the repeated refusal of the Presidents and Congress of the United States to interfere in their behalf." The Council declare, that though they love the land of their fathers, they regard the lot of exile immeasurably to be preferred to a submission to the laws of other States; and they are of opinion that a large majority of the Cherokee people would prefer a removal, if the true state of their condition was properly made known to them.

It appears that another Council, called the Red Clay Council, was held some time previous to this one, at which removal was not advocated.—The Running Waters Council express their disapproval of the course there recommended, and order that a delegation be sent to Washington to represent the views and wishes to those who prefer to remove to a country where the Cherokees can be preserved as a distinct community. The Red Clay Council have also sent a delegation to Washington.

Elias Boudinot, in a letter, an extract from which is given in the Southern Recorder, writes: "The meeting will have a powerful effect. It seems already to have inspired a new energy in our people, who are determined to get out of the jurisdiction of the States."—[Baltimore American.]

WASHINGTON, JAN. 9.—A part of the delegation have arrived in this city, of the Cherokees, who were appointed by that portion of the nation who are favorable to the policy recommended by the President of the United States.

A committee of the House of Representatives of Massachusetts, have provided for the accommodation of the members six hundred and fifteen seats. It is ascertained that there are six hundred and three members elected.

The Regents of the University, at a meeting held on the 8th instant, appointed the Hon. STEPHEN VAN RENSSELAER, Chancellor of the University, in the place of Simeon De Witt, Esq. deceased.

When Wm. Penn first landed in Pennsylvania, he walked with the Indians, sat down with them on the ground, and ate with them roasted acorns and hominy; then they began to hop and jump, whereupon Wm. Penn stopped up and beat them all. Such wise complaisance won and secured their friendship and affection for him during his life.

Ship Letters.—There were received at the Post Office in this city during the last year 420,359 ship letters; 183,855 were for the city delivery, and the remaining 236,504, were forwarded to other offices.—[Times.]

Mrs. Bogue, of Amherst, on the 29 of Sept. last, the anniversary of her ninety-ninth year, spun sixty knots and thirty threads of handsome woollen yarn!

Spermaceti Whale Fishery.—The whole number of ships engaged in this valuable branch of the fisheries, is 273, of which 257 are now absent, viz:—From New Bedford 94, Nantucket 63, Fairhaven 14, Bristol 13, New London 10, Hudson 9, Warren 7, Edgartown 6, Falmouth 6, Newport 6, Sag Harbor 5, Salem 3, Newburyport 3, Poughkeepsie 2, Portsmouth 2, Dartmouth 2,

and 1 from each of the following ports, viz:—Boston, Plymouth, Wareham, Rochester, Portland, Wiscasset, Fall River, Providence, Stonington, Newburg, New York, and Wilmington, Del.; 16 ships only are in port. The aggregate tonnage of the 257 absent ships, is nearly 100,000 tons. The number of seamen and navigators employed on board these vessels, is not far from 9,000. The cost of the entire fleet, as fitted for these voyages of three years' duration, probably exceeds \$6,000,000.

Among the ships now abroad, there are 31 which sailed in 1831, 73 in 1832, 88 in 1834, and 65 in 1834. Should no unforeseen calamity take place, whereby this important branch of national industry may be injured or interrupted, the number of spermaceti whale ships expected to arrive within the year 1835, may be set down at 70, and their cargoes at 125,000 barrels, valued at upwards of three millions of dollars.—[Nantucket Inquirer.]

The Loss by the fire in Chatham street yesterday, is estimated at \$40,000, and the insurance at \$27,000. There is no apology for not insuring against fire, when the premiums as compared with the risk are so moderate.

A Good Hit.—A Mr. Gray inquired of a negro servant what color he believed the devil was; "Why," replied the African, "the white men tell us he is black. We say he is white. But from his long age, I guess old Nick must be gray."

"Chock home" is what the sailors say when a thing can go no farther; and this might be said of the weather here for two days past. The thermometer (Fahrenheit) has been at 39 or 40 below 0, and consequently the mercury congealed!—[Bangor Whig.]

[FOR THE NEW YORK AMERICAN.]

American Antiquities.—An interesting communication was read at the last meeting of the Lyceum of Natural History, from General Swift, in which he makes known the existence, and details some particulars of, another of the ancient cities of this continent. This discovery was recently made by Capt. J. C. Cunningham of Mexico, an enterprising and intelligent gentleman, while exploring "El Estero de Topila," one of the tributaries of the river Panuco, that empties into the Gulf of Mexico at the city of Tampico. The ruins are situate at the base of a mountain, about 55 miles from Tampico, and disclose the vestiges of a regularly-planned city, the buildings of which were of hewn stone, on streets about 30 feet in width, running at right angles, with curb-stones and side-walks: where open, they were found to be covered with a smooth layer of small pebbles. The buildings had in every observed instance fallen inwards, and on the mounds so formed, are now growing large forest trees. Captain Cunningham noticed an inscription in characters resembling the Greek; and some remarkable structures, one of which he supposed to have been a tomb, and another a temple: from the latter he brought, from among many similar rude sculptures, a curiously distorted human face and figure, carved in stone, which he has presented to the Lyceum of Natural History, and it is now in their Museum. Capt. Cunningham is about to return to Tampico, and intends a more minute and careful examination of these interesting remains, whence it is probable he may be able to draw materials that will importantly assist archeologists in their endeavors to throw some light on the origin, habits and state of civilization of the early inhabitants of this continent. The proximity of this ancient town to the much-frequented city of Tampico, will, it is hoped, induce others of our countrymen to engage in the same work of research.

The annexed record of the temperature, from the 2 to 10 inst. including the cold Sunday the 4th, is from the table of an accurate observer and establishes the maximum of cold experienced here, as not exceeding 4 deg. under zero—almost moderate to the 30 and 40 degrees of Columbia county and Albany.

THERMOMETER.

	8 A. M.	12 M.	10 P. M.
January 2	29	36	27
3	9	11	2
4	0 4	7	4
5	3	17	14
6	35	9	1
7	0 1	54	14
8	1	14	7
9	4	19	12
10	11	—	—

Steamboats were so much in demand yesterday for towing vessels, that as high as thirty dollars an hour was paid. The common price is ten dollars an hour.

MERCANTILE LIBRARY ASSOCIATION.—A most overflowing attendance of the members of this Association was induced last evening at the Clinton Hall, by the recurrence of the Annual Election for Officers.

At a general meeting previous to the election, at which Mr. J. G. King presided, the Annual Report was read, giving a very satisfactory account of the condition of the Institution, &c.—A short Address was made by the Chairman, and speeches by Messrs. Stebbins, Buckingham, and others, when the general meeting was dissolved and the election was proceeded with.—It was warmly contested—there being two rival tickets—and resulted against what was called the regular nomination. We subjoin a list of the successful candidates; and the election being over, take leave to express the hope that the excitement which attended it, may also cease.

R. R. BOYD, President.

ANDREW MOUNT, Vice President.

J. JAMES HORN, Secretary.

JAMES ROACH, Treasurer.

R. J. ANDREWS, J. P. CROWKITE,

CHARLES ROLFE, S. T. NICOLL,

J. N. BRADLEY, GEORGE PORTER,

C. B. SAMSON, T. A. CUMMINS,
Directors.

APPOINTMENTS BY THE PRESIDENT.

By and with the advice and consent of the Senate.

JAMES M. WAYNE, to be one of the Associate Justices of the Supreme Court of the United States, in the place of William Johnson, deceased.

BENJAMIN RENSCHAW, to be Consul, for the port of Alicante, in Spain, in the place of George S. Adams.

JOHN STRYKER, to be Consul for the port of Gallio, (Texas,) in Mexico.

WILLIAM H. WICKES, Surveyor and Inspector of the Revenue for the port of Chester, in the State of Maryland, from the 5th inst., when his former commission expired.

EDWARD PESCUD, Surveyor and Inspector of the revenue for the port of Petersburg and City Point, in the State of Virginia, from the 12th inst. when his former commission expired.

SAMUEL ALEXANDER, Register of the Land Office for the district of land subject to sale at Quincy, in the State of Illinois, from the 2d of March next, when his present commission will expire.

FRANK J. ALLEN, Register of the Land Office for the district of lands subject to sale at Jackson, in the State of Missouri, from the 24th December, 1834, vice George Ballitt, Esq., deceased.

WILLIAM BLACKBURN, Receiver of Public monies for the district of lands subject to sale at Wapakenneta, in the State of Ohio, from the 21st Dec. ult., vice R. J. Skinner.

THOMAS J. CHARLETON, Collector of the Customs for the district and Inspector of the Revenue for the port of Hardwicke, in the State of Georgia, from the 30th ult., vice J. J. Maxwell.

TEMPERANCE MEETING OF MECHANICS.—We were led by the call of a public meeting, published in the papers, and numerously signed by some of our most respectable mechanics, to look in at Chatham-street Chapel last evening, and we know not when and where we have seen a more gratifying spectacle, than was afforded by the gathering there, in such a cause, of more than 2000 persons, most of whom were, we have little doubt, mechanics.

Gideon Lee opened the proceedings in an excellent address, was followed briefly by Mr. Mercein, and then by Mr. Hunt, of North Carolina, who, with an earnestness that denoted entire conviction, and with an archness and humor that enlivened, without rendering less impressive, the lesson he desired to inculcate, that intemperance is the bane of social and civil life—of industry, character and independence—kept alive the attention and interest of the audience for more than an hour. He concluded by reading the pledge to be signed by those who desired to join the Temperance Society, and then invited signatures.—Papers were immediately circulated throughout the Hall, and, as we heard, more than 500 signatures were obtained. We hope the ball will be kept in motion.

ANOTHER STEAMBOAT BURNT.—We are indebted to the editor of the Columbus Sentinel for the following disastrous information.—“Since our paper (of Jan. 3) went to press, we learn that the splendid new steamboat, *Eloisa*, (built at Pittsburgh, under the superintendence of Col. D. J. Britt, who was a part owner, and intended to ply between this and Apalachicola,) loaded with Cotton, was entirely consumed by fire on the night of the 31st ult. at Brown's Ferry, on the Chattahoochee. We understand that the disaster was the result of accident.”

“Why did Adam bite the apple?” said a school-master to a country boy. “Because he had no knife to cut it,” said the boy.

It is to be regretted that the taste for music is not more prevalent in this country. It has a humanizing and gentle influence upon the character of a people, and affords a source of refined and innocent delight which nothing else can supply. A taste for music encourages all the social virtues; it furnishes an amusement which delights without danger, and affords instead of the dull and eating pleasures of dissipation, a source of delight as refined as it is endless. The ladies are particularly interested in this matter.—“When a taste for music becomes more general in the other sex, they may depend not only on having more of their company, but having that company rendered more agreeable by the charms of gentleness, refinement and harmony.

There is a destiny hangs over us: we are not entirely our own masters, and cannot carve for ourselves. It is cruel to lay, in every case, a man's non-success at his door. There are often circumstances, not at his command to which almost any other would have been a victim. They who are at their ease, and have never been put into peril, may talk very calmly, and very sapiently; or may shake their heads with a hypocritical appearance of regret, when they are secretly exulting in their hard hearts.

By THE WILLIAM GIBBONS, steamboat from Charleston, we have papers of Saturday evening last. The cold weather had continued there, with snow—and the thermometer at 18 deg.

For accounts of the Cotton market, we refer to the Commercial Record. There had been few arrivals at Charleston—there were on the 9th.—British brig *Burton* from Liverpool and the brig *Durant* from Boston—on the 10th there was no arrival—the packet ship *Anson* cleared for this port.

[From the Courier & Enquirer.]
TRIAL OF MATHIAS, THE PROPHET.
For the Murder of Mr. Elisha Pearson,
WHITE PLAINS, WESTCHESTER CO.
Wednesday, Jan. 14, 1834.

A Special Court of Oyer and Terminer for this county, assembled on Monday, and was thronged to a degree quite unexampled on any previous occasion. There were several important causes, both civil and criminal, to be brought before it, but the interest of these seemed wholly lost in the intense curiosity excited by the astonishing case of this man. During the first two days it seemed to be the prevalent opinion that the Grand Jury would not find the indictment against him, in consequence, it was said, of the absence of several important witnesses for the prosecution. Last night, however, it was generally rumored that the bill had been found; and at 10 o'clock this morning all doubts were removed by the entrance of the Jury with a bill of indictment against “Robert Matthews, otherwise called Mathias the Prophet,” for the murder of Elisha Pearson, late of Mount Pleasant, in the county of Westchester. The Court immediately suspended the other business before them and ordered the prisoner to be brought up. He took his seat in the criminal box with a hurried, and, for him, unusually embarrassed air. He exhibited his favorite modicum of beard, and his hair, which appears somewhat more grey than when we last saw him, was also in much greater length and profusion. The expression of his countenance was careworn and anxious, and he seemed impressed with a reflection, that the present occasion was neither to be held in defiance nor treated with contempt. His dress was a green frock coat adorned with frog buttons, lined at the skirts with a pink and pea-green plaid silk; a green fancy silk vest, rather greasy, and stone-drab colored pantaloons.

Mr. Nelson, the District Attorney, then called upon him to hear the indictment, which set forth his alleged crime in five several counts—the first charging him with having caused the death of Mr. Pearson by mingling arsenic with his food between the 1st and the 6th of August, 1834; the second charging him with the murder by means of some metallic substance thus mingled which was unknown to the Jury; the third, with having thus poisoned him with the aid of an accessory unknown to the Jury; the fourth with having killed him by starvation whilst keeping him in duress and confinement in his own house; and the fifth with having caused his death by withholding from him whilst thus confined and suffering from a grievous illness such nursing and medical attention as were needful to his recovery. Whilst listening to the part of the first count which technically set forth that the poison had “entered the body” of the deceased, the prisoner's features acquired a slight expression of ridicule, but during the reading of the all the remaining counts, he preserved an unbroken gravity, slightly inclining his ear as if to hear every syllable distinctly, and erecting at regular intervals the tremendous beard on his upper lip in a manner which at a less solemn juncture could not have been witnessed without laughter. Still neither in this nor in any other peculiarity of demeanour, could we perceive any of the usual indicia or concomitants of insanity. The moment the indictment was read, Mr. Western of New York, the prisoner's leading counsel, rose and said, “If the Court please, before we plead to this indictment, it will become my unpleasant duty to state some facts connected with the manner in which it has been found, that are, in my opinion, vitally important both to the forms of justice and to the interests of my client. I find that it has been framed under an undue influence, in consequence of the illegal access to the jury of an individual who was neither a witness, nor the District Attorney, who is alone authorized to hold intercourse with them during their solemn and responsible deliberations. In proof of this I beg to submit to the Court the following affidavit, and on which I shall move that the indictment be quashed.

“N. Nye Hall [who was the Associate Counsel of Mr. Western,] being duly sworn, saith, that he has been informed, and believes, that a person who is neither a witness, nor the District

Attorney for the County of Westchester, has had access and communication with the Grand Jury, who found the bill of indictment against Robert Matthews, during the present term of the Court of Oyer and Terminer, for the aforesaid County, and that such communication was on the subject of said indictment. Deponent further saith, that the said person so having the said access is R. R. Voris, Esq. of Westchester, who in a conversation in deponent's presence, stated that the said Matthews was a great villain, or words to that effect, and that he deserved to be severely punished, or words to that import—Sworn, &c.”

This affidavit seemed to produce a great sensation in the Court, but Judge Ruggles after a short conference with his Associate Judges, refused the motion of counsel, which had been supported by an energetic address, and merely stated that “the Court do not see any sufficient reasons for quashing the indictment,” and took the counsel's exception. Mr. Voris, who is a highly respectable counsellor of Sing-Sing and who seems had acted in the Grand Jury Room as an Assistant District Attorney during the necessary attendance of Mr. Nelson in Court, rose and said, “he trusted that whatever little character he may have acquired in the country would be deemed by the Court quite sufficient to repel the accusation of such an affidavit, from such a source.” On which Mr. Hall rose and said, with great warmth of manner, “And I also trust that the opinion of the Court will not be affected by such a remark from such a source,” or in words to that effect.

The District Attorney then states to the Court that for want of material witnesses to the prosecution of the cause, who were absent from illness, he wished it to be postponed to the next term of the Court. This was warmly opposed by Mr. Western, who required that the public prosecutor should make an affidavit of the fact embodying the name of the absent witnesses in order that he might put his finger upon them in case he should find it necessary to do so. Mr. Nelson replied he did not know upon what principle the gentleman could demand an affidavit from him, but he would follow the courtesy practised on such occasions, and state the names of the witnesses, which were Mrs. Folger, Dr. Condit, Jr., Dr. Jones, Dr. Canfield, and Catharine Gallaway.—And in addition to the reasons for postponement arising from the absence of these witnesses, it had become necessary, in anticipation of the plea of insanity which he had learned was to be set up by the prisoner's counsel, to secure the attendance of persons who had known the accused for many years.

After some further discussion the Court decided to adjourn the cause to the next term, which will be April next, when, if we may judge from private information of high authority a development of facts will be made more extraordinary than any yet recorded in the annals of imposition and delusion.

The London Courier, of the 11th of last month gives the following paragraph:

“There are in the United States, says a New York paper, 300,000 drunkards. Suppose they were all to die to day, and to be buried side by side in one continued line, allowing three feet for the width of each grave, and three feet between them—the line of graves would extend 3409 miles! Were they to be buried in one grave yard, they would cover an area of 680 acres, and a fence to enclose it would be more than four miles in circuit. War has its horrors—famine has its horrors—pestilence has its horrors—but the horrors of intemperance concentrate and exceed them all. In ten years' time the whole procession will have passed, and the grave yard will be filled. How long shall it be so? Will an end never come?”

Fire.—About half past two o'clock this morning, a fire broke out in a wooden building, in the rear of Amos street, the property of Mr. Isaac Ammerman, and tenanted, and used as a dye-house by Mr. James Melville. It was considerably injured, and a quantity of yarn and dye stuffs destroyed; but the fire was extinguished before it reached any of the adjoining buildings.—[Jour. of Com.]

FOREIGN INTELLIGENCE.

LATER FROM EUROPE.—Another arrival—the South America from Liverpool, in a passage, for the season of the year, most unusual—brings London dates to the 16th ult.

The South America arrived off the Hook Saturday, and sailed on the 17th December, making the passage from port to port in 23 days.

The new English Administration is formed. Sir Robert Peel as Premier; and without any admixture, as will be seen, of Reformers.

Application was, it is said, made, but without success, both to Lord Stanley and Sir James Graham, to join the administration, whence the inference seems reasonable, that no such assurance was given of the future march of the Cabinet, even in the circumscribed path of reform, which those gentlemen have followed, as would justify their taking office.

The dates from Paris are of the 13th. The Chambers, as we stated in commenting on the news by the Sylvie de Grasse would be the case, did not meet between the 8th and 13th. On the 13th, Saturday, nothing specific was done, and nothing at all on our subject; so that up to Monday, 15th Dec., no mention appears to have been made of the American treaty.

In Spain, Mina's name and services do not appear to have produced as yet any confidence in, or good result to, the Queen's cause, nor to have in any manner dispirited the Carlists.

The packet ship *United States*, Holdridge master, in coming out of the dock, was run ashore by the pilot, and was obliged to be discharged, having, however, only slightly damaged her cargo. She would soon be ready again for sea.

ENGLAND.

London, Dec. 11.—The King held a Privy Council yesterday, which was attended by the Lord Chancellor, (Lyndhurst) the Duke of Wellington, Marquess of Camden, Earls of Roslyn, Amburst, and Jersey, Lords Ellenborough, Cowley, and Maryborough, Sir R. Peel, Sir C. M. Sutton, Sir John Becket, Sir H. Hardinge, Messrs. Goulburn and Herries—our future Reformers.

Sir R. Peel was sworn into office as Chancellor of the Exchequer, and received the seals of office from the King. He will also be first Lord of the Treasury; but with respect to the latter some delay must take place.

Parliament was ordered to be further prorogued from the 18th of the present month to Thursday, the 15th of January. But this is a mere matter of form, as Parliament can be dissolved at any time. Nothing, however, is yet known of the dissolution, though it is probable that the moment the ministerial arrangements are completed it will take place.

[From the London Globe, Dec. 15—evening.]

The New British Ministry.—The following is a correct list of the new Cabinet Ministers appointed at the Council held this afternoon at St. James's Palace:

Sir R. Peel, First Lord of the Treasury and Chancellor of the Exchequer.

Lord Lyndhurst, Lord Chancellor

Duke of Wellington, Foreign Secretary.

Lord Wharfedale, Privy Seal.

Earl of Aberdeen, First Lord of the Admiralty.

Lord Roslyn, President of the Council.

Mr. Goulburn, Secretary for the Home Department.

Mr. Herries, Secretary of War.

Sir Henry Hardinge, Secretary of Ireland.

Sir G. Murray, Master-General of the Ordnance.

Mr. A. Baring, President of the Board of Trade.

Sir L. Knatchbull, Paymaster of the Forces.

Lord Ellenborough, President of the Board of Control.

The above form the Cabinet.

The Secretaryship for the Colonies, and the Chancellorship for the Duchy of Lancaster, are not yet filled up.

The following appointments have been made: Sir J. Searle, Chief Baron of the Exchequer. Sir E. Sugden, Chancellor of Ireland. Lord Jersey, Lord Chamberlain.

Lord Stanley.—No doubt the refusal of Lord Stanley to take office will be fastened on by the men of the crisis as a proof that the country is on the eve of great disasters. We have the satisfaction of being enabled to calm their raptures, by an assurance that Lord Stanley, though declining to take office for the present, has unequivocally asserted that he will support the King and the Ministers of his choice.—[West Kent Guardian.]

Ghent, Dec. 13.—Our arrivals from Germany mention that a marriage had been determined on between her Royal Highness the Princess Victoria, presumptive heiress of the throne of Great Britain, and his Royal Highness Prince William Alexander Constantine, the second son of his Royal Highness the Prince of Orange. This alliance would be the prelude of the most intimate and friendly relations between the Netherlands and England. It would enhance, if possible, the splendor of the House of Brandenburg and the imperial family of Russia.—[Messager de Gand.]

FRANCE.

Paris, Dec. 12.—M. de Broglie is definitely appointed Ambassador to London. Nothing is waiting for to make this nomination official, but to know the ministerial arrangements of the English Cabinet.

It was said on 'Change, that the Chamber intended to apply to the National the maximum of the penalty, viz: five years imprisonment and a fine of 20,000 francs. This may be the wish of some fanatic, such as we sometimes meet with, but we find it difficult to believe that the Chamber of Peers can have so far engaged itself that it can be announced beforehand that it will condemn, and to what penalty it will condemn.

The Paris paper (the Constitutionnel) states that "Prince Talleyrand speaks of a letter which he has received from the Duke of Wellington, inviting him to return to London, and assuring him that no alteration would be made in the foreign relations of the country."

The principle topic of reflection at present in the Paris papers is the citation of the editor of the National before the Chamber of Peers, for publishing in his journal an article derogatory to the dignity of that body. In pursuance of this summons M. Rouen, the respectable editor of the National, presented himself at the bar of the Chamber of Peers on Friday last, and on his application a delay of four days was allowed him for the purpose of preparing his defence.

At the sitting of the Court of Assizes yesterday M. Bichot, editor of the Tribune, was arraigned for a libel against the King, contained in an article published in that journal, entitled "*Du Voyage du Roi a Compiègne*," in which allusions were made to the events at Lyons, and to the unfortunate duel in which M. Dulong was killed.—M. Bichot was found guilty, and sentenced to 12 months imprisonment and a fine of 6,000 francs.

SPAIN.

Postscript of the Journal de Paris, of Dec. 13: General Mina, on the 7th instant, proceeded to Lenz in order to protect a convoy of money expected there.

No new engagement has taken place. On the following day he returned to Pampeluna. Don Carlos was at Escuna on the 7th, when Zumalacarraguy was directing his steps towards the Bidasoa.

Paris, Dec. 12.—A courier from Cadiz brings us the intelligence that on the 19th, the anniversary of the Queen's birthday, the civil governor having objected to the singing of the patriotic songs by the actors, the spectators threw stones into his box, and they went to his palace, which they attacked; one of the domestics was wounded. At the departure of the courier the agitation had not ceased, and had spread to Xerxes de la Frontera.

Compromise in Spain.—The Memorial des Pyrenees of Pau says—"It is affirmed that Zumalacarraguy has written to General Mina, proposing, as a means of putting an end to the effusion of blood in the Peninsula, that a marriage should

be contracted between the young Queen and the son of Don Carlos; but Mina replied, that rebels must first lay down their arms. The war, therefore, is about to recommence with increased fury, and will become a war of extermination.

It is conjectured by the Times of the 16th ult. and by the Standard (which as a Tory paper may be supposed the more accurate now in such matters,) that Lord de Grey, better known as Lord Grantham, is to be the Vice Regent of Ireland, in the place of the Marquis Wellesley, who had quitted his government, as will be seen by the annexed.

ARRIVAL OF THE LORD LIEUTENANT OF IRELAND.—The Marquis and Marchioness Wellesley and suite arrived at the Clarendon hotel, New Bond street, on Friday evening, from the Vice-regal lodge, at Dublin Castle. The Firebrand Government steamer conveyed the Marquis and Marchioness, with their carriages and luggage, from Howth to Holyhead. Mr. and Mrs. Caton arrived at the Clarendon on the preceding evening, from Ireland.

The Rt. Hon. G. R. Dameson, brother-in-law of Mr. Peel, is to be the new Secretary for Ireland.

The Examiner thus speaks of Sir R. Peel.

Sir Robert Peel has answered to the Duke's whistle. He has hurried home and sprung into office with the speed of mischief. His politics turned with his coach wheels. Perish principles—welcome place! What are now his opinions? The opinions which he finds in the coat pocket of his official uniform.

Miraculous as was the Duke's conversion to Reform, that of Sir Robert must have been more sudden. He receives a note of invitation—it was but to ask and have—to govern or not to govern was then the short question—was he to stay at Rome with his principles, or to order post horses and dash home through thick and thin for the prize?—he was a Reformer in the crack of a whip. His professions were of no more concern to him than the cattle which speeded him on his journey—what mattered it whether he was drawn by a black, a white, or a piebald, so that he advanced to his goal? What cares he for the color of his opinions, so that they forward his fortunes? The journey to government was no more to be accomplished with his own principles than with his own horses, so he took hack-posters. And now here he is seated in the Treasury, First Lord and Chancellor of the Exchequer; what else he is to be, whether anti-reformer or sham-reformer, is doubtless to him immaterial—he will take the part which place makes convenient.

Madame Recamier has left the interest of 20,000fr. as an annual prize for the best treatise on the influence of grief as a cause of sickness and death. The prize is to be awarded by the Académie de Médecine. The unfortunate lady was herself for a long time a prey to wasting sorrows, under which she at length sunk. The consciousness of her approaching end, and of its cause, no doubt originated the idea of this singular bequest. *Journal Hebdomadaire*, Oct. 25. [The principal cause of the grief of this once beautiful and always amiable lady was the loss of her personal charms. She did not feel what everybody who knew her did—that age had not impaired her power of pleasing and interesting all who saw her.]

The Liverpool papers of 17th December, announce the arrival by the "England, from this port, of nine hundred and fifty chests tea." This is one of the fruits of abolishing the monopoly of the East India Company.

Death of the Rev. Edward Irving.—On the 6th instant, at Glasgow, between the hours of 11 and 12 o'clock at night, died in the 43d year of his age, the Rev. Edward Irving. He was sensible to the last, and his departing words were "In life or in death I am the Lord's;" previous to which, he sung the 23d psalm in Hebrew, accompanied by his wife's father, the Rev. John Martin.

(From Tait's Edinburgh Magazine.)

THE PAST—THE PRESENT—THE FUTURE.
RESOLVE! ASPIRE! PROSPER!

The Past, the Present, and the Future:—these are Time's three portions; and Eternity's Can be no greater. Strange is their division: Each with each making union and collision. They were, or are, or will be, each the same; And each the other, in their order, name And being. Yet two of these are infinite:— The Past, still reflux on the deepening night Of pre-eternity, whose unborn source Receives, absorbs, accelerates, its course; The Future from its post-eternal store Forth issuing, and extending more and more; The Present,—how shall we its state define? What hand shall mete its nice and narrow line? Gone, even in its coming,—subtle shade, Whose advent by no art of man is stayed, Nor its departure speeded; that small space, Whose point the Future and the Past efface In the same instant. It will be the Past, And it hath been the Future: yet doth last, The unchanged, always changing, Present; still Blending the boundaries of wars and will. The Isthmian* now of each Eternity, Twining the has been, being, and to be; The bridge of either axis, single-arched, O'er whose short span the ceaseless Past hath marched From the quick Future, which its track pursues, O'ertakes, impels, effaces, and renews. The far Past, fades behind Oblivion's veil; The nearer gleams through Memory's reflex pale;— Dark as the distant Future; while the near Takes the prismatic tints of hope and fear. Our sires possessed the Past—its state was theirs, Our children are the future's destined heirs; While between either range ourselves are thrown, The waste forgotten, and the waste unknown.— So are the twain of lifeless void to us— The anti-natal, and the posthumous; Shedding alike their deep, impervious gloom, Before the cradle and behind the tomb. But the immediate Present—which doth dwell On its own instant indivisible— The speck of time, incapable of pause— It was what will be, and will be what was, Yet ever is, a filling, emptying sea; Through which the river of Futurity Exhaustless rolls into the broad and deep Gulf of the Past, with never tiring sweep. How strange, that what is nothing should be all— Continual time, a timeless interval— A viewless atom, slipping from its sense, An orb of undescribed circumference, Forbear the enlarging thought—nor urge a theme Which He alone can reach—the Power Supreme,— Within the glance of whose all seeing eye, The Past, the Present, and the Future lie,— A triune point in one eternity. Yet hence a reasonable lesson may Well be extended— Be then our net with present wisdom cast, To catch the Future, ere it be the Past! E. L. L. S.

* O. Life!
Thou weak built fethmas, thou dost proud'ly rise,
Up between two eternities! COWLEY.

MECHANICS' MAGAZINE.

THE NUMBER FOR DECEMBER, which completes the fourth volume of this popular work, is published. It contains a portrait, engraved on copper, of ROBERT FULTON, with a Memoir, and some documents respecting his claim to the honor of first originating steam navigation. Also, upwards of 50 articles of interest and utility, connected with the arts and sciences.

The first number for 1835 will be ready very shortly. Subscribers who are deficient of numbers can be supplied, as the work is stereotyped.

The Mechanics' Magazine and Register of Inventions and Improvements is published by the Proprietors, D. K. MINOR & J. E. CHALLIS, at No. 35 Wall-street, New York: in weekly sheets of 16 pages, at 64 cents—in monthly parts of 64 pages, at 34 cents—in volumes of 384 pages, in cloth boards, at \$1.75—or at \$3 per annum, in advance. JOHN KNOTT, (formerly proprietor of the London Mechanics' Magazine,) Editor.

AGENTS FOR NEW PUBLICATIONS.

HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications: The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance.

The American Railroad Journal, Weekly, at \$3.00 per annum.

The Mechanics' Magazine, two volumes a year, at \$3.00 per annum.

The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number.

The Family Magazine, 416 pages a year, at \$1.50 in advance.

The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, now in the 5th volume, bound volumes \$1.25.

The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance.

The Rochester Genl., at \$1.50 in advance.

All Communications addressed to me, at Wheatland, Monroe county, will be promptly attended to. September 19, 1834. a6v6 Cif.

RAILROAD CARS.

Messrs. D. & J. MITCHELL, Eclipse Foundry, Holidaysburg, Huntingdon county, Pennsylvania, are now prepared to manufacture, at short notice, any number of Railroad Cars—in the most approved and substantial manner. Jan. 24

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad,

No. 264 Elizabeth-street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad, now in operation. J33 1f

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. EKASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-1 y

RAILWAY IRON.

Ninety-five tons of 1 inch by 1 inch, 300 do. 1 1/2 do. 40 do. 1 3/4 do. 800 do. 2 do. 800 do. 2 1/2 do. soon expected.

Flat Bars in 1/4ths of 14 to 16 ft. coun'r sunk holes ends cut at an angle of 45 deg's with splicing pla's, nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 4 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7lmeqwr

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 20, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 120 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, fitted with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Sproves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stack of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggons, could be made per annum.

For terms, apply to

THOS. J. ECKLEY, Treasr., &c., Boston, or to

ROBERT RALSTON, Jr., Philadelphia. Boston, Dec. 20, 1834.

TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Duffee, May & Co. offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. E. Jarvis, Eng. M. & H. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, January 29, 1835.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keep constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practical, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J33 lam H. BURDEN.

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maidenlane.

J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy; also, a Railroad Goniometer, with two Telescopes; and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1832.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

mil y HENRY R. CAMPBELL, Eng. Philad. Germantown and Norrist. Railroads

LEGISLATURE OF NEW YORK.

IN SENATE—Saturday.

The President announced the following.

STANDING COMMITTEES.

On Claims—Messrs. Sudam, Tracy, Fisk.

On Finance—Messrs. Van Schaick, Halsey, Beardsley.

On Judiciary—Messrs. Lansing, Edmonds, Edwards.

On Militia—Messrs. Maison, Kemble, Gansevoort.

On Canals—Messrs. Hubbard, Armstrong, Livingston.

On Railroads—Messrs. Edwards, Mack, Madison.

On roads and Bridges—Messrs. Seger, Willes, Jones.

On Literature—Messrs. Gansevoort, Bishop, Young.

On State Prison—Messrs. Macdonald, Beardsley, Lansing.

On Banks and Insurance Companies—Messrs. Edmonds, Armstrong, Stetson.

On Division of Towns and Counties—Messrs. Fisk, Mack, Beckwith.

On Agriculture—Messrs. Halsey, Cropsey, Griffin.

On Manufactures—Messrs. Bishop, Loomis, Downing.

On Privileges and Elections—Messrs. McDowell, Wills, Beckwith.

On Enrolled Bills—Messrs. Mack, Lawyer, Lacey.

On Indian Affairs—Messrs. Kemble, Loomis, Fox.

On Expiring Laws—Messrs. Tracy, Macdonald, Cropsey.

On Expenditures—Messrs. Stower, Griffin, Loomis.

On Incorporation of Cities and Villages—Messrs. Livingston, Seger, Beckwith.

Select Committees on Governor's Message.

On so much as relates to County Prisons—Messrs. Armstrong, Lacy, Edmonds.

To Police of County Poor Houses—Messrs. Kemble, Downing, McDowell.

To Instruction of the Blind—Messrs. Young, Livingston, Sudam.

To Asylum of the Insane Poor—Messrs. Beardsley, Gansevoort, Lansing.

Lotteries and the sale of Lottery Tickets—Messrs. Stower, Tracy, Van Schaick.

To an enumeration of the inhabitants—Messrs. Cropsey, Jones, Lawyer, Bishop, Seger, Hubbard, Halsey, Fox.

IN ASSEMBLY.

The Speaker announced the following

STANDING COMMITTEES.

Ways and Means—Messrs. Dayan, Cash, Pettit, Shafer, King.

On Grievances—Messrs. Adams, Hough, Brooks, Mallory, Moore.

On the Judiciary—Livingston, Roosevelt, M. H. Sibley, Krum, Dayan.

On expiring laws—Messrs. Stetson, Moseley, Warren, A. Hascall Kent.

On Claims—Messrs. M. H. Sibley, Burhans, Cuykendall, A. Woodworth, Benjamin.

On Colleges, Academies and Common Schools—Messrs. Wetmore, Burke, Clinch, Van Bergen, P. W. Paddock.

On Engrossed Bills—Messrs. Suffern, Beck, Plumb, Crowl, Niles.

On the Erection and Division of Towns and Counties—Messrs. Palmer, Griswold, Harvey, Ingersoll, W. Woodworth.

On the Incorporation of Cities and Villages—Messrs. Jackson, Ringgold, Tillinghurst, Tomlinson Wylie.

On Agriculture—Messrs. Healey, Becher, Conklin, Cray, Horton.

On the Incorporation of Charitable and Religious Societies—Messrs. Thorn, Coe, Wheeler, T. Lewis, Bennet.

On the Incorporation and alteration of the Charters of Banking and Insurance Companies—Messrs. Wilkinson, Adams, Davis, Van Benthuyzen, Dennison.

On the Petitions of Aliens—Messrs. Patterson, J. Clark, Philo, Tyrrell, E. Strong.

On the establishment of Roads, Bridges, &c.—Messrs. Anthony, Phillips, G. Strong, Hicks, Blatchly.

On Canals—Messrs. Wager, Baker, A. Clark, Crain, W. S. Paddock.

On Railroads—Messrs. Roosevelt, Ogden, Preston, Eldred, Hutchingson.

On States Prisons and the Penitentiary system—Messrs. Stevens, Crosby, Groom, Cadwell, J. W. Lewis.

On the Militia and the Public Defence—Messrs. Lockwood, Fisher, Crain, Stetson, Wetmore.

On Indian Affairs—Messrs. Moseley, Lytle, Jones, Barnum, McKie.

On the manufacture of Salt—Messrs. Parker, Seger, Barnes, A. Brown, Hillyer.

On Medical Societies—Messrs. Judd, Rice, Williams, Murphy, Waldron.

On two thirds bills—Messrs. Gray, Herttell, Barr, Suffern, Wager.

On Public Lands—Messrs. King, Woodbury, Odell, Powers, Hildreth.

On Trade and Manufactures—Messrs. Quackenbush, Springer, Hiller, Woodward, McClure.

Select Committee on the Governor's Message.

On so much as relates to State Prisons—Messrs. Carr, Burhans, Griswold, Loomis, C. Clark, Williams, Wilkinson, D. Sibley.

On so much as relates to Poor Houses—Messrs. Ostrom, Simmons, Farwell, Richmond, Hendee.

On so much as relates to Insane Poor—Messrs. Herttell, Ogden, Van Bergen, Beecher, Tillinghast, Woodbury, Coe, Plumb.

On so much as relates to the Blind—Messrs. Cash, J. Haskell, Livingston, Moore, Gray, Carpenter, Cuykendall, G. Brown.

WEEKLY REPORT OF DEATHS.

The City Inspector reports the death of 175 persons for the week ending on Saturday last, of whom 40 were men, 33 women, 59 boys, 43 girls—of the following

DISEASES.—Asphyxia 1; burned or scalded 6; casualty 2; convulsions 14; consumption 34; contusion 1; cramp 1; fever, bilious 1; fever, remittent 1; fever, scarlet 5; fever, typhus 3; flux infantile 1; gravel 1; hives or croup 9; inflammation of the bowels 3; of the brain 4; of the chest 4; of the liver 1; interperitoneal 2; marasmus 4; old age 6; palsy 2; peripneumony 18; rheumatism 2; small-pox 14; sprue 1; stillborn 19; suicide 2; tabes mesenterica 1; teething 3; whooping-cough 2; worms 2.

Of whom 64 were of the age of one year and under; 11 between 1 and 2; 18 between 2 and 5; 6 between 5 and 10; 5 between 10 and 20; 30 between 20 and 30; 18 between 30 and 40; 10 between 40 and 50; 12 between 50 and 60; 5 between 60 and 70; 4 between 70 and 80; 2 between 80 and 90.

GERRET FORBES, City Inspector.

Of the above, 19 were colored persons.

SALES OF REAL ESTATE AT AUCTION.

By James Bleeker & Sons—January 10.

The vacant lot on the corner of Bleeker and Charles streets, 25 by 75 feet 8300

The three lots adjoining with same building, being 70 feet on Bleeker and 75 on Charles st. 335

The house and lot No. 118 Franklin street, between Chapel and Church sts. lot 90 by 50 feet 6650

The lot on East Broadway, next the corner of Montgomery street, running to Division street, with a two story house, being 275 Division street, lot 23 by 165 13,000

The lot on the corner of Liberty and Greenwich streets, being about 45 feet on Liberty, and about 64 feet on Greenwich street 10,000

The lot No. 30 Gold street, about 27 feet front, 20 in the rear, and 83 deep 625

One lot on the corner of State and Nevins street, Brooklyn, 25 by 100 3,000

Four lots adjoining the above at 675 900

One lot on the opposite corner 5800

Eight lots adjoining the above at 700 1500

One lot on the corner of Avenue C and 4th st., 24 by about 100 3600

Three lots adjoining the same at 1360 4900

Six lots off 30th st., near 3d Avenue, each 880 4350

Seven lots adjoining the above, each 650 13,500

The three story brick house No. 21 Beekman, between Nassau and William sts., 23 1-2 by 100 ft 3530

The two story brick house and lot No. 11 Hague street, lot about 16 by 26 3100

The 2 story brick front house, adjoining the above No. 9, about the same dimensions 3780

The lot adjoining the last, partly in the rear, with a two story front house 7290

The three story brick house and lot 546 Broadway, lot 20 by 100 feet 9400

The 3 story brick house and lot No. 54 Broadway, lot 20 by 100 feet 9500

The three story house and lot adjoining the same 26,000

The three houses and lots on E. corner of the Bowery and Grand street, 50 feet front on Bowery and 75 on Grand 14,500

THE EXILE.

Amidst Siberia's mountains,
Dark glens and ice plains dreary,
Dull mists and frozen fountains,
An Exile worn and weary
Pined 'neath the galling chain
Of Muscovy's creation;
Then wildly asked if hope were vain
From ev'ry Christian nation.

"I sought not battle, loved not strife,
"But bless'd my homely board,
"Till forced to save, or lose my life,
"I snatch'd the desperate sword.
"The horde of Russian spoilers swept,
"Whilst Rapsin led their van;
"My infants shriek'd their mother wept—
"Must I not feel as man!

"Wife, babes, home, shelter, all destroy'd—
"Ah! what remained to me!
"Revenge,—revenge my arm employ'd,
"Till crush'd by tyranny.
"What cared I for the sanguine wave,
"Whilst Russian was the flood?
"But when I saw the Polish brave
"Immersed in Poland's blood.

"My head, my heart, my hand alike
"Grew savage in the field;
"Despair's dark dictates bade me strike,
"Grim horror held my shield.
"Oh, Poland! had thy martial train
"Been powerful as brave,
"Ne'er had the tyrant Russian chain
"Fetter'd a Polish slave!

"No fond one left to sigh farewell,
"Nor kind hand mine to clasp,
"Oh, I was like the wild gazelle
"Within a tiger's grasp!
"Home, hope, and freedom lost to me,
"What charm could life contain?
"The darkest page of history
"Will show our conflict vain.

"Yes, Despotism has subdued
"All that he can subdue;
"But 'midst the wildest solitude
"The soul of freedom grew:
"Chains cannot gail the master mind,
"Though round the captive throws,
"This, to the glory of mankind,
"Was shown at Marathon.

"More modern story bids us bless
"The Gideon's happy hand,
"When valour's daring met succos,
"And freed his native land.
"Oh might the shade of gallant Tell
"Saratoga's heart rejoice,
"And to some ruin'd Polish cell
"Call Glory from her to rejoice!

"Although my sun may now be set,
"And broke for eye my sword,
"If in the lapse of ages yet
"My country be restored—
"If on her hills the free-born boy,
"If in her vales the song,
"If round her hearth the halcyon'd joy,
"If to her altars throng,

"A graceful race to praise their God,
"In peace and freedom blest—
"I'd stretch me on Siberia's sod,
"And sink in dreamless rest.
"But if the fetters and the fate
"That Moscow's hand impose,
"Be destin'd long as Poland's date,
"And deep as Poland's woes,

"My soul had best no presence keep,
"My sense pierce not the gloom;
"Despair might groan, but would not weep,
"O'er Poland's nameless tomb.
"Sunless and starless in her woods,
"Unseen, unthought, unwept,
"Leave her where cyprus only grows,
"Where opens dark are kept!

"No, no! the Cadmus-harvest yet
"Will ripen on thy plains;
"And though proud Moscow may forget
"The captive and his chains,
"Time shall rekindle Poland's fame,
"My country yet shall be
"A nation bearing honour'd name—
"Brave, independent, free!"

Thus warm the hapless Exile's pray'r,
"Thus deep his patriot sigh,
"While hope illum'd his forehead's cheek,
"And lit his tear-dim'd eye.
"But now the chains are broken,
"The spirit free to roam—
"His sorrows all are spoken,
"Kind death conducts him home!"

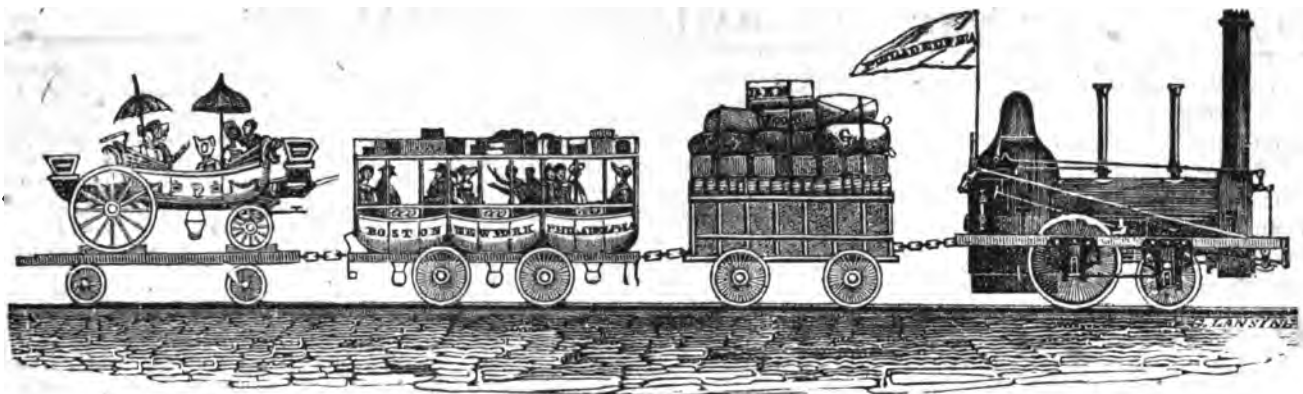
RAILROAD AND CANAL MAP.

THIS long promised Map is now ready for those who wish it. Its size is 24 by 40 inches. It is put up in a convenient pocket form, in morocco covers, and accompanied by over 70 pages of letter press, giving a concise description of, or reference to, each Road and Canal delineated on the Map. It will also be put up in *Marble Paper* covers, so as to be forwarded by mail to any part of the country; the postage of which, cannot exceed 44, and probably not 25 cents, to any part of the country.

Published at 35 Wall street, N. Y., by
A. L. 12 11 D. K. MINOR & J. E. CHALLIS.

JUST received, and for sale at the Agricultural Warehouse, 51 Barclay street, a number of Greene's Patent Hay and Straw Cutters. This Machine, for simplicity of construction, and ease and rapidity in working, is superior to any machine of the kind for sale in the Union. To Stock Farmers, and the proprietors of Livestock, it is invaluable, and would save its cost in a very few months' use.

J. S. & Co. 12m



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, JANUARY 24, 1835.

[VOLUME IV.—No. 3.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JANUARY 24, 1835.

We are indebted to the Hon. G. HARD, Member of Congress, for a copy of the Report made by A. Stewart, Esq., of the committee appointed to ascertain the probable amount of tolls on the Chesapeake and Ohio canal when completed to Cumberland, from which we shall make liberal extracts at an early period.

OVERLAND JOURNEY TO INDIA.—In reply to our request for information relative to the state and progress of internal communication and improvements in the East, we have been politely furnished, by a subscriber, with several numbers of the ASIATIC JOURNAL, in which we find several interesting articles relative to the overland route from India to Europe, which we shall at an early day transfer to our columns.

We are grateful for such favors, and solicit from friends the privilege of looking at such of their foreign periodicals, that we do not receive, as will enrich our columns.

BOSTON AND PROVIDENCE RAILROAD.—The annual report of the Directors of this Corporation has been laid before the Legislature of Massachusetts and presents the following facts. During the past year, the graduation of the road bed has been completed from the depot at Boston to the Rhode Island line at India bridge, ex-

cepting sundry sections of the extent of about a mile and a quarter in all, which are expected to be completed on or before the first of May. A single track has been laid from the depot at Boston, for the distance of about twenty-one miles, excepting for a mile and a half in Canton, where the graduation is not yet completed; and there are also about four miles more of the rail laid in different places; making an aggregate length of rail already laid, of twenty-three miles and a half. Stone foundations have been prepared throughout the remaining distance, where the graduation is completed, wherever they were considered necessary. The requisite materials for the completion of the whole have been engaged, and the directors see nothing to prevent the opening of the road by the first of June. It is believed by the agent, that the expense of the whole road will not vary materially from the original estimate.

The directors have also caused a branch railroad to be completed, during the past year, from the Low Plain in Dedham to Dedham village, the distance being about two miles and a quarter.

The whole amount of expenditures during the past year, has been \$552,506 7, and of receipts \$526,139 98. Of the latter amount, \$516,560 have been received from the stockholders by virtue of assessment; \$5,084 74 from the transportation of passengers and goods, \$2,632 63 from the sale of materials; and \$862 61 from rents: the accounts being made up to the first day of the present month.

The new locomotive engine purchased for the use of the Lexington and Ohio Railroad Company, was brought up to town on Wednesday, and will, we understand, be put in operation on the road in the course of a week.

Since the railroad was opened to Frankfort, the passenger cars have been uniformly crowded both ways. Nothing is more common now than for a gentleman to take a morning ride to the seat of Government, spend several hours there in watching the movements of the Legislature, and return to Lexington again in the afternoon, without fatigue to himself, and with but a trifling call upon his purse. Heretofore, at this season of the year, the distance between Lexington and Frankfort has been considered a full day's journey on horseback, and the urgency of business alone could form a sufficient inducement to prevail

upon a citizen to undertake it. When the locomotive is put upon the road, a single hour will suffice to accomplish the same distance, so that time, space, and the worst of obstacles to winter travelling, mud, will all be overcome.—[Lexington, Ky., Gaz.]

GENERAL KNOWLEDGE.—Whatever may be thought of the following remarks of Sir William Temple in other respects, their justice in relation to the medical profession must be universally acknowledged. "It is certain, however," says this distinguished writer, "that the study of physic is not achieved in any eminent degree, without very great advancements in the sciences; so that whatever the profession is, the professors have been generally very much esteemed on that account, as well as of their own art, as the most learned men of their ages, and thereby shared with the two other great professions in those advantages most commonly valued, and most eagerly pursued; whereof the divines seem to have had the most honor, the lawyers the most money, and the physicians the most learning."

Hippocrates was profoundly skilled in natural knowledge, before he commenced the study of medicine; and it has become a common saying, that where the natural philosopher ends, the physician begins. The laws which regulate other material substances apply to the human body. Chemistry is all essential to a physician. "I do not hesitate to pronounce," said Fourcroy, "that modern chemistry has done more, in twenty years, for medicine, than all the united labors of preceding ages." The materia medica is supplied from the three kingdoms of nature. Without a knowledge of botany, mineralogy, and zoology, a physician cannot understand the medicines he prescribes, and as the nomenclature of his profession is derived from the learned languages, and principally from the Greek, he ought to be a classical scholar. In a word, he should have a general acquaintance with all the departments of human knowledge, in order to compose that learned man which is expected from an able and accomplished physician.—[Scientific Tracts.]

On the Use of Locomotive Engines on Common Roads—in reply to Mr. G. Ralston.

To the Editor of the Railroad Journal:

SIR,—On perusing No. 49, Vol. 3, of your Journal, my attention was attracted by a letter from your respectable correspondent, Mr. Ralston, on the use of locomotive engines on common roads. He appears to be satisfied that they may, under favorable circumstances, compete with animal power in England, but doubts whether they will answer as well in the United States. My purpose is to invite attention to the reasons given by Mr. R. for this conclusion, and to the means of obviating such objections as appear to be most formidable. The facts on which Mr. R. has founded his conclusion may be classed under two general heads: 1. The greater economy of steam power and machinery in England than in the United States, and the greater economy of animal power in the United States than in England; 2. The imperfect condition of our roads, compared with those of England. As to the first point, I would observe, that although the facts stated are no doubt true, yet it does not follow from them, that steam power is not cheaper than animal power in the United States. The difference is not so great as in England, but it is fully proved by experience, that steam power applied on a railroad is, if any, little more than half the expense of animal power. It may be further remarked, that the application of steam in propelling a locomotive on an iron rail, is subject to a peculiar disadvantage in comparison with animal power, which would not occur upon a common road. This arises from the slipping of the car wheels on ascents, before the engine has exerted her full power. To avert this great inconvenience, the weight of the engine must be increased to obtain sufficient adhesion; which additional weight requires an extra, and otherwise superfluous, force to propel it. It is conceded, I believe, that on the common road there is no want of adhesion, and hence lighter engines may be employed with decided advantage. These facts show, that the difference of expense between steam and animal power must be greater on common roads than on a railway; and whatever may be the advantages of that power on the railroad, we have an assurance of a still greater relative advantage on the common road. The first objection suggested by Mr. Ralston does not, therefore, as I think, sustain his doubt of the profitable substitution of steam for animal power on the common road in the United States. The next objection, founded on the imperfect condition of our roads, is altogether conclusive: no engineer, in his senses, would risk a locomotive engine upon the convex, uneven, and rough surface of our best turnpike roads. If, therefore, we would employ the locomotive off the railroad, it must not be on a common, but a proper road, made for, and restricted exclusively to, that purpose; which, I apprehend, could be better adapted to the locomotive than even the best roads in England, especially if the wheels of the locomotive are made very wide, and otherwise perfectly adapted for this use. Having explained the plan of such a road in No. 5, Vol. 3, of your Journal, I need not repeat the

explanation here, but would remark in addition, that the great difficulty of arranging the business on a railroad, so as to admit of its general use for vehicles of different owners, running at various speeds, threatens to become a permanent obstacle to its utility, and especially its popularity. A proper locomotive road, suited for the meeting and passing of trains every where, would compensate for a considerable diminution of the load now drawn on a railroad. The Columbia railroad in Pennsylvania, made by the State, has been opened for general use with double tracks, but the interruptions are so frequent, that the stages propelled by locomotives can only run 8 or 9 miles an hour. It has therefore been proposed by the State authorities, to manage the whole transportation by their agents, in order to regulate the times for starting, meeting, passing places, &c. But this indispensable measure is about to be strenuously opposed by the inhabitants on the borders. A hard gravel or stone road, graded for the purpose, and made wide enough for vehicles to pass or meet, would remove all necessity for this arrangement, and individuals or companies, as many as might choose to embark, could establish trains for travelling or freight, securing to the public all the benefits of the most active competition. Yours, &c.

J.

Dec. 29, 1834.

[From the Repository of Patent Inventions.]

Report on the Progress and Present State of our Knowledge of Hydraulics as a Branch of Engineering. By GEORGE RENNIE, Esq., F. R. S., &c. &c. Part I. (Continued from page 31.)

Unappalled, however, by these difficulties, the Chevalier Buat, after perusing attentively M. Bossut's work, undertook to solve them by means of a theorem which appeared to him to be the key of the whole science of hydraulics. He considered that if water was in a perfect state of fluidity, and ran in a bed from which it experienced no resistance whatever, its motion would be constantly accelerated, like the motion of a heavy body descending an inclined plane—but as the velocity of a river is not accelerated *ad infinitum*, but arrives at a state of uniformity, it follows that there exists some obstacle which destroys the accelerating force, and prevents it from impressing upon the water a new degree of velocity. This obstacle must therefore be owing either to the viscosity of the water, or to the resistance it experiences against the bed of the river; from which Dubuat derives the following principle. That when water runs uniformly in any channel, the accelerating force which obliges it to run is equal to the sum of all the resistances which it experiences, whether arising from the viscosity of the water or the friction of its beds. Encouraged by this discovery, and by the application of its principles to the solution of a great many cases in practice, Dubuat was convinced that the motion of water in a conduit pipe was analogous to the uniform motion of a river, since in both cases gravity was the cause of motion, and the resistance of the channel or perimeter of the pipes the modifiers. He then availed himself of the experiments of Bossut on conduit pipes and artificial channels to explain his theory: the results of which investigations were published in the year 1779. M. Dubuat was, however, sensible that a theory of so much novelty, and at variance with the then received theory, required to be supported by experiments more numerous and direct than those formerly undertaken, as he was constrained to suppose that the friction of the

water did not depend upon the pressure, but on the surface and square of the velocity. Accordingly, he devoted three years to making experiments, and with ample funds and assistance provided by the French government, was enabled to publish his great work, entitled *Principes d'Hydraulique vérifiés par un grand nombre d'Experiences, faites par Ordre du Gouvernement*, 2 vols. 1786, (a third volume, entitled *Principes d'Hydraulique et Hydrodynamique*, appeared in 1816); in the first instance, by repeating and enlarging the scale of Bossut's experiments on pipes, (with water running in them,) of different inclinations or angles, of from 90° to 15°, at part of a right angle, and in channels of from $\frac{1}{4}$ line in diameter to 7 and 8 square toises of surface, and subsequently to water running in open channels, in which he experienced great difficulties in rendering the motion uniform; but he was amply recompensed by the results he obtained on the diminution of the velocity of the different parts of a uniform current, and of the relation of the velocities at the surface and bottom, by which the water works its own channel, and by the knowledge of the resistances which different kinds of beds produce, such as clay, sand, and gravel; and varying the experiments on the effect of sluices, and the piers of bridges, &c., he was enabled to obtain a formula applicable to most cases in practice.*

Thus let V = mean velocity per second, in inches;

d = hydraulic mean depth, or quotient, which arises from dividing the area or section of the canal in square inches, by the perimeter of the part in contact with the water, in linear inches;

s = the slope or declivity of the pipe, or the surface of the water;

g = 16.087, the velocity in inches which a body acquires in falling one second of time;

n = an abstract number, which was found by experiment to be equal to 243.7;

$$\sqrt{ng}(\sqrt{d-0.1})$$

Then $v = \frac{\sqrt{ng}(\sqrt{d-0.1})}{\sqrt{s} - \log \sqrt{s} + 1.6} - 0.3(\sqrt{d-0.1})$

$$\sqrt{s} - \log \sqrt{s} + 1.6$$

Such are the objects of M. Dubuat's work. But his hypotheses are unfortunately founded upon assumptions which render the applications of his theory of little use. It is evident that the supposition of a constant and uniform velocity in rivers cannot hold: nevertheless, he has rendered great services to the science by the solution of many important questions relating to it; and although he has left on some points a vast field open to research, he is justly entitled to the merit of originality and accuracy.

Contemporary with Dubuat was M. Chezy, one of the most skilful engineers of his time: he was director of the Ecole des Ponts et Chaussées, and reported, conjointly with M. Perronet, on the Canal Yvette. He endeavored to assign, by experiment, the relation existing between the inclination, length, transverse section, and velocity of a canal. In the course of this investigation he obtained a very simple expression of the velocity, involving three different variable quantities, and capable, by means of a single experiment, of being applied to all currents whatever. He assimilates the resistance of the sides and bottom of the canal to known resistances, which follow the law

* Edinburgh Encyclopedia, art. Hydrodynamica, by Brewster.

of the square of the velocity, and he obtains the following simple formula:

$v = \frac{\sqrt{g d}}{z s}$, where g is = 16·087 feet, the heavy body after falling one second;
 d = hydraulic mean depth, equal to the area of the section divided by the perimeter of the part of the canal in contact with the water;
 s = the slope or declivity of the pipe;
 z = an abstract number, to be determined by experiment.

In the year 1784, M. Lespinasse published in the Memoirs of the Academy of Science at Toulouse two papers, containing some interesting observations on the expenditure of water through large orifices, and on the junction and separation of rivers. The author had performed the experiments contained in his last paper on the rivers Fresquel and Aude, and on that part of the canal of Languedoc below the Fresquel lock, towards its junction with that river.

As we before stated, M. Dubuat had classified with much sagacity his observations on the different kinds of resistance experienced in the motion of fluids, and which might have led him to express the sum of the resistances by a rational function of the velocity composed of two or three terms only. Yet the merit of this determination was reserved to M. Coulomb, who, in a beautiful paper, entitled "Experiences destinees a determiner la Coherence des Fluides et les Lois de leurs Resistances dans les Mouvements tres lents," proves, by reasoning and facts,

1st. That in extremely slow motions the part of the resistance is proportional to the square of the velocity;

2dly. That the resistance is not sensibly increased by increasing the height of the fluid above the resisting body;

3dly. That the resistance arises solely from the mutual cohesion of the fluid particles, and not from their adhesion to the body upon which they act;

4thly. That the resistance in clarified oil, at the temperature of 69° Fahrenheit, is to that of water as 17·5 : 1; a proportion which expresses the ratio of the mutual cohesion of the particles of oil to the mutual cohesion of the particles of water.

M. Coulomb concludes his experiments by ascertaining the resistance experienced by cylinders that move very slowly and perpendicularly to their axes, &c.

This eminent philosopher, who had applied the doctrine of tension with such distinguished success in investigating the phenomena of electricity and magnetism, entertained the idea of examining in a similar manner the resistance of fluids, contrary to the doctrines of resistance previously laid down. M. Coulomb proved, that in the resistance of fluids against solids, there was no constant quantity of sufficient magnitude to be detected; and that the pressure sustained by a moving body is represented by two terms, one which varies as the simple velocity, and the other with its square.

The apparatus with which these results were obtained consisted of discs of various sizes, which were fixed to the lower extremity of a brass wire, and were made to oscillate under a fluid by the force of tension of the wire. By observing the successive diminution of the oscillations, the law of resistance was easily found. The oscillations which were best suited to these experiments continued for twenty or thirty seconds, and the amplitude of the oscillation (that gave the most regular results) was between 450, the entire division of the disc, and 8 or 10 divisions from zero.

The first who had the happy idea of applying the law of Coulomb to the case of the velocities of water running in natural or artificial channels, was M. Girard, Ingenieur en Chef des Ponts et Chaussées, and Director of the works of the Canal l'Oureq at Paris.*

He is the author of several papers on the theory of running waters, and of a valuable series of experiments on the motions of fluids in capillary tubes.

M. Coulomb had given a common coefficient to the two terms of his formula, representing the resistance of a fluid,—one proportional to the simple velocity, the other to the square of the velocity. M. Girard found that this identity of the co-efficients was applicable only to particular fluids under certain circumstances; and his conclusions were confirmed by the researches of M. Prony, derived from a great many experiments, which make the co-efficients not only different, but very inferior to the value of the motion of the filaments of the water contiguous to the side of the pipe.

The object of M. Girard's experiments was to determine this velocity; and this he has effected in a very satisfactory manner, by means of twelve hundred experiments, performed with a series of copper tubes, from 1·83 to 2·96 millimetres in diameter, and from 20 to 222 centimetres in length; from which it appeared, that when the velocity was expressed by 10, and the temperature was 0, centigrade, the velocity was increased four times when the temperature amounted to 85 degrees. When the length of the capillary tube was below that limit, a variation of temperature exercised very little influence upon the velocity of the issuing fluid, &c.

It was in this state of the science that M. Prony, (then having under his direction different projects for canals,) undertook to reduce the solution of many important problems on running water to the most strict and rigorous principles, at the same time capable of being applied with facility to practice.

For this purpose he selected fifty-one experiments which corresponded best on conduit pipes, and thirty-one on open conduits. Proceeding, therefore, on M. Girard's theory of the analogy between fluids and a system of corpuscular solids or material bodies, gravitating in a curvilinear channel of indefinite length, and occupying and abandoning successively the different parts of the length of channel, he was enabled to express the velocity of the water, whether it flows in pipes or in open conduits, by a simple formula, free of logarithms, and requiring merely the extraction of the square root.†

Thus $v = -0·0469734 + \sqrt{0·0022065 + 3041·47 \times G}$, which gives the velocity in metres: or, in English feet,

$v = -0·1541131 + \sqrt{0·023751 + 32806·6 \times G}$.

When this formula is applied to pipes, we must take $G = \frac{1}{2} D K$, which is deduced from the equation $K = \frac{H + Z}{L}$. When

it is applied to canals, we must take $G = \frac{R}{I}$, which is deduced from the equation $I = \frac{Z}{L}$, K being equal to the mean radius

of Dubuat on the hydraulic mean depth, and I equal to the sine of inclination in the pipe or canal. M. Prony has drawn up extensive tables, in which he has compared the

observed velocities with those which are calculated from the preceding formulae, and from those of Dubuat and Girard. In both cases the coincidence of the observed results with the formulae is very remarkable, but particularly with the formulae of M. Prony. But the great work of M. Prony is his *Nouvelle Architecture Hydraulique*, published in the year 1790. This able production is divided into five sections, viz. Statics, Dynamics, Hydrostatics, Hydrodynamics, and on the physical circumstances that influence the motion of machines. The chapter on hydrodynamics is particularly copious and explanatory of the motions of compressible and incompressible fluids in pipes and vessels, on the principle of the parallelism of the fluid filaments, and the efflux of water through different kinds of orifices made in vessels kept constantly full or permitted to empty themselves; he details the theory of the clepsydra, and the curves described by spouting fluids; and having noticed the different phenomena of the contraction of the fluid vein, and given an account of the experiments of Bossut, M. Prony deduces formulae by which the results may be expressed with all the accuracy required in practice.

In treating of the impulse and resistance of fluids, M. Prony explains the theory of Don George Juan, which he finds conformable to the experiments of Smeaton, but to differ very materially from the previously received law of the product of the surfaces by the squares of the velocities, as established by the joint experiments of D'Alembert, Condorcet, and Bossut, in the year 1775. The concluding part of the fourth section is devoted to an examination of the theory of the equilibrium and motion of fluids according to Euler and D'Alembert; and by a rigorous investigation of the nature of the questions to be determined, the whole theory is reduced to two equations only, in narrow pipes, according to the theory of Euler, showing its approximation to the hypothesis of the parallelism of filaments.

The fifth and last section investigates the different circumstances, such as friction, adhesion, and rigidity, which influence the motion of machines.

A second volume, published in the year 1796, is devoted to the theory and practice of the steam-engine. Previously to the memoir of M. Prony, *Sur le Jaugeage des Eaux courantes*, in the year 1802, no attempt had been made to establish with certainty the correction to be applied to the theoretical expenditures of fluids through orifices and additional tubes. The phenomenon had been long noticed by Sir Isaac Newton, and illustrated by Michelotti by a magnificent series of experiments, which, although involving some intricacies, have certainly formed the ground-work of all the subsequent experiments upon this particular subject.

By the method of interpolation, M. Prony has succeeded in discovering a series of formulae applicable to the expenditures of currents out of vertical and horizontal orifice, and to the contraction of the fluid vein; and in a subsequent work, entitled *Recherches sur le Mouvement des Eaux courantes*, he establishes the following formulae for the mean velocities of rivers.

When V = velocity at the surface,

and U = mean velocity,

$U = 0·916458 V$,

which is about $\frac{4}{5} V$.

These velocities are determined by two methods. 1st. By a small water-wheel for the velocity at the surface, and the improved tube of Pitot for the velocities at different depths below the surface.

* Essai sur le Mouvement des Eaux courantes: Paris: 1804. Recherches sur les Eaux publiques, &c. Devin general du Canal l'Oureq, &c.

† Memoires des Savans Etrangers, &c., 1815.

If h = the height of the water in the vertical tube above the level of the current, the velocity due to this height will be determined by the formulæ

$$V = \sqrt{2gh} = \sqrt{\frac{\text{metres}}{19.606}} h = 4.429 \sqrt{h}.$$

When water runs in channels, the inclination usually given amounts to between $\frac{1}{100}$ th part of the length, which will give a velocity of nearly $1\frac{1}{2}$ mile per hour, sufficient to allow the water to run freely in earth. We have seen the inclination very conveniently applied in cases of drainage at $\frac{1}{100}$ th and $\frac{1}{150}$ th, and some rivers are said to have $\frac{1}{100}$ th only.

M. Prony gives the following formula from a great number of observations:

If U = mean velocity of the water in the canal,

I = the inclination of the canal per metre,

R = the relation of the area to the profile of its perimeter,

we shall have

$$U = -0.67 + \sqrt{0.005 + 3233. R. I};$$

and for conduit pipes,

calling U = the mean velocity,

Z = the head of water in the inferior orifice of the pipe,

L = the length of the pipe in metres,

D = the diameter of the pipe,

we shall have, $U = -$

$$0.0248829 + \sqrt{0.000619159 + 717.857 \frac{DZ}{L}};$$

or, where the velocity is small,

$$U = 26.79 \sqrt{\frac{DZ}{L}};$$

that is, the mean velocities approximate to a direct ratio compounded of the squares of the diameters and heads of water, and inversely as the square root of the length of the pipes: and by experiments made with great care, M. Prony has found that the formula, $U = -$

$$0.0248829 + \sqrt{0.000619159 + 717.857 \frac{DZ}{L}};$$

scarcely differs more or less from experiments than $\frac{1}{10}$ or $\frac{1}{20}$. The preceding formulæ suppose that the horizontal sections, both of the reservoir and the recipient, are great in relation to the transverse section of the pipe, and that the pipe is kept constantly full.*

In comparing the formulæ given for open and close canals, M. Prony has remarked that these formulæ are not only similar, but the constants which enter into their composition are nearly the same, so that either of them may represent the two series of phenomena with sufficient exactness.

The following formula applies equally to open or close canals:

$$U = -0.0468734 + \sqrt{(0.0022065 + 3041.47 \frac{DZ}{L})}.$$

But the most useful of the numerous formulæ given by M. Prony for open canals is the following:

Let g = the velocity of a body falling in one second,

w = the area of the transverse section,

* According to Mr. Jardine's experiments on the quantity of water delivered by the Coniston Main, from Coniston to Edinburgh, the following is a comparison:

	Soots Pints.
Actual delivery of Coniston Main.....	189.4
Ditto by Eytzelwein's formula.....	189.77
Ditto by Girard's formula.....	189.26
Ditto by Dubuat's formula.....	189.13
Ditto by Prony's simple formula.....	192.38
Ditto by Prony's tables.....	180.7

p = the perimeter of that section,

I = the inclination of the canal,

Q = the constant volume of water through the section,

U = the mean velocity of the water,

R = the relation of the area to the perimeter of the section,

then, 1st,

$$0.000436 U + 0.003034 U^2 = g I R = g I \frac{w}{p};$$

$$2\text{dly, } U = \frac{Q}{w};$$

$$3\text{rdly, } R w^2 = 0.000444499 \cdot w \frac{Q}{I} -$$

$$0.000309314 \frac{Q^2}{I} = 0.$$

This last equation, containing the quantities

$$Q I w \text{ and } R = \frac{w}{p};$$

shows how to determine one of them, and, knowing the three others, we shall have the following equations:

$$4\text{thly, } p = \frac{g I w^2}{0.000436 Q w + 0.003034 Q^2};$$

5thly,

$$I = \frac{p (0.000444499 Q w + 0.000309314 Q^2)}{Q w};$$

$$6\text{thly, } w = 0.000436 \pm$$

$$\sqrt{\frac{[(0.000436)^2 + 4(0.003034) g R I] Q}{2 g R I}}.$$

These formulæ are, however, modified in rivers by circumstances, such as weeds, vessels, and other obstacles in the rivers; in which case M. Girard has conceived it necessary to introduce into the formulæ the co-efficient of correction = 1.7 as a multiplier of the perimeter, by which the equations will be,

$$p = 1.7 (0.000436 U + 0.003034 U^2) = g I w.$$

The preceding are among the principal researches of this distinguished philosopher.*

In the year 1798, Professor Venturi of Modena published a very interesting memoir, entitled *Sur la Communication laterale du Mouvement des Fluides*. Sir Isaac Newton was well acquainted with this communication, having deduced from it the propagation of rotatory motion from the interior to the exterior of a whirlpool; and had affirmed that when motion is propagated in a fluid, and has passed beyond the aperture, the motion diverges from that opening, as from a centre, and is propagated in right lines towards the lateral parts. The simple and immediate application of this theorem cannot be made to a jet or aperture at the surface of still water. Circumstances enter into this case which transform the results of the principal into particular motions. It is nevertheless true, that the jet communicates its motion to the lateral parts without the orifice, but does not repel it in a radial divergency. M. Venturi illustrates his theory by experiments on the form and expenditure of fluid veins issuing from orifices, and shows how the velocity and expenditure are increased by the application of additional tubes; and that in descending cylindrical tubes, the upper ends of which possess the form of the contracted vein, the expense is such as corresponds with the height of the fluid above the inferior extremity of the tube. The ancients remarked that a descending tube applied to a reservoir increased the expenditure.† D'Alembert,

Euler, and Bernoulli, attributed it to the pressure of the atmosphere. Gravesend, Guglielmini, and others, sought for the cause of this augmentation in the weight of the atmosphere, and determined the velocity at the bottom of the tube to be the same as would arise from the whole height of the column, including the height of the reservoir. Guglielmini supposed that the pressure at the orifice below is the same for a state of motion as for that of rest, which is not true. In the experiments he made for that purpose, he paid no regard either to the diminution of expenditure produced by the irregularity of the inner surface of the tubes, or the augmentation occasioned by the form of the tubes themselves. But Venturi established the proposition upon the principle of vertical ascension combined with the pressure of the atmosphere, as follows:

1st. That in additional conical tubes the pressure of the atmosphere increases the expenditure in the proportion of the exterior section of the tube to the section of the contracted vein, whatever be the position of the tube.

2dly. That in cylindrical pipes the expenditure is less than through conical pipes, which diverge from the contracted vein, and have the same exterior diameter. This is illustrated by experiments with differently formed tubes, as compared with a plate orifice and a cylindrical tube, by which the ratios in point of time were found to 41", 31", and 27", showing the advantage of the conical tube.

3dly. That the expenditure may be still further increased, in the ratio of twenty-four to ten, by a certain form of tube,—a circumstance of which he supposes the Romans were well aware, as appears from their restricting the length of the pipes of conveyance from the public reservoirs to fifty feet; but it was not perceived that the law might be equally evaded by applying a conical frustum to the extremity of the tube.

M. Venturi then examines the causes of eddies in rivers; whence he deduces, from his experiments on tubes with enlarged parts, that every eddy destroys part of the moving force of the current of the river, of which the course is permanent and the sections of the bed unequal; that the water continues more elevated than it would have done if the whole river had been equally contracted to the dimensions of its smallest section, a consequence extremely important in the theory of rivers, as the retardation experienced by the water in rivers is not only due to the friction over the bed, but to eddies produced from the irregularities in the bed, and the flexures or windings of its course: a part of the current is thus employed to restore an equilibrium of motion, which the current itself continually deranges. As respects the contracted vein, it had been pretended by the Marquis de Lorgna* that the contracted vein was nothing else but a continuation of the Newtonian cataract, and that the celerity of the fluid issuing from an orifice in a thin plate, is much less than that of a body which falls from the height of the charge. But Venturi proved that the contraction of the vein is incomparably greater than can be produced by the acceleration of gravity, even in descending streams: the contraction of the stream being 0.64, and the velocity nearly the same as that of a heavy body which may have fallen through the height of the charge. These experimental principles, which are in accordance with the results of Bossut, Michelotti, and Poleni, are strictly true in

* Recherches Physico-Mathematiques sur la Theorie des Eaux courantes, par M. Prony.

† "Calix deversus amplius rapit."—[Frontinus de Aqueductibus.] See also the Pneumatics of Hero.

* Memoire della Societa Italiana, vol. iv.

all cases where the orifice is small in proportion to the section of the reservoir, and when that orifice is made in a thin plate, and the internal afflux of the filaments is made in uniform manner round the orifice itself.

Venturi then shows the form and contraction of the fluid vein, by increased charges. His experiments with the cone are curious; it would have been greatly to be regretted that he had stopped short in his investigations, but for the more extensive researches of Bidone and Lesbros. M. Hachette, in opposition to the theory of Venturi, assigns, as a cause of the increase by additional tubes, the adhesion of the fluid to the sides of the tubes arising from capillary attraction.

(To be continued.)

[From the London Mechanics' Magazine.]
Mathematics and Mathematicians.

SIR,—I have just read Mr. Cheverton's explanation on the subject of the claims of mathematical science, in answer to my two last short articles. His last explanation is truly worthy of his two preceding articles. When such assertions are called explanations, nothing in nature need remain unexplained. The most important parts of his communication may be easily refuted from some articles in the *Mechanics' Magazine*—written by whom, do you think, Mr. Editor?—why, by no less a person than Mr. Cheverton himself. So much, in the mean time, for his consistency.

Having shown, in my last communication, that had it not been for the discoveries of Euler on the refrangibility of light, (in opposition to the opinion of Newton,) the achromatic telescope might have to this day remained a mere speculation, it may not be out of place, before leaving this part of the subject, to mention the great improvements that have been made in these instruments by the late Fraunhofer, a German philosopher, eminently distinguished for his high scientific attainments and practical skill. He has constructed telescopes with the most perfect object lenses, and of nine times any former dimensions, the power and brilliancy of which surpass all former attempts.

One would be apt to fancy, from the account Mr. C. has given, (No. 572, p. 277, col. 2,) of the way in which the Eulers and Bernoullis amused themselves with their experiments on gyratory motion, *tractory curves*,* (untractable curves would surely have been a better name for them), unmanageable equations, &c., that they were wasting their time for no useful purpose. He might, with equal propriety, have applied the same terms of ridicule to Sir I. Newton's experiments in finding the deflecting force of the moon, and many more; or to the experiments of Maskelyne, Hutton, and Cavendish, for ascertaining the mean density of the earth. Of course, all these things, according to the Chevertonian philosophy, are mere matters of moonshine. However, be that as it may, no country has done more justice to the mighty dis-

coveries of Euler than England has done. I shall select, for Mr. Cheverton's edification, a few testimonials in his favor, from the writings of some eminent English mathematicians.

"Euler," says Dr. Hutton, in his *Mathematical Dictionary*, "was one of the most extraordinary, and even prodigious, mathematical geniuses that the world ever produced," &c.

"The great cultivators of astronomy," says the late Professor Sir John Leslie, "are divided into two classes—accurate and inventive observers, and profound and original theorists." Of those illustrious men who, in the lapse of three thousand years, have devoted their labors to so noble a purpose, we may distinguish a few who have stood pre-eminently above their peers, as observers, Hipparchus, Ptolemy, Tycho Brahe, Hevelius, Cassini, Flamsteed, La Caille, Bradley, Maskelyne, and Piazzi; and as theorists, Copernicus, Kepler, Newton, and, after some interval, Clairaut, D'Alembert, and Euler, and in our own times the associated names of La Grange and La Place."

Mr. Peter Barlow, of the Royal Military Academy, Woolwich, in his English translation of Euler's *Algebra*, after enumerating some of his wonderful improvements and discoveries in almost every branch of mathematical and physical science, thus concludes:

"Possessing a mind of such wonderful comprehension, and disposition so admirably formed to virtue and happiness, Euler found no difficulty in being a Christian; accordingly his faith was unfeigned, and his love was that of a pure and undefiled heart. The advocates for the truth of revealed religion, therefore, may rejoice to add to the bright catalogue which already claims a Bacon, a Newton, a Locke, and a Hale, the illustrious name of Euler."

"The character of Euler is an object so interesting, that it is difficult to prescribe a limit to reflections when they are once indulged; one is attracted by a sentiment of admiration that almost arises to the emotion of sublimity, and curiosity becomes eager to examine what talents, and qualities, and habits, belonged to a mind of such superior powers."

At the period of Sir I. Newton's decease, Euler had just reached his 20th year, and two years before he was hailed by Newton as a rising star of the first magnitude. The whole of his life was devoted to the benefit of mankind, and in the morning of the day on which he died, (Sept. 15, 1783,) he had been engaged in calculating the orbit of Herschel's planet, and the motion of aerostatic machines.

Mr. C. has associated the names of the Bernoullis with that of the illustrious Euler. The two elder Bernoullis first distinguished themselves by their labors in cultivating the higher calculus invented by Leibnitz; and this powerful analysis was afterwards brought to its present state of perfection by Euler and other continental mathematicians. The fluxionary analysis, invented by Newton, is now, even in England, almost extinct.

The long but bloodless war which agitated the scientific world, (the war of problems,) and the high and commanding position the Bernoullis took in that memorable contest, sufficiently demonstrates their great prowess. John Bernoulli, says Leslie, "spent a long life in extending, by the activity of his genius, every branch of mathematical and physical science. He corresponded with all the foreign societies, and the numerous prizes he bore away proved a source of income. His *Treatise on Seamanship* came out in 1714, and his *Dissertation on the elliptical figure of the planets* appeared in 1730. But his various philosophical papers were carefully collected into four quarto volumes, and published, in 1742, at Geneva and Lausanne. He died, full of years and of glory, on the 1st Jan., 1748."

From the flippancy way that Mr. Cheverton speaks of Kepler, one would be apt to imagine that he considered him only as a fifth or sixth rate astronomer. He allows, however, that he, (Kepler,) *did discover two laws of the planetary motion*, which bear his name. Two laws! Pray, does Mr. C. deny one of them? I thought every astronomer had admitted that he discovered *three laws*, and here they are:

Law 1. All the planets move round the sun, (or the satellites round their primary,) in such a manner, that a line drawn from a planet to the sun describes areas proportional to the time of motion.

Law 2. The orbits described by the planets round the sun, or the satellites round their primary, are ellipses, having the sun or primary planet in one focus.

Law 3. The squares of the periodic times of those bodies which revolve round a common centre, are proportional to the cubes of their mean distances from that centre.

Perhaps this last law of Kepler is rejected by Mr. C., as he may have discovered that it is not in accordance with his own theory on the motion of bodies in resisting mediums. I would recommend him to read the *Life and Discoveries of the great Kepler*, by the Rev. Dr. Small, of Dundee.

I have still, Mr. Editor, some other remarks to make on this subject; and if you will allow me to continue them, for at least one paper more, I will feel much obliged to you. In the mean time, I am, Mr. Editor, yours, with respect,

LEWIS FRIEND.

Basil, Sept. 15, 1834.

A NEW THRESHING MACHINE, which is worked by manual labor, instead of by horse power, has recently been introduced into this county from Norfolk, and found to possess all the advantages of the horse machine. It employs eight men, four of whom turn two windlasses, which supersede the horse wheel; it threshes the corn quite as clean as the old machines; and in substituting human labor for brute power, it obviates the powerful objection to which the former improvement was obnoxious, of diminishing the employment of a redundant population.—[*Stamford Mercury*.]

* Perhaps Mr. C. will favor us with the equations of a few of the simplest of these strange curves.

IMPORTANT IMPROVEMENT IN THE SEXTANT.—Mr. D. Rowland, of London, has effected an important improvement in the sextant by a very simple yet ingenious contrivance. We had often heard Mr. Rowland's invention spoken of in terms of high commendation, but have had no opportunity of bearing testimony to the merits of his truly valuable sextant, until Thursday last, when he exhibited its powers at the Plymouth Institution, at the close of the lecture. It happened that the very evening on which Mr. H. Woollcombe (the President) had obligingly made arrangements for Mr. Rowland to explain his instrument to the society, Mr. Davies Gilbert, late President of the Royal Society, honored the Plymouth Institution with his presence. The conversation which took place on the subject of the "Double Sextant" was exceedingly interesting. Mr. Gilbert, some of the members of the institution, (particularly Mr. Walker, of the Dock Yard,) and several strangers, offered their opinions on its advantages, which we think may be summed-up generally under the following heads:

1st. The old sextant being limited to a range of 120, the lunar distances in the Nautical Almanac were only computed to that extent. Now, navigators know that lunar observations are of the utmost importance in long voyages by checking errors in chronometers; they consequently avail themselves of lunar observations, and prefer those taken by day, because the horizon is more distinctly seen, and the altitudes are more correctly taken, than by night. It will, therefore, be desirable to extend the distances in the Nautical Almanac, between the sun and moon, to 140 degrees.

2d. When an artificial horizon is used, no angle of altitude above 60 degrees could be taken with the old sextant; of course the latitude could not be found by a meridian altitude of the sun, if this altitude exceeded 60 degrees. By the new instrument, these difficulties vanish, since the meridian altitude of all the heavenly bodies may be taken by it when vertical and doubled by the artificial horizon.

3d. In addition to the above advantages may be added the following, namely, Since the sextant will possess a range of 240 degrees, it will of course span the visible hemisphere with the utmost ease. Now, if the dip be known, the refraction may be measured by the instrument at any place, and at any time. But this is not all: we know that our globe is not a perfect sphere, but of a spheroidal form; consequently tables for dip and terrestrial distance, if computed for a sphere, must be erroneous when applied to a spheroid. Dip for altitudes, or objects taken east or west, would differ for objects in a north or south direction; because meridians of longitude continued round the globe are elliptical, whereas parallels of latitude are a series of circles of unequal diameters. This being the case, it follows that the span of the visible hemisphere, in the direction of the earth's axis, will be different from

that taken in a transverse direction. Rowland's "double sextant" would measure this difference at once, and point out a dip for each latitude, and each direction, with regard to the poles. This improved instrument may be used for ascertaining the true figure of our earth, and may either prove or disprove its form, as deduced from measured acres of its surface, or from calculations made from data furnished by the pendulum.—[Plymouth (Eng.) paper.]

MUSCI, OR MOSSES.—There are about 40 genera, and 330 species of this class. They are called winter plants, and are found to cover mountains as high as perpetual snow. Growing in patches, they cover the most barren spots, and thus prepare the earth for other vegetation. When growing on trees, they protect them from the severity of the winter.

FOOD CONSUMED BY A COW.—Moubray states that the average annual consumption of a cow is from one to one and a half acres of grass, and from a ton to a ton and a half of hay.

COMPARISON OF COTTON AND HEMP.—Mr. Hammond: The following contrast of the hemp and cotton plants, in an agricultural point of view, seems to the writer to be correct; but he has reason to believe that a great deal of incredulity exists in relation to it, otherwise more interest would be taken in eliciting a discussion upon the subject, and diffusing among the farmers of Hamilton and other counties of this state, correct information in relation to the superior value of their hemp lands when turned towards the production of that article.

Cotton.—It is known that this plant, when young, is one of the most delicate, and very liable to be destroyed by disease, not only in its incipient state, but at maturity, by the rot, the rust, the caterpillar, the frost, and storms of wind and rain, as is now experienced from those which occurred in the months of September and October of the present year. It is known that the average crop of the cotton lands of the states of Mississippi and Louisiana does not exceed 400 lbs. of ginned cotton, or one bale to the acre of that weight; and to realize that quantity, the best seasons and the best cultivation by hand and horse hoeing are required; that, in addition, a great deal of hand labor is required to pick it out of the pods lock by lock, to gain a bale fit for the market. And the average price per pound for the last ten years has not much, if any, exceeded to the planter ten cents per pound. And lastly, it is known to be an exhauster of the land, from the necessity that exists that the plant be permitted to come to maturity, unless the seed are rotted and returned to the soil.

Hemp.—This is known to be a very hardy plant, and though it requires good land to produce the heaviest crops, does not require, after the first preparation of the soil and seeding, very much additional labor in the cultivation. It is known that if it is cut, (as it always should be,) before the seed are ripe, when the lint only is wanted for market, that it exhausts the land but very slightly—and if the improved machinery for breaking, and the recently invented "Hemp Cutter," are employed, it can be taken off the land, few rotted and broken, with as much despatch, and even more, than 1600 lbs. of cotton in the seed, (the quantity re-

quired to make a bale of 100 lbs.) can be packed, ginned, and baled. It is known that the average quantity of clean hemp per acre may be put down at 800 lbs. the maximum being 1000 lbs. and the minimum 600 lbs.; and that the average price of clean hemp for the last ten years at Maysville, Kentucky, has been \$5 and about 10 cents per 112 lbs. It results, then, if these data be correct, that if 1000 acres of land be cultivated in hemp, it will produce 800,000 lbs. of clean hemp, worth \$40,000, equal to the product of 1000 acres in cotton, producing a bale of 400 lbs., worth 10 cents per lb., or \$40 per acre!

Should such facts as these be suppressed? Yet we hear very little, comparatively speaking, of the value of our hemp lands, and much of the great value of the cotton crop, and the facility of cultivating it. Is it not because the latter is cultivated on large estates by the employment of large capitals belonging exclusively to a few individuals, whose crops, worth say from 10 to \$40,000 each, sounds larger; whereas, if divided among all those employed in producing them, would no longer show as they do when concentrated in a few individuals.

I will say nothing of the tobacco crop. I will leave the planters of that article in Boon and Campbell counties, in Kentucky, who have recently lost their crops by the frosts of September last, to contrast their labor and gains with those of the hemp grower of Mason county in that state, who is now selling his crop in this market and elsewhere, at \$5, and more, and no delay. To say nothing further, it is known that these counties are scarcely within the tobacco region, as Mr. McDuffie very correctly said of the sugar plant in Louisiana. *A Friend to Agricultural Improvement.*—[Cin. Daily Gazette.]

FIRE FROM ASHES.—Some time in the month of November, passing a neighbor's barn, we discovered the straw on the dung heap, which was heaped up against the barn, to be on fire. In a few minutes the building would have been in flames. The fire was occasioned by hot ashes thrown on the heap. The following spontaneous combustion from ashes is from a lecture on heat, by Prof. SMITH, formerly of New-Haven.

"Perhaps there are few people who are acquainted with the fact that ashes made by burning hard wood, such as ash, maple, &c., in a fire place, and taken up dry, are capable of producing spontaneous combustion, simply by receiving a degree of moisture, or by coming in contact with a wet board or stove, or being exposed to a very damp atmosphere. It is generally believed when fire is kindled by ashes, that it is caused by coal being put away with the ashes while on fire; but this is a mistake. The coals, if they were on fire, when buried in ashes, and excluded from atmospheric air, would soon be extinguished, or if they were not, they could not kindle fire with the atmospheric air excluded. The spontaneous combustion of ashes proceeds from a very different principle.

"Hard wood ashes, when they are first made, and while they are kept dry, contain a metal called potassium, which is the basis of potash. This metal is very combustible, and has so strong an affinity and attraction for oxygen, the supporter, and cause of combustion, that it takes oxygen from water, the moment that it touches it, and burns with a vivid flame, and the

product of this combustion is potash, that is, potassium saturated with oxygen, or what may be called the oxide of potassium. It should be noticed, too, that water is a compound of oxygen and hydrogen, and that when the potassium comes in contact with water, it takes the oxygen from it, and the hydrogen being set free increases the combustion. The simple explanation then is this: dry ashes, when first burnt, contain in them a metallic substance, which is highly inflammable, and which is set on fire by moisture. Quick lime and water produce heat sufficient, in some instances, to set wood on fire, but ashes and water produce a much more intense heat. In adding water to ashes there is a real combustion of the metal contained in the ashes; the metal being a combustible substance, requiring nothing but the oxygen of water to set it on fire."—[N. Y. Farmer.]

From the forthcoming number of the "Mechanics' Magazine and Register of Inventions and Improvements."

COMPARATIVE VALUE OF FUEL.—As a knowledge of the relative value of the various kinds of fuel in use cannot fail to be of interest to all, and of benefit to most of our readers, we do not hesitate to publish at length the following very valuable article from Porter's Chemistry of the Arts. The information contained therein, if properly applied to the every-day business of life, will amply repay each reader for his subscription to the Mechanics' Magazine—even if he has paid in advance. The table of the comparative value of the 64 different kinds of fuel should be frequently read by those who desire to use economy in obtaining their supply of fuel.

Whatever kind of fuel it may be considered best to employ, it is extremely desirable that it should be as dry as possible, otherwise a great part of the heat it contains will be lost in converting the water in the fuel into vapor, which of course escapes up the chimney without producing any useful effect.

Fuel is often unnecessarily exposed to the weather, or put in wet places; and the injurious effect of introducing damp into a close fire-place is never considered.

Pit Coals.—There is considerable difference between the pit coals; and it has perhaps been too little attended to by those who are the chief consumers of this expensive article. The subject has not even been studied with much attention, except so far as relates to the production of gas; and the facts that have been established by these researches are not very useful in other applications of fuel.

Caking coal, also called binding coal, croszling coal, is obtained in great abundance from the extensive coal-fields in Northumberland and Durham; and is that which is sold in the London market as Newcastle coal.

When heated, this coal breaks asunder into small pieces; and the heat being raised to a certain degree, the pieces cohere, and form a solid mass, from which property it is called caking-coal. It

lights easily, and burns with a lively yellow flame. It requires to be frequently stirred or broken up, particularly when it cakes very hard; but different varieties differ considerably in this property. Of the Newcastle coals, the best Wall's-End make a brilliant and pleasing fire, burn away quickly, and do not cake hard, hence it is preferred for heating rooms; but the Tanfield Moor burn slowly, cake very hard, and afford a strong and long-continued heat, and is used in furnaces and forges. The other varieties are of an intermediate character.

Caking coal gives out a great quantity of heat, and, with attention, burns a long time; consequently, where it can be procured at a reasonable price, it is commonly preferred.

From the trials of Mr. Watt, it appears that a bushel of Newcastle coals, which weigh, on an average, eighty-four pounds, will convert from eight to twelve cubic feet of water into steam, from the mean temperature of the atmosphere; and that a bushel of Swansea coal will produce an equal effect.

Dr. Black states to the effect, that 7 pounds .91 of the best Newcastle coal will convert one cubic foot of water into steam, capable of supporting the mean pressure of the atmosphere.

In some experiments tried by Messrs. Parkes, it appears, that by their improved method of constructing boilers, an effect was obtained, equivalent to converting one cubic foot of water into steam from the mean temperature, with 7 pounds .45 of coal, in the case where the greatest effect was produced; but at a mean, 8 pounds .15 of coal were necessary to produce the same effect; which is only one quarter of a pound less than the mean of Mr. Watt. From a mean of several experiments, Smeaton makes it require 11 pounds .4 of coal to produce the same effect; but the kind of coal is not described.

Mr. Tredgold found that after the brick-work, &c. of the boiler of a steam-engine was warmed, a little less than one pound of Wall's-End coals would make a cubic foot of water boil, from the mean temperature of fifty-two degrees. To produce the same effect with inferior coals, a stronger draught, and more time and attention, was necessary.

Splint Coal, or hard coal, called slaty cannel coal by Kirwan, is esteemed equally valuable, for many purposes, as the Newcastle caking coal. It is obtained near Glasgow, in Ayrshire, Scotland, and in several of the English and Welsh coal-fields.

A greater heat is necessary to make it kindle than is required for caking coal, and consequently it is not so well adapted for a small fire; but a large body of splint coal makes a strong and lasting fire. It does not produce so much flame, nor so much smoke, as caking coal, and does not agglutinate or bind together.

The splint coal of Scotland was considered by Smeaton to be equal to Newcastle coal for steam-engines.

Cherry Coal, or soft coal, constitutes, says Dr. Thomson, the greater part of

the upper seams of coal in the Glasgow coal-fields; and it is also abundant in Fifeshire. He considers the Staffordshire coal to be of the same species; and the Edinburgh as intermediate between it and splint coal.

It readily catches fire, and burns with a clear yellow flame, giving out much heat; and the flame continues till nearly the whole of the coal be consumed. It burns away more rapidly than either caking or splint coal, and leaves a white ash. For most purposes it is less economical. It is easily distinguished from caking coal, by its not melting or becoming soft when heated. It makes a more agreeable fire, and does not require to be stirred. It requires care and management in an open grate, even to burn the small fragments which are made in breaking up the pieces to a fit size for the fire. Hence the small coals are often mixed with clay and made into balls. When these balls are dry, they make an excellent addition to the fuel for an open fire, producing a very durable heat.

Mr. Watt states that one hundred weight of good Wednesbury coal will produce the same effect as one bushel of Newcastle coal.

Wood.—In some places wood is used for fuel; its effect in producing heat is found to depend considerably on its state of dryness. Several experiments, made by Count Rumford, show the effect of dry wood to be much greater than that of unseasoned. Unseasoned wood contains about one third of its weight of water. The kind of wood is also a cause of some difference; from the experiments of Count Rumford, lime-tree wood gives out most heat in burning.

With his improved boilers Count Rumford made 20 pounds .10 of ice-cold water boil with one pound of dry pine wood. The same weight of pine wood unseasoned, would produce less effect by one-seventh. Beech wood afforded much less heat than pine; for one pound of dry beech made 14 pounds .33 of ice-cold water boil. A cubic foot of dry beech weighs about forty-four pounds.

According to Rosombroni, wood produces heat enough in its combustion to evaporate twice its weight of water, or to prepare two-thirds of its weight of salt. Count Rumford's trials make the effect of wood about one-third more, which may fairly be attributed to his superior skill.

Peat, considered only as a fuel, may be divided into two kinds. The first is compact and heavy, of a brownish black color, and with scarcely any vestiges of its vegetable origin remaining. This is the best kind. When it is once lighted it preserves fire a long time.

The second kind is light and spongy, of a brown color, and seems to be a mass of dead plants and roots, which have undergone very little change; it inflames readily, and is quickly consumed.

Peat gives out an odor, while it is burning, which is disagreeable to those, who are not accustomed to it. It affords a mild and gentle heat; but is not a good kind of fuel for supplying furnaces for

boilers; it is much better adapted for flues. It is of various qualities: some burn quickly with a bright flame; others burn slowly, and, according to Clement and Desormes, afford one-fifth of the heat that would be given out by an equal weight of charcoal. This nearly coincides with the ratio given by Blavier and Miche.

The weight of a cubic foot varies from forty-four to seventy pounds; and the dense varieties afford about forty per cent. of charcoal; the other varieties nearly in proportion to their density.

Charcoal.—Mr. Dalton, by heating water, obtained a result equivalent to melting forty pounds of ice with one pound of charcoal. But Dr. Crawford's experiments give sixty-nine pounds of ice melted by one pound of charcoal. Lavoisier's give ninety-five pounds and a half; Clement and Desormes ninety-five pounds; and Hassenfratz's trials, on various kinds, give a mean of ninety-two pounds of ice melted by one of charcoal, his highest result being ninety-six pounds, and lowest one seventy-four pounds. Mr. Tredgold considers forty-seven pounds of ice melted by one pound of charcoal as the real average effect of that fuel. A cubic foot of charcoal weighs about fifteen pounds.

Coke.—Lavoisier makes the quantity of coal to be that of coke as 605 is to 552 when the same effect is produced; and in addition to this increased power of giving out heat, it must also be considered that coke gives out no smoke in burning, whence it should always be used in furnaces seated in towns, in order to prevent any annoyance to the neighbors.

The present prevalent use of gas, for lighting towns and even houses, has brought a considerable quantity of *gas coke* into the market, which does well enough for heating rooms, but is far inferior to the stifled coke in its heating power, so that smiths and iron founders invariably use the latter kind, and when a great heat is required, the chemist should follow their example.

Coke has been tried against wood in Paris for warming the Opera-House. Fifty-eight pounds of coke, costing there about 1s. 3d., produced the same effect as 160 pounds of wood, costing there about 2s. 6d.

Charred Peat.—According to Messrs. Blavier and Miche it requires 1666 pounds of charred peat to produce the same effect as 740 pounds of common charcoal.

The charred peat, made by stifling, is superior, in its power of producing heat, to that made by distillation. Unfortunately the stifled charred peat is a kind of pyrophorus, which takes fire if it becomes accidentally wetted, or even in moist weather. In consequence of this property several accidents have happened by the rain finding its way into places where it is kept; it is on this account forbidden, by the laws of some countries, to be kept in towns.

Therefore the Dutch, who burn this fuel, not only in their houses, but even in pans under their feet while they are at church in winter, are in the habit of char-

ring it at home as it is wanted. It is first burnt in the kitchen, and when they find it is red hot quite through, they then take it off the fire, put it in a close earthen or copper pot, and cover it down with a wet woollen or linen cloth, and by the air being excluded the fire is soon extinguished, and when it is cold it will resemble charcoal, except being covered with white ashes, and will, if properly charred, burn with scarce any smoke, and very little of the suffocating quality which charcoal has. This it is that makes the charred peat so proper for green-houses, for charcoal burnt in them is very prejudicial to the plants, and often fatal to the person who attends them.

[The intelligent author has here certainly fallen into a popular error in regard to the true cause of the suffocating quality of burning charcoal. The product of the combustion of charcoal must be essentially the same as from charred peat: the combustible part of both is little else than pure carbon, and the products of their combustion are of course pure carbonic acid. The popular notion is, that the unpleasant odor exhaled from burning charcoal, which has for some time been exposed to a damp atmosphere, and particularly when first ignited, is the suffocating principle: hence the common impression that ignited charcoal taken from a common fire may be burned with impunity in an unventilated room, and that charred peat, which does not exhale the peculiar odor of charcoal, is a safer and less objectionable fuel under the same circumstances. Many lives are annually sacrificed from this erroneous notion. The only true ground of preference of charred peat for burning in green-houses is the slow and gradual manner in which it consumes. Charcoal, in this respect, is much less manageable. It is the sudden and unequal heats from charcoal, rather than any essential difference in the product, that renders its use so objectionable.]

The usual method of burning this peat in Holland, especially by the poor, is in cast iron kettles, and for boiling any thing over it this way saves half the fire it would otherwise take if burnt on a hearth, or in a grate, by the side of the pot reflecting the heat.

[The small Philadelphia furnaces, fabricated from the South Amboy clay of New Jersey, now in general use in our Atlantic cities, are admirably calculated to secure an economical expenditure of heat in the combustion of charcoal for culinary purposes, and for a similar reason. But they ought never to be used in an unventilated room.]

Adjoining to many of the capital towns in Holland there are a great number of small gardens with little summer houses, most of which are built with wood. Near Rotterdam there are nearly a thousand of these gardens, and almost all of them have some orange trees in them. In the winter they are preserved from the intense frosts, which generally last there for nearly three months, by means of this charred peat, the natural firing of that country,

which is burnt in an earthen pan, or cast iron pot, in these little summer houses.

A collected view of the data from these experiments and comparisons is given by Mr. Tredgold. It is as follows:

Kind of Fuel.	Fraction of a pound that will heat one cubic foot of water one degree Fahrenheit's scale.	Pounds of fuel that will heat one cubic foot of water into steam.
Newcastle, or caking Coal	0.0075	8.40
Splint Coal	0.0075	8.40
Staffordshire cherry Coal	0.0100	11.30
Wood, dry pine	0.0173	19.25
— dry beech	0.0242	27.00
— dry oak	0.0255	30.00
Peat, of good quality	0.0475	53.60
Charcoal	0.0095	10.60
Coke	0.0069	7.70
Charred Peat	0.0205	23.00

It will appear, as Mr. Tredgold justly observes in his very excellent "Principles of Warming and Ventilating Public Buildings," that the utmost effect we can hope to gain in applying fuel must be less than double the measure of effect here given; and even to attain that effect, all the caution of conducting a philosophical experiment must be continually employed, which will be found impracticable on a large scale, and altogether incompatible with the simple apparatus and small share of attention which can be devoted to this end in real business, although there are not wanting persons who promise four, six, and even ten times these effects.

Improvement of Fuel by Mixture.—It is surprising that so few attempts should be made to improve the fires which are made in the open chimneys of elegant apartments by preparing the fuel; for, as Count Rumford observes, nothing surely was ever more dirty, inelegant, and disgusting, than a common coal fire.

Fire balls, of the size of goose eggs, composed of coal and charcoal in powder, mixed up with a due proportion of wet clay, and well dried, would make a much more cleanly, and, in all respects, a pleasanter fire than can be made with crude coals; and it is believed would not be more expensive fuel. In Flanders, and in several parts of Germany, and particularly in the duchies of Juliers and Bergens, where coals are used as fuel, the coals are always prepared before they are used, by pounding them to a powder, and mixing them up with an equal weight of clay and a sufficient quantity of water to form the whole into a mass, which is kneaded together and formed into cakes; which cakes are afterwards well dried, and kept in a dry place for use. And it has been found, by long experience, that the expense attending this preparation is amply repaid by the improvement of the fuel. The coals thus mixed with clay not only burn longer, but give much more heat than when they are burnt in their crude state.

It will doubtless appear extraordinary to those who have not considered the subject with some attention, that the quantity of heat produced in the combustion of any given quantity of coal should be increased by mixing the coals with clay, which is

certainly an incombustible body; but the fact is certain.

In composing fire balls, it is probable that a certain proportion of chaff, of straw cut very fine, or even of saw dust, might be employed with great advantage. It is wished that those who have leisure would turn their thoughts to this subject; for it is conceived that very important improvements would result from a thorough investigation of it.

For the purpose of lighting a fire speedily, *kindling balls*, composed of equal parts of coal, charcoal, and clay, the two former reduced to a fine powder, well mixed, and kneaded together with the clay moistened with water, and then formed into balls of the size of hens' eggs, and thoroughly dried, might be used with great advantage instead of wood.

(To be continued.)

MECHANICS MEETING.

We call attention to the proceedings of this meeting. It is honorable to the mechanics that they thus feel and express their unwillingness to have their pursuits associated in public estimation with what is deemed fitting punishment for felons.

At a large and respectable meeting of Mechanics and others, opposed to the system of State Prison Monopoly, held at Enterpeian Hall on Tuesday evening, the 20th inst. Gideon Lee, Esq. was appointed Chairman, and Messrs. Thomas Constantine, D. Berrian, P. Hedl, Joseph P. Simpson, J. C. Tucker, John Anderson, and Robert Smith, were appointed Vice Presidents, and Robert Taylor and John Renwick appointed Secretaries.

The call of the meeting being read, the report of the Executive Committee, with the Memorial and resolutions, were submitted. After which the meeting was addressed by Messrs. Robert Walker, Robert Taylor, Austin Baldwin, B. Gillespie, D. K. Minor, and Alex. Ming, jr.

The report of the Executive Committee, together with the resolutions and memorial, were on motion unanimously approved.

The Executive Committee respectfully report, that the delegates appointed at the meeting held in the Park, in this city, on the 30th June last, proceeded to Utica, and attended the State Convention of Mechanics, which assembled on the 20th August, and your Committee is highly gratified in being able to state—that notwithstanding the prevalence of the cholera in several parts of the State prevented many Delegates from attending; ninety-nine Delegates were present, and represented thirty four Mechanical branches of business. The following is a list of the branches represented, and the number of Delegates from each branch.

From the Tailors 10, Cabinet Makers 9, Coopers 6, Saddle & Harness makers 6, Cordwainers 7, Blacksmiths 4, Hawers 4, Stone Cutters 4, Chair Makers 4, Silver Platers 3, Marble Cutters 3, Tin Plate Workers 3, Plane Makers 3, Builders 3, Coach Makers 2, Carpenters 3, Printers 2, Brush Makers 2, Watch Makers 2, Iron Founders 2, Tanners and Curriers 2, Cabinet and Chair Makers 2, Piano Forte Makers 1, Locksmiths 1, Brass Founders 1, Comb Makers 1, Masons 1, Silver Smiths 1, Machinists 1, Burr Stone Manufacturers 1, Copper Smiths 1, Plough Makers 1, Wagon Makers 1, Potters 1.

Your Committee report, That although the convention was composed of persons from every section of the State, and assembled together without any previous arrangement, as it respected the course to be pursued to obtain redress, yet were they of one heart, and one mind—they were determined to exert themselves to the utmost,—to unite together as mechanics, not as partisans,—and they unanimously resolved, that they would pursue the present detestable Prison system of this State, till justice be accorded to the just claims of Mechanics.

A corresponding committee in each County was appointed, consisting of two Mechanics,

and a central committee of six Mechanics who reside in Utica. The central committee has recommended the citizens of each county to memorialize the Legislature on the subject of employing convicts at mechanical business. The corresponding committees of Counties have communicated this information to the Executive Committee of counties, and memorials are now receiving signatures in many parts of the State. In accordance with the recommendation of the central committee, a memorial will be submitted to this meeting. The Convention also recommended that a Convention be annually appointed to meet at Utica on the 3d Wednesday of August in each year, until we obtain redress.

The utmost harmony and unanimity prevailed among the Delegates, while together, and they parted with a determination never to give up the contest, until *this prison system*, which robs them of their bread, is abolished. Your Committee have endeavored to bring the subject before the public in its proper light, and great exertions have been made by Mechanics throughout the State to convince the community of the errors and injustice of the system, and notwithstanding that but a year since, many were found who approved of the system; and many who took neither part nor lot in the matter; yet now, it is generally admitted that the system needs alteration; and we are pleased to add, that Agriculturists, Trades, Mechanics, and Judges of Courts, are now giving their testimony against it, and are heard to exclaim, it is wrong, unjust, and degrading to mechanics—it must be put down;—and we will use our exertions to render obsolete and unknown, the term "*State Prison Monopoly*." Your Committee has since its appointment held sixty-seven meetings, has corresponded with the corresponding Committees of counties, the Central Committee, and many members of the Legislature, and has expended for printing, postage, room hire, &c. upwards of \$1000, and it is to be hoped that it will not all be labor in vain but, that we may yet have the satisfaction of experiencing a total change in the system, and be able to say the Legislature of the State of New York, in enacting laws respecting prisons, has had in view the republican maxim, "the greatest good to the greatest number." The Committee add, that the members of the Assembly from this county have given satisfactory evidence to them, that their exertions will be used to remedy the evil of which we complain; and already has the subject been referred to a Special Committee of the Assembly, as we desired, instead of the Standing Committee on prisons; and one of the members from this county is Chairman of the Select Committee. Your Committee in conclusion, submit the following resolutions:

1. Resolved, That this meeting deem it highly expedient to express publicly our fixed and unchanged opinions of the injurious and oppressive bearing of the labor of our State Prisoners, as now employed, on the Mechanic Trades and Mechanic Interests.

2. Resolved, That the recent and emphatic expression of public sentiment, in accordance with ours, by all classes and all parties of our fellow-citizens, strongly confirms the correctness of our views, and inspires us with courage and energy to persevere in our efforts for an early remedy.

3. Resolved, That we think we perceive an earnest of speedy relief in that measure of the Government constituting a special Board of Commissioners to inquire and report on this grievance to the present Legislature.

4. Resolved, That we do most cordially concur in the sentiment of Governor Marcy, as expressed in his Message, "That no consideration connected merely with the income of the Prisons, should be permitted to interpose any obstacle to removing all just grounds of complaint."

5. Resolved, That we firmly believe that the Agricultural portion of our State, when convinced of the extent of the grievances we complain of, will most cheerfully co-operate with us in the removal of them.

6. Resolved, That we feel more honest sympathy for a single innocent Family, deprived of subsistence by the interference of Calprit labor, than the banishment of a host of felons would cause us.

7. Resolved, That while the evils of excessive competition among individuals and selling goods and worse for less than their cost, soon cures itself by the exhaustion of capital so employed, it would be madness for individuals to attempt to compete with the exhaustless capital of the State when so employed.

8. Resolved, That this Meeting recognize as two of the great fundamental principles, on which the superstructure of our State Constitution is founded, the protection of property, and an equal and uniform system of taxation.

9. Resolved, That we are convinced from practical experience, that the present system of State Prison labor is partial and oppressive in its operation upon us as Mechanics, and violates every just principle of taxation, in compelling us to pay indirectly much more than the just and equitable ratio of Taxes for the support of the State Prisons at Sing Sing and Auburn.

10. Resolved, That not only do we consider these mammoth institutions unjust and anti-republican, as it affects our pecuniary interests, but as much more injurious and reprehensible as it affects what is as dear to us as life, our characters as citizens and Mechanics. As it is but too evident that the direct and necessary consequence of our present system is to lower and degrade us, and make the character and profession of a Mechanic synonymous with that of convicted felons.

11. Resolved, That we are compelled to declare, as our settled conviction, that the present system of State Prison management instead of operating as a school of moral reform, most generally is a school of vice and a nursery of crime, nay more, that when their degraded inmates are vomited forth upon society, experience too fatally illustrates that they not only propagate their vicious principles among those with whom they associate, but their conduct inflicts a stigma on the hitherto honorable character of Mechanics, degrading even the virtuous in their own estimation and that of their fellow citizens.

12. Resolved, That it is our hope that every class of Mechanics in every town in our State will see the necessity of union and concert of action on this subject, and that they will again come forward as the heart of one man to insist on a redress of the grievances under which we suffer.

13. Resolved, That for ourselves, we will pursue this subject with unabated zeal and untiring perseverance, that we will neither slumber nor rest, till the name of State's Prison Monopoly and Prison competition with Mechanic Trades be mentioned with the things that were, a mere memento of by-gone oppression and mistaken Legislation.

A motion was made and unanimously approved that the present Executive Committee be continued with power to add to their numbers and fill all vacancies that may occur in their body. A vote of thanks to the Executive Committee, was unanimously adopted, for their past services.

Resolved, That the Executive Committee be empowered and instructed to make arrangements for obtaining signatures to the memorial.

The following extract from a letter from Thomas Jefferson was read.

MONTICELLO, SEPT. 24th, 1833.

Thomas Jefferson returns his thanks to Mr. — for his view of the inside of the New York State Prison. It will certainly have effect towards reforming our ideas of the penitentiary system which, however humane, does not answer the purposes of correction. It is high time to resort to the original idea of solitary imprisonment debarred of all employment.

It was then Resolved, that the proceedings of this meeting be signed by the officers and published in the daily papers.

GIDEON LEE, President,

THOMAS CONSTANTINE
DANIEL BERRIAN
PAULUS HEDL
JOSEPH P. SIMPSON
JOHN C. TUCKER
JOHN ANDERSON
ROBERT SMITH
ROBERT TAYLOR
JOHN RENICK

Vice Presidents.

Secretaries.

N. B. As an evidence of the feeling existing among Mechanics on this subject, we state that about 2000 signatures were obtained to the memorial, on the above meeting.

NEW-YORK AMERICAN.

JANUARY 17—23, 1835.

LITERARY NOTICES.

BIOGRAPHY OF THE SAVIOUR AND HIS APOSTLES, WITH A PORTRAIT OF EACH; by the author of "the History of the Bible," &c. New York: General Agency Office, Nassau street. We don't know when we have seen a more neatly published and attractive little volume. The style of engraving, which is by *Ormsby's* machine, is new and striking, presenting the head in relief, as on a cameo or medallion, and beautifully shaded. The portraits are all taken from *Leonardo de Vinci's* celebrated picture of "The Last Supper;" and both in likeness to those in the copy, and in spirited expression and execution, are deserving of all commendation. The biographies are carefully compiled and avouched throughout by reference to the New Testament.

In addition to what we have said of this little volume, our readers will perhaps not be displeased with an account of the machine which turns out without aid from, or even sometimes the supervision of, human agency, such fine works of art, as these portraits display.

The inventor, *Mr. Ormsby*, is a native of Connecticut: the process is that of medallion engraving, heretofore carried on laboriously by hand; but now, with this machine, it can be carried on to any extent without any human agency, after the plate and the copy are once adjusted, and the mechanism, of which a weight is the moving power, is set to work. It can only be applied to raised surfaces; that is to say, any cameo, medal, or embossed design. It cannot copy with effect a flat surface, such as an engraving. *Mr. Ormsby* exhibited to us the machine in action, but we have so little mechanical knowledge or skill, that we should wholly fail in any attempt to describe, although we could at once perceive and comprehend, its accuracy, and efficiency, and ingenuity.

The plates in this volume are the first executed by the machine, and with the vignettes, present samples of the various kind of work and shading it is capable of producing.

ROMBERT, A TALE OF CAROLINA: 2 vols. 12mo. MUNRO & FRANCIS, Boston, 1835.—Of this new American novel just published, but which we have not read, we have the following notice from one who has read it, and in whose taste and judgment we have confidence.

"The design of this book—for in these days it would seem that novels must have a design over and above all literary and pecuniary considerations—is to illustrate fanaticism, and hold it up to detestation; and, so far as that goes, the author of *Rombert* is eminently successful. The sketches are occasionally extravagant, it is true; and much that is intended for accurate delineation is wrought up to the borders of caricature; but, in the main, the leading object is ingeniously pursued and well developed, and probably no one will read the book without an increased disgust for that most revolting of moral maladies—fanaticism.

The work is interspersed with historical notes, showing that many of the details are matters of fact, a circumstance which essentially promotes the corrective purpose of that author; but, in the same ratio that such notes give value to the book as a moral essay, do they detract from its value as a novel. If one is to follow a writer through the regions of fiction, he prefers an uninterrupted

journey; and if molested by digression and episode he will soon imagine (what it is material to the writer that he *should* imagine) that he is travelling through realities, and taking a lesson from the experience of real life. But these constant references to historical proof—these frequently recurring indorsements of the author's veracity—very much weaken the illusion. The prominent faults of the work as a novel, originate from its embodying too much of plot, character, incident and catastrophe; too much material, in short, for one romance. When considered separately, each part is skilfully conducted; but when collectively, all the parts are not harmoniously combined; nor, indeed, could they be, within the compass of six hundred duodecimo pages if *Scott* himself had written them. Taking it as a whole, however, and regarding it as the first essay of an inexperienced writer, (which, from the nature of its faults, it certainly must be) it is a work of great merit, as it unquestionably is of great interest. Its defects, which are many, are those of a beginner; but its beauties, which are also many, are those of true genius. The author needs little but judicious criticism on the part of his friends, and careful revision on his own part, to become eminent in these days of literary fecundity: and if he can gain an ease in composition and a polish in language, together with the tact of omitting what is immaterial, and avoiding indistinctness in his narrative, he may hope to stand proudly and permanently in the front rank of American novelists."

THE AMERICAN MUSICAL JOURNAL, a Monthly Repository of Musical Literature, &c. &c.; No. 2, vol. 1; N. York, JAS. DUNN.

THE FAMILY MINSTREL, a semi-monthly Journal, devoted to the interests of Musical Education, &c. &c.; No. 1, vol. 1; New York, CHARLES DINGLEY.

Here are two candidates for the favor of the musical world—the first, the *Musical Journal*, addressing itself to all lovers of music—the second, the *Minstrel*, asking only or chiefly the suffrages of those who prefer sacred music. There is perhaps scope enough for both—if not, the chances would seem most in favor of the more comprehensive enterprize.

THE ALEXANDRIAN, a republication of valuable Literary and Scientific Works, No. 1; price six cents. N. York, WM. PIERSON.—If people don't read now, and good books too, it is not because reading is an expensive indulgence; for here, for example, not to mention other cheap publications, in six numbers at six cents each, *D'Israeli's Curiosities of Literature* will be completed. That work sells for four dollars: it now will be accessible in good print, though rather small, to as many as choose to buy, for 37 1/2 cents.

CRUISE OF THE U. S. FRIGATE POTOMAC ROUND THE WORLD, DURING THE YEARS 1831-4. BY FRANCIS WARRINER, A. M.—N. Y., LEAVITT, LORD & Co.—We always see with pleasure publications which, like this and others issued from the press by gentlemen connected with the naval service, go to show, that in the most distant seas, and in places however remote from their native land, the feeling of "what will they say of us at home?" and the desire to justify the solicitude, pride and the confidence of that home—seem to accompany these gallant ocean rovers.

The volume before us—tho' not very skilfully prepared—is interesting, and presents in its details and the manner of its narrative, a guarantee

of the truth and sincerity of its statements. We make room for a short extract, descriptive of the state of expectation on board the *Potomac* when the attack on *Quallah-battoo* was resolved on.

Our ship now presented a busy scene. It was determined to commence an attack upon the town the next morning, and every necessary preparation was accordingly made. Muskets were cleaned, cartridge boxes buckled on, cutlasses examined and put in order, &c. During the evening, the Commodore sent for the officers commanding the several divisions, and gave them their instructions. They were ordered to land, surround the town and forts, and demand indemnity for the outrage committed upon the *Friendship*, with the punishment of those concerned in the barbarous massacre of her crew. I had some conversation with a few of the junior officers, upon the subject of the perilous enterprize in which they were about to embark. They felt that it would not be so much a matter of jest, as they had been disposed to think it might be. There was some shrinking at the thought of impending danger. They might however have remembered, that

"The brave man is not he who feels no fear,
For that were brutish and irrational;
But he whose noble soul its fears subdues,
And bravely dares the danger others shrink from."

As eight bells, (twelve o'clock at night,) all hands were called. Those assigned to take part in the expedition were mustered, when *Lieut. Shubrick*, the commander of the detachment, gave them special orders. No man was to utter a word after he had entered the boat; no one was to fire till the command was given; and no man was to desert his ranks. Considerable time was occupied in getting the men into the boats, and in making all things ready. Several of the officers felt impatient at the delay, and were fearful that they would be unable to effect a landing in season to surprise the enemy. At length the gallant band, to the number of two hundred and eighty-two men, including officers, left the ship about two o'clock.

The last words we heard were, "Let fall, give way, men." Here was a moment of interest. All before in regard to fighting the Malays had been mere talk; but now there was a stern reality.—The period had arrived when the grand object of our voyage hitherto was to be accomplished. The death-warrant of the Malays had been pronounced, and avenging spirits had gone forth to demand satisfaction for the wrongs of their countrymen. The blow was to be struck, and victory or defeat was to ensue. There was something awful in the scene before me. The expedition proceeded slowly on their midnight errand in perfect silence, save an occasional whisper from the officer in command, with muffled oars, the soft dipping of which we could faintly hear, and nothing but the stars of heaven to guide them to their place of disembarkment.—My own reflections were any thing but those of a cheerful character. I found it impossible to divert myself of the fit of melancholy which had seized me. I retired to my couch, but not to sleep. It seemed as though a spell had fallen upon the ship. Not a word was spoken. The steps of man had ceased to be heard, save those of the officer on watch. A silence like that amid the mournful repositories of the dead, pervaded the ship, interrupted only by the striking of the bell, which proclaimed the hour of the approaching destiny of the Malays. The hours moved tediously on, as we anxiously awaited the dawn of day. Each one's thoughts were busied in contemplation of what might be the fate of his comrade in arms. In this state of painful suspense, I for a moment lost myself in sleep; when I was awakened by the quarter-master exclaiming, "W—, hot work going on ashore, Sir." It was then broad daylight, and I dressed myself and hurried on deck. The scene was one of fearful interest. The din of war was heard throughout the town, threatening destruction to every opposer. The reports of the cannon and musketry, as they came thundering across the water, told us plainly that the work of death was going on.—Sheets of fire were arising from the town wrapped in flames, and the launch, with its cannonade and swivels, was doing full execution upon the retreating foe.

Commodore Downes had stationed himself in the larboard gangway of the ship, with his glass, not to leave till the engagement shall be over.—He felt anxious to know how the affair would terminate, and at times thought it would be necessary to take the ship nearer in shore, in order to protect his men. The remainder of us were posted in different parts of the ship, some in the tops, some hanging upon the shrouds, and some on the "Jacob's ladders," all gazing with breathless anxiety. Some of the sailors were in the rigging, and among them our unfettered Malay prisoners, watching the movements with immense interest. We were all surprised at the resistance apparent on shore.

About an hour and a half after the action commenced, two boats were seen pulling off to the ship. They approached us in silence, and from the cast of gloom visible in the countenances of the boat's crew, we conjectured that some of our brave fellows had fallen. The sight of two bloody corpses soon proved that our conjectures had been but too true. I never shall forget the appearance of their features. They were much distorted, and the countenance of one, especially, exhibited a wild and terrific aspect. His long hair hung in matted tresses over his shoulders and glaring eyeballs. His name was Brown.—He was shot near one of the jungles, where a body of the Malays were lying in ambush. The ball entered his breast, and the last words of this unfortunate marine, as he was falling, were, "I am a dead man." The name of the other person was Smith, a maintopman. He met his death just at the entrance of one of the forts. He had discharged his musket and wheeled about for the purpose of re-loading, when he was shot directly through the eye. One of the sailors standing near him was slightly wounded by the same ball. Smith was a tall, well built man, distinguished for his nerve of arm and integrity of soul. In the hour of peril, when the fierce winds of heaven were spending their fury on our ship, he was ever among the first to meet their rage.

An hour afterwards the American colors were seen proudly waving over the battlements of the largest fort. We had been in deep suspense, anxiously awaiting the result of the contest on shore. The sight of our flag waving in the breeze, and the rush of the main body of our forces into the fort, raised a smile of joy upon every countenance.

GUY RIVERS—Second Edition.—The popularity of this work has induced a call for a second edition. In revising Guy Rivers for reprint, the author has shown much good sense, in availing himself of the criticisms which followed its publication, and making occasional alterations here and there in the phraseology. These, without impairing the spirit, add essentially to the correctness and value of the work.

ROLLIN'S ANCIENT HISTORY, WITH A LIFE OF THE AUTHOR. By James Bell. First complete American Edition. 2 vols. George Dearborn.—We do not hesitate to pronounce this one of the most elegant and liberal publications that has long issued from the American press. As a cheap but handsome reprint of a book that ought to be in every one's library, it may be regarded as belonging to a series of valuable works, got up in similar style, and now continually appearing from Mr. Dearborn's press. They are published in the royal 8vo. form, and generally form two volumes; nor is there one among the number, whose reputation Time has not stamped beyond all cavil. Every friend of sound letters will hope for their continuance, and that their enterprising publisher may be amply rewarded.

The volumes now issued, in addition to the matter contained in the ordinary editions of Rollin, include his history of the Arts and Sciences of the Ancients; which whether from fatuity or imperitance has been generally struck out by the English publishers, who have hitherto been servilely copied in this respect by their Ameri-

can brethren. The work as now first given complete in this country, is embellished with maps and diagrams, and ornamented with two handsome vignettes, in addition to a portrait of the author.

Literary Items.

An interesting little volume has recently been published by M. Paulin of Paris, entitled, "Le Romancier Francais, ou Histoire de quelques Anciens Tryuvers, et Choix de leurs Chansons."

These "Ancient Songs of Love and War," originally composed by French Trouvres, res, which have been buried in oblivion for the last 600 years are now once more brought to light by the fortunate investigations of this young "employé aux manuscrits" of the Royal Library.

M. Marcell has just published a History of Egypt, from its conquest by the Arabs to that by the French, in an 8vo volume.

Publications of the Messrs. Harper and Brothers, of New York.

"During the year that has just ended, the issues of this house have amounted to upwards of five hundred thousand books of an average size of Bulwer's "Last Days of Pompeii." This number is made up of new editions of books published by them in former years, and of sixty-five new works, making upwards of one hundred volumes; of these, forty-five were published with copy-right—either entirely American, or translations made in this country, or English works edited and improved by American authors: the remainder were re-prints from English books. During the early part of the year owing to the pressure of the money market and the general prostration of business, they curtailed their operations to a considerable degree, or the sum total of their publications in the course of the year would probably be greater than it is by two hundred thousand volumes; but even now it exceeds that of any former year. In their opinion, the number of books printed and published in the United States since the first of January 1834, is very nearly twice as great as it has ever been known before in the same space of time."

Mr. Van Hamner's History of the Turkish Empire is now completed in 10 vols. 8vo. The history terminates at the peace of Kainardji, in 1774.

A sort of literary congress is about to be held at Berlin in order to draw up some general regulations, with a view to secure the copy-right of authors and booksellers throughout the whole of Germany. A committee of booksellers have already been formed at Leipsig, and protocols have been exchanged between this committee and the Berlin commission.

The first instance in the annals of Turkish literature, of works announced for publication by subscription, appeared in the Turkish State Gazette of October 22d, 1833, and the works thus signalized are three historical, five grammatical, and four political. As the historical works are by far the most interesting, we subjoin the titles of them.

I. Lives of the Sultans and Viscers by Osman-ade Ahmed Taib, who died in 1793, with a continuance by three others.

II. Lives of Muftis by Suleiman Seadedden Ben Mehammed, celebrated under the name of Muesakim Efendisade, and written by him in 1744.

III. Lives of the Reis.Effendis, by the Reis Effendi Ahmed Besmi, and with a continuation to 1807 by Suleiman Faik.

The new novel, by Miss Pardoe, author of Traits and Sketches of Portugal, is to be entitled, "The Mardens and the Daventrys."

"Young Hearts," a Tale, which is to appear under the sanction of Miss Jane Porter, will be ready in the ensuing month.

A Translation of the last work of the celebrated Schlegel on the Philosophy of History, is just completed, and will appear forthwith, in London.

Previous to her leaving England, Mrs. Jameson left in the hands of her publishers the corrected copy for a new and enlarged edition of her interesting work, "The Lives of the Celebrated Female Sovereigns."

SUMMARY.

The United States ship St. Louis, Com. Henley, reached Pensacola on the 25th ult. in three days from Havana. The Grampus and Experiment were in the neighborhood.

The United States frigate Potomac, Captain Nicholson, reached Gibraltar in 23 days from Boston.

DEPARTURE.—The Philadelphia National Gazette, printed probably about two o'clock yesterday afternoon, acknowledges the receipt by the Camden and Amboy Railroad, of the Courier & Enquirer of the same morning.

The passengers by the same line from Philadelphia, which they left at 8 o'clock, were yesterday landed in this city in six hours and twenty minutes.

Boston Jan. 13th.—A massive block of granite to form one of the pillars for the New Court House in this city, was started yesterday morning at half past nine o'clock, in Quincy, by a team of sixty-five yoke of oxen and 11 horses, for the city, under the direction of GRIDLEY BRYANT, Esq. It was brought by the way of the Brush Hill Turnpike, entered on Boston neck 20 minutes of 7 o'clock P. M. and arrived at the Court House half past 9, where it was welcomed with nine cheers, by a large concourse of people. And yet we dare say the unconscious block gave no sign of gratulation in return.

[From the Mercantile Ado. of this Morning.]

Our correspondent at Marseilles, under date of Dec. 10th, writes as follows:—"The cholera still rages on board the American men of war at Mahon. The Delaware had, on the 29th Nov. about 150 cases on board, and had lost about 20 men, but no officers. The authorities still kept them in quarantine, notwithstanding that several cases are daily declared in the town."

BUFFALO, JAN. 12.—Steamboat Burnt!—We had an alarm of fire about nine o'clock last evening, caused by the conflagration of the Steamboat Daniel Webster, in the harbor. She was moored at the dock, in front of the store house of Pratt, Taylor & Co. The Steamboat Gov. Marcy lay immediately astern, and the Brig Indiana under her bows—all immovably fixed in the ice; while the wooden store house was only at the distance of a few feet upon the shore. When we reached the scene, the Webster was burning furiously, both forward and aft,—the centre around the engine not having yet kindled. The fire engines were placed upon the ice of the harbor, and attacked the flames simultaneously, at different points—which were finally quelled.

On visiting the boat this morning, we find her inside works entirely destroyed, with decks, upper works, and engine considerably damaged—but the frame apparently uninjured. The amount of damage we have heard estimated at from six to eight thousand dollars—no insurance. The Webster is owned, principally, by Pratt, Taylor & Co. of this city, Dows, Cary & Co., Albany, Al. laire, New York, &c.; was new, and one of the swiftest boats upon the lakes.

The fire was the work of design, though no motive of the hellish deed is known. There had been no fire in the boat for more than six weeks past, and it appears to have been kindled both in the forward and aft part at the same time. The incendiary was a most considerate scoundrel, for he chose a night so calm, that the flames rose perpendicularly. Had the wind been high, several of the steamboats and vessels, with a range of extensive wooden storehouses must have been destroyed.

The Steamboat New York, also in port, has been twice fired within a few weeks, and in each instance, the fire went out, most fortunately, without damage, and before the fact was discovered. —[Whig.]

APPOINTMENTS by the Governor and Senate.—Tuesday, Jan. 13. 1835.

New York.—Garret Storm, Director of the Phoenix Bank. Charles Graham Jr. and John Harris, commissioners of deeds. Joseph Flynn, inspector of domestic distilled spirits.

A gentleman near Natchez, has liberated his slaves, about twenty in number, and furnished them with from \$200 to \$400 each, to promote their comfortable settlement in Liberia.

NEW ORLEANS, DEC. 29.

Unprofitable Risk.—The *ÆRONAUT*.—The day was beautiful for the ascension, a large company had assembled in the enclosure, soldiers and ladies were commingled among the groups—the fearless aeronaut went up—but melancholy accidents brought his career to a brief close. The wind was too high for a safe ascension—it came in strong puffs, and his balloon and himself were liberated at the moment of a violent flaw. The car was swept along almost horizontally at first, striking the benches filled with spectators and throwing down and injuring several persons, and then was carried up and dashed against the chimney of the arsenal, standing in the enclosure, which was instantly struck down, and against which Mr. Elliot fractured his thigh bone. Several of the bricks of the chimney were thrown into the car, preventing its further elevation, and the aeronaut was driven about among the tops of the houses; was forced through the upper window of one, bruising himself severely again, and cutting his face and head with the broken glass;—and was then jerked out, with several of the cords attaching the car to the balloon cut, and the car turned nearly bottom upwards. In the midst of all the peril he discovered wonderful courage and presence of mind, and indeed to these qualities owes the preservation of his life. No one less intrepid and less self possessed could have escaped through the difficulties and dangers encountered by him. After clearing himself from the buildings of the city, he was swept towards the river, and notwithstanding his bruises, wounds and fractured limb, he asserts he would have continued upon his fearful journey had he not have been interrupted by the rigging of the shipping at the levee. He was blinded by the blood from the wounds over the eyes, or he thinks he could have guarded himself better against the accidents, and would have been able to throw out ballast enough to clear him of the vessels. His balloon caught at the mast heads of two ships, to the rigging of which he clung until rescued from his danger by the generous exertions of a friend and the sailors on board. The broken thigh bone was forced through his drawres and pantaloons. He was taken to his lodgings, and placed under the care of Doctor Luxenburg and Doctor King. He is in good hands, was comfortable last evening at nine o'clock, surrounded by kind friends and doing well.

Mr. Elliot is a worthy man in all respects; has an interesting family, for whose support as well as for the public gratification, he boldly risks his life and limb—the public sympathies are and ought to be with him, and an appeal will be made to the generosity of this community in his behalf. —[Bulletin.]

[FOR THE NEW-YORK AMERICAN.]

HYDE PARK, (Dutchess Co.) JAN. 10.

Unprecedented Cold Weather.—Since the 3d of this month, the thermometer has ranged lower in this place than has ever been remembered by our oldest inhabitants. I have for some time back been in the habit of keeping a list of the ranges of the thermometer; and since the 3d, send you an exact account of it, taken three times per day, at the hours of 7 A. M., 12 M., and 9 P. M. You may rely on the correctness of the following report. The thermometer is one of Poole's manufacture, Fahrenheit's scale, and was placed on the north side of the house.

1835.	7 A. M.	12 M.	9 P. M.	Remarks.
Jan. 3	0 2	5 0	0 10	Wind slight, N. N. W. clear.
4	0 25	0 6	0 25	do do do
5	0 32	0 2	0	do do do
6	8 0	1 0	0 7	Wind strong, do hazy.
7	0 8	0 1	0 8	do do clear
8	0 12	1 0	0 5	Wind slight, do do
9	0 13	5 0	0	do do do
10	0 14			do do do

The city Inspector made his annual report of deaths during the past year, last evening. The total number from 1st January, to 31st December was nine thousand and eighty-two, being an excess of 3336 over the last year. There were of consumption 1471; small pox 233; cholera 971; of these there were 4745 children under ten years of age.

SCHOOLS IN MASSACHUSETTS.—By a resolve of the Legislature, adopted on the 31st day of March last, returns were required to be made from the several towns, shewing the condition of the schools, to the office of the Secretary of State.—On the 31st of December, returns had been received from 261 towns, and there remained at that time 44 towns, by which none had been made.—In these 361 towns, there were 2,251 school districts; and the number of male children attending school between four and sixteen years of age was 67,499, and of female children 63,728. The number of persons between the ages of sixteen and twenty-one, returned as unable to read and write, was 158. There were in these districts 1967 male, and 2388 female instructors.—The amount raised by taxes for the support of schools in these towns was \$310,172 87, and by contribution, \$15,141 28; and the estimated amount paid for tuition in academies and private schools, was \$276,575 75. The average number of scholars attending academies and private schools, was 24,749. The amount of the local funds returned is about \$127,000, and there are funds invested in real estate, the amount of which is not stated. In those cases, where only the income is given, the aggregate amount is about \$2,500 per annum. From the above returns, it appears that the number of scholars in the common and private schools and academies is 158,976, and the amount annually expended \$601,895 90.

According to the Report of the Auditor General to the Legislature of Pennsylvania, the Banking capital in the city and county of Philadelphia, (exclusive of the U. S. Bank) amounts to \$12,812,875, the bank notes in circulation amount to \$4,053,247; and the specie on hand is \$5,332,961. The Country Banks of Pennsylvania have an aggregate capital of \$4,966,689; their notes in circulation are \$3,532,049; and their specie on hand is \$1,089,640. The total banking capital in the State is \$17,779,562, and the amount of notes discounted is \$26,749,619.

The Knoxville (Tenn.) Register of the 7th instant states that the steamboat Reliance, after a detention of ten months in the Muscle Shoals, had at last made her way through the difficult obstructions of the Shoals, and reached Decatur on the 29th ult. She was expected at Knoxville in a few days.

Schr. Hudson, of N. Y.—Capt. Wm. Sherwood states that his schr. struck on Stoney Point, near Cape Poge, about 4, A. M. 6th inst. when hauling off, having sounded in shoal water. The sea was heaving violently, and it was impossible to carry off an anchor. At 9, she leaked very fast, and could not be kept free. Attempted to land in the boat—three men reached the shore—the boat was then hauled off to the schr. by means of a line attached; a passenger and two seamen put off; when about half way to the shore, the boat upset, but the men succeeded in reaching the shore. The mate with three men, then attempted in vain to get the boat back again to the schr. and proceeded to the Light House at Cape Poge, leaving those on board exposed to the cold and sea, which was continually breaking over the vessel. At 11 at night, Mr. Edward Donnelly expired on the deck of the vessel, and at 12 Mr. Pierson Newell expired. At 9, next morning, the crew returned from the Light House, resolved to rescue those on board or perish. The gale having somewhat abated, they boarded the vessel and took from her Capt. S. his son 16 years old, and Mr. John Clark, of Ipswich. They all proceeded to the Light House, where they were kindly received. Mr. Peter Laffen, of Halifax, died immediately after reaching the Light House. Part of the crew remain at Cape Poge, badly frozen. Capt. S. and Mr. Clark are at Edgartown,

badly frozen. Mr. Newell belonged to Boston—Mr. Donnelly's residence was unknown.

FOREIGN INTELLIGENCE.

THE LATE FOREIGN NEWS, by way of Boston, is not very important. It seems certain, that Parliament must be defeated. Sir Robert Peel having, by accepting office, vacated his seat in the House of Commons, has put forth an address to the Borough of Tamworth, which he represents, which, as embodying the sentiments of the new ministry, and setting forth the principles upon which they mean to proceed, will be looked upon with interest.

Captain Ross (the navigator) is now Sir John Ross and is about to receive "the honors of the third class of the Order of Bath."

The dates from Paris are to the 18th. The trial of the *National*, defended by M. Cuvell, with his wonted courage and eloquence, before the House of Peers, excited great interest. He spoke in terms of uncompromising contempt for those noble persons; and in referring to their past acts, pronounced the death of Ney to be a judicial assassination, to which sentiment, a Peer present, Marshal Exelmans, distinctly assented.

The Chamber of Deputies had been engaged, through its Standing Committees, on two projects for an amnesty, which, however, were rejected by eight out of nine of those Committees. Hence these propositions would not be publicly discussed.

M. Passy was re-elected a President by 270 out of 310 votes.

The first division of the Polytechnic school, to the number of 115, had been dismissed; it does not appear for what offence.

General Bernard has taken his seat in the French Chamber of Peers.

From Spain the news is of little moment, though *Mina* would seem to have intimidated the Carlists, and restrained their irruptions from their mountain fortresses.

LONDON, DEC. 19.—The Earl of Aberdeen has been removed from the Admiralty to the Colonial Department, to make way for Earl de Grey, who is to be First Lord of the Admiralty.

Lord Granville Somerset is to be First Commissioner of Woods and Forests.

Lord Lowther is, we understand, to be Chancellor of the Duchy of Lancaster.

The Board of Control is to consist of Lord Ellenborough, Sir Andrew Grant, and Messrs. Platts and Sullivan.

Sir John Beckett is appointed Judge Advocate General.

There are rumors of Sir James Scarlett having a peerage, and that Lord Combermere is to go to Ireland as Lord Lieutenant, or to India as Governor General or Commander in Chief.

It seems generally believed that a dissolution of Parliament will take place soon after Christmas.

Postscript, six o'clock p. m.

The following appointments have now transpired:

Lord Edward Somerset, Surveyor General of Ordnance.

Colonel Perceval, Treasurer of Ordnance.

Sir William Rae, Bart., Lord Advocate.

Mr. Stuart Wortley, under Secretary of State for the Colonies.

It is also reported that the Duke of Buccleuch is to be Lord Lieutenant of Ireland.

FRONTIERS OF POLAND, Dec. 6.—The Emperor Nicholas has traversed Poland without leaving a trace of his presence. The mitigation of the condition of the political prisoners, which was promised, has not taken place. The women who were arrested for not having denounced their husbands, remain in prison.

A few days before the arrival of the Emperor a revolting sentence was passed upon the sister of the unfortunate Szpeck, who was shot at Warsaw for some political offence. This young girl has been sent to the military colonies, where she is to be forced to marry a Russian soldier.—Her mother has at the same time been sentenced

to ten years' hard labor at Wilna. Made-moiselle Karaka, an inhabitant of the Palatinate of Kalies, has been torn from her family and sent no one knows where. The motive for her arrest is said to have been the discovery of a ring, which had a motto displeasing to the Russian police. The presence of the Emperor did not lead to any change in these arbitrary and atrocious sentences. Prayers and supplications were made in vain.

Patriotism of the Ladies.—About forty of the youngest, prettiest ladies of Frankfurt, in Germany, all of whom belonged to the society for the relief of the Poles, were recently found implicated in procuring the escape of several prisoners confined for political offences. They sent saws and files to the prisoners wrapped up in pastes and cakes—a specimen of feminine tact and spirit, worthy of all praise.

[From the Journal of Commerce.]

CANTON, JULY 28, 1834.

Lord Napier, the British Chief Superintendent, has arrived in Canton, and has organized his establishment. His views are not known, but it is generally allowed that his presence is entirely uncalled for. Some of the Hong Merchants were sent by the Vice Roy to Macao to stop him from coming to Canton, but they missed him, and he arrived here in the night. We doubt whether any serious obstacle will be presented to his remaining, provided he keeps quiet. But his Lordship will be much mistaken if he looks for any diplomatic courtesies from the Chinese authorities. It is probable that his residence will be tolerated on the ground that he is a merchant in the pay of the Company; but if he plays the mandarin and forces upon the Vice Roy his official dignity—or if he interferes with the established customs of the country, intermeddling with its judicial concerns, or attempts changes in its commercial regulations, it is more than likely he will receive an unqualified order to quit, expressed in terms not the most complimentary.

CANTON, JULY 1st.—The immense injury which this province has suffered far exceeds the damage done by the inundation of last year. The natives are horror struck, and, though blinded by pagan superstition, acknowledge the hand of God. The calamity not yet being known to its full extent, as even at the present moment the water has not yet entirely subsided, it is thought that four fifths of a most promising crop in the low ground is destroyed. We are not informed that lives have been lost, but have to record with deep feelings of compassion that several thousand houses in and near the city of Canton have fallen down. Thus houseless and starving, the wretched inhabitants are left without any resource.

CANTON, JULY 8.—The late inundations must have caused great destruction to property in houses, furniture, and crops, and there can be no doubt that many lives have been lost. The government of China does not like to dwell upon these dreadful visitations, and the official statements never divulge the real extent of calamities by flood, fire, or earthquake. When these phenomena frequently happen, they are considered as caused by the bad government of officers of the district, whose conduct is supposed to influence the course of nature; therefore, they have a personal interest in the suppression of facts connected with such occurrences. We have made several inquiries as to the extent of damage occasioned by the late floods, but have not succeeded in obtaining any correct information. On the contrary, we know that statements grossly exaggerated have been laid before us. A short time hence, when the people recover from their alarm and losses, an account somewhat to be trusted may be had.

CANTON JULY 15.—The weather for the last three weeks has been unseasonably hot, the thermometer ranging from 90 to 96 degrees in the shade.

FROM MANILLA, BATAVIA, AND CANTON.—The ship Covington, Holbrook, arrived at Baltimore on Friday, in 142 days from Manilla. The editors of the American are indebted to the attention of Mr. G. P. Nelms, supercargo, for a

memorandum containing the information which follows:

At Manilla, when the Convington sailed, business was dull, it being too early for the season ships to make their appearance. A large portion of the old crop of sugar was on hand, which holders were anxious to realize; they could be readily obtained at \$4 1-2 per picul. Other articles of export were scarce.

Advices from Canton to the 15th August had been received. A letter of that date to Mr. N. says:—"The only news I have to give you is, that Lord Napier, the British superintendent of Trade has not been acknowledged by the Chinese authorities. By some it is supposed that a stoppage of trade will take place, but I think otherwise. Lord Napier has been deprived of his Comprador and Chinese servants, but he has stated to his countrymen that he will not allow personal insult to weigh with him; although I think he will be quick enough to take notice of the first insult offered to the trade. Two British frigates have just arrived. The Logan, Capt. Bancroft, from Gibraltar, is the last American arrival. Dr. Morrison of Macao, is dead. All your countrymen and Macao friends are well."

The advices from Batavia are to the 24th September. They communicate the melancholy intelligence that Mr. LATMAN and Mr. MUNSON, the two American Missionaries who embarked in March last from Batavia to Sumatra, were murdered and eaten by the natives of the Batta country, in the interior of Sumatra, on the 28th July last. Their bereaved widows were still at Batavia, waiting anxiously for an opportunity to return to their native land.

FROM CENTRAL AMERICA.—Guatemala papers to Oct. 14th, received at New Orleans, represent every thing at that time quiet. San Martin and Flores, who attempted to renew the civil war in the State of San Salvador and Nicaragua, were completely routed by Morazan, and compelled to desist from their purpose. This victory of the federal troops, says "El Mississippi," a Spanish paper in New Orleans, will doubtless convince this feeble faction of the superiority of the federal government, both physical and moral.

Common Schools.

ANNUAL REPORT OF THE SUPERINTENDENT.

On the 7th inst., the Secretary of State presented to the Assembly his annual report as Superintendent of Common Schools. The following extracts embrace some of the most interesting matters which it contains. A complete view of the condition of the common school system, however, can only be obtained by a perusal of the entire document.

1. The condition of the Common Schools

There are in the state, fifty-five organized counties, containing eight hundred and thirty-five towns and wards. The commissioners of common schools of the several towns, are required to make an annual report of all the school districts in their respective towns, to the clerk of the county to which they belong; and it is the duty of the county clerk to send certified copies of all such reports to the Superintendent of Common Schools. This duty has been performed in every instance, and the necessary returns have been received from every town and ward in the state.

By the table marked B, it will appear that there were in the state on the last day of Dec. 1833, nine thousand eight hundred and sixty-five organized school districts, from nine thousand three hundred and ninety-two of which reports have been regularly made to the commissioners of common schools.

In the districts from which reports have been received, schools have been kept an average period of eight months.

The whole number of children over five and under sixteen years of age, residing, on the last day of December, 1833, in the districts from which reports have been received, was five hundred and thirty-four thousand and two; and the whole number of children who had received instruction in the same districts during the year 1833, was five hundred and thirty-one thousand two hundred and forty. The exact average pe-

riod of time during which the whole number of children taught have attended school cannot be ascertained. The reports show only how long the schools have been kept open, and how many children during that period have received more or less instruction.

The average number of organized districts to each town, is twelve and a half; and the number of children receiving instruction, compared with the number of school districts from which they were reported, will give an average of fifty-six and a fraction to each district.

II. Estimates and Expenditures of the School Money.

By the reports of the commissioners of common schools, it appears that the sum of three hundred and fourteen thousand eight hundred and eight dollars and thirty-six cents was paid by them to the trustees of the several school districts, in April, 1834. The amount of public money expended by the said trustees in the year 1833, was three hundred and sixteen thousand one hundred and fifty-three dollars and ninety-three cents; of which sum, one hundred thousand dollars was received from the Common School Fund, one hundred and ninety seven thousand six hundred and fourteen dollars and thirty-seven cents, was levied by taxation upon the property of the inhabitants of the several towns and cities of the state, and eighteen thousand five hundred and thirty-eight dollars and fifty-six cents, was derived from the local funds belonging to particular towns.

By the abstract marked B, it will be seen that the amount paid for teachers wages, besides public money, is three hundred and ninety-eight thousand one hundred and thirty-seven dollars and four cents and exceeds by the sum of twenty-eight thousand four hundred and forty dollars and sixty-eight cents, the amount paid for teachers' wages, besides public money, in 1832. The whole amount paid for teachers' wages is seven hundred and fourteen thousand two hundred and ninety dollars and ninety-seven cents, from which should be deducted a few thousand dollars expended by the Public School Society in the city of New York for school houses.

The whole amount of money, therefore, expended for teachers' wages in 1833, exceeds the amount so expended in 1832, by the sum of thirty-six thousand eight hundred and sixty-one dollars and fifty-three cents.

During the year ending on the 30th September, 1834, the productive capital of the Common School Fund has been increased by the sum of thirty-six thousand two hundred and seventy-four dollars and ninety-three cents; and it now amounts to one million seven hundred and ninety thousand three hundred and twenty-one dollars and seventy-seven cents. The actual receipts on account of revenue during the year ending on the 30th September, 1834, amount to one hundred and four thousand three hundred and ninety dollars and seventy-eight cents. Document D exhibits the increase and diminution of the fund during the same period. The several items of which the fund is composed, will be found in the paper marked E, together with an estimate of the revenue and the actual receipts on account of revenue for the same year, and a detailed estimate of the revenue for the year ending on the 30th September, 1835, amounting to one hundred and eight thousand four hundred dollars.

In 1833, the Superintendent made an estimate of the sum expended upon the common schools during the year 1831. Assuming the basis of that estimate to be true, the expense of the Common School system in 1833, would be as follows:

Interest at 6 per cent. on \$2,116,000 invested in school houses,	\$186,960 00
Annual expense of books for 531,240 scholars, at 50 cents each,	265,620 00
Fuel for 9,580 school houses, at \$10 each,	95,800 00
Public money, as appears from the returns,	316,153 93
Amount paid for teachers' wages, besides public money, as appears by the returns,	398,137 04
	\$1,262,670 97

This estimate does not, it is believed, exceed

the actual expense of the common school system, as there are several items, (of these is the expense of keeping school houses in repair,) which, from their uncertainty, have not been admitted into the estimate.

It would appear, therefore, that the whole amount expended on the schools in 1833, was one million two hundred and sixty-two thousand six hundred and seventy dollars and ninety-seven cents. Of this amount, the common school fund paid one hundred thousand dollars, a little less than one twelfth part; a little more than two-twelfths were levied by tax upon the towns and cities, with the exception of \$18,588 56, derived from local funds; something less than three-twelfths was paid by taxes levied upon the school districts by vote of their respective inhabitants; and more than six-twelfths was voluntarily paid by the parents and guardians of children receiving instruction.

Thus it appears that three quarters of the whole amount annually expended upon the common school system of the state, is paid by taxes imposed upon themselves by the inhabitants of school districts, or by voluntary contributions of the parents and guardians of children receiving instruction.

The third division of the Report gives a detailed account of all the receipts into the Treasury on account of the School Fund during the year ending the 30th Sept. 1834, a statement of the various items, in which the fund is invested, &c. &c., which for want of room we are compelled to omit.

IV. Organization of the Common Schools.

The administration of the Common School system, in all matters enjoyed by statute upon those who are charged with its supervision and management, has attained as great a degree of regularity as is practicable. Returns have been received from every town in the state, and, with a single exception, through the channels prescribed by law. In the case referred to, the report of the commissioners of common schools having been accidentally retained until the time for sending it to the county clerk had passed by, was transmitted directly to the superintendent. The matter contained in the report now submitted to the legislature by the Superintendent, has been furnished through the agency of more than thirty thousand individuals; and of all the school districts in the state, nineteen out of twenty have made their reports in the manner required by law to enable them to participate in the benefits of the Common School Fund.

The extent of common school instruction in this State, so far as it relates to the number for those on whom its benefits are bestowed, admits of little if any change for the better. In this respect our system need not shrink from a comparison with any other. When considered under all its aspects, and particularly with a reference to the training of teachers, the Prussian, is perhaps superior to every other. But in regard to the number of those whom it embraces, it falls short of ours. In 1831, the inhabitants of Prussia amounted, exclusive of the army, to 12,780,745 souls. The number of scholars receiving instruction during the same periods in different public schools, was 2,047,352. Thus it appears that one in every 622 of the whole population, was, in that year, receiving instruction.

The population of this State, according to the census of 1830, amounted to 1,919,132. If the rate of increase from 1830 to 1833 was equal to the rate of increase from 1825 to 1830 the population of the State in 1833 was 2,101,000. During the same year, the number of children actually receiving instruction in the common schools amounted to 531,240. It therefore appears that one in every 395 of the whole population in this State, was, in 1833, receiving instruction in the common schools alone.

The incompetency of teachers is still the great evil of the common school system of this State, and it may, indeed, be said to be the source of the only other material defect, which pertains to it—a low standard of education in most of the schools. The evil, however, is by no means universal. There are many teachers of ample qualifications, and many schools of high standing, both as regards the nature and extent of their requirements. The only cause of regret

is, that this is not the character of all. The principal obstacle to improvement is the low wages of teachers; and as this is left altogether to be regulated by contract between them and their employers, there would seem to be no effectual remedy for the evil but to inspire the latter with more just conceptions of the nature of the vocation, and its high responsibilities, and of the necessity of awarding to those who pursue it, a compensation in some degree suited to its arduous duties and requirements. So long as the compensation of teachers is on a level with that which is commanded by the most ordinary employments it is not to be expected that men of the necessary talents will prepare themselves for the business of teaching; but it may be justly said, that there is scarcely any vocation, in which the best talents can be employed to greater advantage. It has certainly not been common to assign to it a value at all commensurate with its importance; and it must be confessed, that while its end was to teach reading and writing and a few elementary rules in arithmetic and grammar, there was some reason to undervalue it. But on this subject more just views begin to prevail. However narrow the limit of instruction, it is obvious that the mere association of a teacher with pupils, who are at an age best fitted for the reception of strong and durable impressions, cannot fail to exert an influence upon their minds for good or evil, which may determine the complexion of their whole lives. Whatever the design may be, schools must, from the necessity of the case, be instrumental to the formation of moral as well as intellectual character; and it is of vital importance that the moral qualities and habits of the instructor, independently of his ability to teach, should, at least, carry with them no lessons of evil. But to enable him to discharge his duties in a manner suited to their great purposes, he should be fitted by his disposition and acquirements to give a proper direction to the moral sentiments, to bring into activity the intellectual faculties, to lay open those rich stores of knowledge, which are to be found in the nature of man and in the external objects by which he is surrounded, to create a spirit of inquiry and observation, and teach its application to practical uses. To accomplish these results, a high grade of qualification is indispensable; but nothing less, it may be safely assumed, will satisfy the existing desire for rational improvement or keep pace with the advances of science and the progress of just opinions. In order to command the services of men competent to discharge this elevated trust, an adequate compensation must be provided for them; for it cannot be expected that any occupation, excepting such as confer influence or distinction, will invite to it talent and skill without the promise of pecuniary rewards proportioned to its labors and sacrifices. Before the evil referred to can be wholly eradicated, a change must be wrought in public opinion; and it is believed that such a change is already in progress, and that it may be accelerated by measures, which are now under the consideration of those who have the power to adopt them. During the last session of the Legislature, a law was passed authorizing the Regents of the University to apply a portion of the revenue of the Literature Fund to the education of Common School Teachers; and it is understood that a plan will be matured, at an early day, to establish departments of instruction and discipline for the purpose, in connection with some of the organized academies. The execution of such a plan will but carry out a policy which was distinctly recognized by the Legislature in 1827, when the capital of the Literature Fund was augmented, to use the language of the law, in order "to promote the education of Teachers," although the design of the law was not sustained by the measures necessary to give it the form and effect of a system. Should these departments succeed in preparing for the Common Schools, a supply of well trained Teachers, it is believed that the influence, which the latter may exert upon the public mind, by the superiority of their methods of instruction over those in common use, will do much to bring about that change of opinion which is indispensable to the perfection of our system of popular education.

If the foundations of our whole system of public instruction were to be laid anew, it would perhaps be advisable to create separate seminaries for the preparation of teachers, although from the nature of our institutions it might be deemed arbitrary, if indeed it were practicable, to compel the school districts to employ them. It would be equally difficult without a great augmentation of the Common School Fund, to present to the districts a sufficient pecuniary inducement to engage the individuals thus prepared; and it may be safely assumed that nothing short of a thorough conviction in the public mind that common school teachers are in general incompetent to the proper fulfilment of their trusts, and that the standard of education is extremely imperfect, would accomplish the object. If that conviction can now be created, the existing evils may readily be redressed.—Our common school system is so perfectly organized, and administered throughout with so much order and regularity, and so many academies under able management are already established, that it would seem the part of wisdom to avail ourselves of these institutions to the extent of their capacity, for the purpose of training teachers for the common schools. Their endowments, their organization, the experience and skill of their instructors, and their whole intellectual power may be made subservient to the public purpose in view, and with the aid which the State can lend, much may be effected. But whatever differences of opinion may prevail, with regard to the foundation of this plan in sound policy, the question has been settled by the legislature; and it remains only to carry it into execution with proper energy. Should it prove inadequate to the ends proposed, a change of plan may then be insisted on, without being open to the objection of abandoning a system which has not been fairly tested.

It may not be improper to remark in this place that the necessary connexion which exists between our common schools and the literary institutions of the state, including those of the highest grade, has been too frequently overlooked.—The academies have already been, in effect, without receiving from the state any direct pecuniary aid for the purpose, nurseries for common school teachers. The great body of those, who have either temporarily or permanently devoted themselves to teaching have been prepared at the academies with a view to that occupation, or to some professional employment. The instructors in the academies have in their turn, been educated in the colleges; and but for the latter, or some other system of classical and scientific education as a substitute for the course of training pursued in the colleges, the academies would obviously be destitute of the necessary supply of tutors.—Thus, all our incorporated literary institution minister to the improvement of the common school system, on which the great body of the people are dependant for their education. It is true, that colleges are apt to be regarded as aristocratic institutions, beyond the reach of the poor, and therefore beneficial only to the rich. But independently of the indirect benefit already referred to as resulting from them, it is believed that this prejudice will be found, on a close inspection, to be founded wholly in error. Men of fortune are obviously independent of them; for, however convenient they may be, wealth can always command the services of talent, and children of those who can afford the expense, may be educated at home or in private schools. But this expense, is altogether beyond the ability of individuals in ordinary circumstances. A man of little property may be able to educate his child in an institution, which, by reason of its endowments, can fix the charge for tuition at very reasonable rates. If the institution is so near that children can board at home, it is brought within the reach of an additional number. Indeed, many young men, altogether without property or pecuniary assistance from their friends, succeed now in gaining an education at college by their earnings during vacations. In the endowment of Union College, provision was made by the Legislature for indigent students. In the year 1833, books were furnished gratis for all who were unable to provide them, and seventy-three young men were "otherwise" assisted from the fund

granted by the State for the purpose." It may be justly said that colleges are not necessary to the rich, but that they are to persons in ordinary circumstances of the greatest value. They serve to abolish the most important distinction which can exist under our political institutions and laws—the distinction between the educated and the uneducated—and they enable those, who are destined to rely on their own unassisted efforts, to enter into competition in the highest intellectual fields of enterprise, with those who have been sustained by the adventitious aids of wealth.

Whatever doubts may have been entertained with regard to the beneficial effects of institutions, sustained wholly or in part by Government patronage, for the higher departments of education, none, it is conceived, can reasonably exist in relation to our colleges on their present footing. None of them are so highly endowed as to be able to dispense altogether with the contributions from their pupils; they are generally dependent in a very great degree on public patronage for their support; they derive no regular income from the State Treasury; the same competition, which prevails in the ordinary transactions of individuals engaged in the pursuit of a common object, is so strongly felt by them, that professors without talents and industry will find no place in them, and the course of studies must necessarily take its complexion from the public wants, and cast off every thing, which is either useless or repugnant to the prevailing spirit of society.

But it is principally as necessary to the great objects of common school instruction, that our colleges and academies deserve to be cherished—as nurseries for those through whose instrumentality the standard of popular education must be raised to its proper elevation.

When measures shall be taken to train in the organized academies such a supply of competent teachers as to provide each town in the State with a few good schools, the contrast between the improved methods which will be introduced into them and those which are in common use, can hardly fail to produce in neighboring districts a spirit of emulation, which will gradually bring the schools established in them to the same standard. Imperfect as are many of our common schools, they are, it may be confidently based, in better condition than they have been at any previous time. The standard of education in general has gradually advanced, though very slowly. But in some schools a high degree of excellence has been attained, and within the sphere of their influence improvements are going ground in others. In districts where the advantages have not had the opportunity of witnessing the beneficial effects of better methods of instruction, it is natural that they should be content with those to which they have been accustomed. But the good sense which the people carry into their ordinary transactions, will in this matter, as in all others, guide them to correct conclusions when the benefits of improved, and the evils of defective methods, are brought home to their observation. As the demand for competent teachers is augmented, and such wages are offered as to ensure their services, the number of those who prepare themselves for the business of teaching, will increase in a like proportion. The higher departments of instruction for teachers to be established in the existing academies, as is contemplated, and the plan prove efficient and become popular, it may be readily extended so as to be commensurate with the wants of the whole State.

For the purpose of the measures necessary to the perfecting of the common school system we must rely mainly on the intelligence of the people. To suppose that they are incapable of forming a just estimate of their true interests, or that, estimating them properly, they will be unwilling to do what is necessary to secure them, would be an impeachment of their good sense, which is not warranted by experience, and which, if admissible, would also impeach the wisdom of our whole political organization. Experience shows that the people require only to be furnished with the proper means of observation to judge rightly.—In the vicinity of the St. Lawrence academy, in which a system of lectures on the principles of

teaching has been regularly delivered to a numerous class, during the last three or four years, the average rate of compensation for teachers has advanced about three dollars per month.—The school districts enter into competition with each other to prepare the teachers prepared at the institution, which has been wholly unable to supply the demand. The teachers educated at the Andover Seminary, in Massachusetts, command readily a compensation for their services, which enables them to devote themselves to teaching as a permanent vocation. The same effects which have been produced in the neighborhood of the St. Lawrence academy will be visible elsewhere, when the same opportunities of observation are presented; and when the training of teachers is reduced to a system, and the standard of education in a few schools is raised to its proper elevation, the sound judgment and liberality of the great body of the people may be safely relied on for the extension of these improvements to every part of the State.

It has, indeed, been said that in establishing systems of public education the government, and not the people, must give the impulse. But, however true the observation may be of other countries, experience has shown that it has no application to our own. The foundations of the common school system, which exists under different modifications of form throughout the northern and eastern States, were in most cases laid by the people, without the aid of the public authority. If there is any one sentiment with respect to our social condition which has prevailed more generally than any other from the earliest times, it is a deep rooted conviction of the importance of education for all classes. With regard to the extent to which intellectual cultivation should be carried in the common schools, opinion has certainly not kept pace with the progress of improvement in other matters; but as has been already suggested, the evil has grown out of the imperfect methods of instruction in common use; and in order to secure the correction of the evil, the necessary improvements in common school instruction must be brought under the same intelligent observation in which the foundations of the system were laid. If this be done, it is believed that no compulsory measures will be necessary to insure their adoption.

It was for a long time contended by the most profound writers, that the support of religious societies could not be safely entrusted to the voluntary contributions of the people. But our experience has completely overturned the arguments on which this fallacy is founded; and it gives us the strongest assurance, that the same enlightened sentiments which have so liberally sustained the established systems of religious worship and instruction, will with equal liberality, sustain those systems of early moral and intellectual cultivation, without which the generations to succeed us, would neither be fitted to discharge their duties to themselves, to their country, nor to the Power on whose providence depend the destinies of all.

In the last annual report of the Superintendent, he stated briefly the principal branches of study which were deemed essential to every individual, in order to fit him for the discharge of the duties of citizenship. The importance of the subject, and the increased attention which popular instruction has recently attracted, will, he trusts, be deemed by the legislature, a sufficient apology for repeating the enumeration then made, though no legislative action is required.

Grammar.—So much as is necessary to a correct comprehension of the different parts of speech, and such a course of exercises in parsing as shall render the student familiar with the practical application of the rules which govern their relation to each other. This branch is usually commenced too early; and much time expended to little or no purpose.

Geography.—A thorough knowledge of the geography of the state of New York and of the United States, and so much of the geography of the earth, political as well as physical, as treats of its general divisions of climates, soils, and productions, and such elementary statistics as are usually, grafted upon geographical works.

History.—A familiar acquaintance with the

history of the United States; and the elements of general history.

Arithmetic.—The usual course as far as and including the Rule of Three. To this course should be added the elements of geometry.

Civil and Criminal Jurisprudence.—A few practical rules of the former, and so much of the latter as points out the offences to which penalties are annexed by law. These may be compressed into a very narrow compass.

Constitutional Law.—The form of government and the fundamental principles of Constitutional law. A knowledge of these may be best obtained by studying the constitution of the United States and the constitution of the State of New York.

The duties of public officers.—So much as relates to our state, county and towns officers.—A brief and well executed treatise on this subject has already been prepared and published.

These subjects may be studied without difficulty, and without adding to the time necessarily devoted to elementary instruction, by retrenching from others, which occupy too much attention.—A great deal of time is lost by commencing the study of grammar at too early an age, and committing to memory abstract rules, the reason of which is altogether above the comprehension of the learner. The result is, that time is mispent, and there is danger also, that a distaste may be created for study by tasking the mind with acquisitions which it cannot understand, and in which it feels no interest. The memory may be more advantageously exercised in treasuring up useful knowledge, on a level with the capacity of the learner; and by directing the attention to subjects which awaken interest, application ceases to be a task.

The introduction of such improvements into the common course of school instruction as will make it equal to its high purposes is an object which may justly claim the countenance and co-operation of all classes. On our common schools we must rely to prepare the great body of the people for maintaining inviolate the rights of free men. If the political fabric cannot find in the public intelligence, a basis broad and firm enough to uphold it, it cannot long resist the shocks, to which, through the collision of contending interests it is continually exposed. Forty-nine out of every fifty of our citizens, receive their education in the common schools. As they advance to manhood, they are, for the most part, devoted to manual employments. Looking to their own industry as their only resource and to its fruits as the boundaries of their personal desires, the object nearest their hearts is to see their country prosperous, the laws administered with order and regularity, and the political importance, which the constitution has secured to them, maintained undiminished. The controversies to which conflicting interests give birth, are to be put at rest by their decisions. In the questions of policy, which are presented to them constitutional principles are frequently involved, and the relation they bear, and may in all future time bear to the government, is directly or indirectly affected. How important is it that these decisions should be as enlightened as they will be honest; that with every motive to be upright and conscientious in the exercise of their political rights, they should combine also the capacity to maintain them with independence and discretion! If they shall ever cease to bring to the settlement of these great questions a sound and enlightened discrimination, they cannot fail to become the dupes of artful leaders and their country a prey to internal discord.—From the genius of our political institutions, popular education is our only security against present and future dangers. Ignorance is said to be the parent of vice. With us it would also be the parent of those fatal disorders in the body politic, which have their certain issue in anarchy.

Happily, our system of public instruction embraces within it almost all, who are capable of participating in its benefits. Our only remaining duty is therefore, to provide, that it shall not, at any future day, be reduced to narrower limits, and that the standard of education shall be so advanced as to secure the highest possible degree of intellectual cultivation.

Lord Brougham lately expressed his surprise to a public deputation, that any one could doubt of the vast superiority of Mutual Instruction, in elementary schools, and particularly for the children of the Poor.—[National Gaz.]

Value of Time.—It is said that a man who had accustomed himself to seize a pen whenever his wife was putting on her shawl and bonnet to walk, found, before he suspected such a result, that he had written a tolerable book. Wonders may thus be accomplished by all in their stray moments, would they but improve them. I would not prevent people from reflecting, from resting, or enjoying themselves; but the worst of it is, many waste large portions of their lives without doing any of these. Circumstances favor persons thus bent on rational employment. Instead of idling away a half hour before dinner, or some appointment, if they take up a book or a pen, or undertake to do any little duty which demands their attention, they find often the time which they might have frittered away, much longer than they anticipated. Many a friend might be secured or obliged by a letter written at these intervals, by those who profess to have "no time." We all have "time," more or less, which might be devoted to the performance of neglected duties.—[Transcript.]

Asking Favors.—Many persons boast an independence in which I cannot sympathize. They pipe themselves upon never asking a favor of any one. If it be the token of no worse characteristics, this habit is the sign of an unreflecting mind. Why, they are perpetually receiving favors, not only from Providence but from their fellow creatures, without whose kindness they could scarcely exist.

NOTICE TO MARINERS.

New Light-house of Barfleur, Department of La Manche.—Navigators are notified that from and after the 1st April, 1835, the Fixed Light of the ancient turret of Barfleur, situated five marine leagues E. & NE of Cherbourg, will be suppressed and replaced by a Revolving Light, which will be lighted up on the turret recently constructed, 61 metres S. 55° 17' W. of the old light, and 79 metres above the level of the full equinoctial sea. Its light will appear regularly every half minute throughout the night. In fine weather, it will be visible at the distance of 8 marine leagues and the eclipses will only appear total at a distance of more than 4 leagues.

MECHANICS' MAGAZINE.
THE NUMBER FOR DECEMBER, which completes the fourth volume of this popular work, is published. It contains a portrait, engraved on copper of Rufus Fulton, with a Memoir, and some documents respecting his claim to the honor of first originating steam navigation. Also, upwards of 50 articles of interest and utility, connected with the arts and sciences.

The first number for 1835 will be ready very shortly. Subscribers who are deficient of numbers can be supplied, as the work is stereotyped.

The *Mechanics' Magazine and Register of Inventions and Improvements* is published by the Proprietors, D. K. MINOR & J. E. CHALLIS, at No. 35 Wall-street, New York: in weekly sheets of 16 pages, at 64 cents—in monthly parts of 64 pages, at 34 cents—in volumes of 84 pages, in cloth boards, at \$1.75—or at \$3 per annum, in advance. JOHN KNEATT, (formerly proprietor of the London *Mechanics' Magazine*), Editor.

AGENTS FOR NEW PUBLICATIONS.
HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications: The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance. The American Railroad Journal, Weekly, at \$3.00 per annum.

The *Mechanics' Magazine*, two volumes a year, at \$3.00 per annum.

The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number.

The Family Magazine, 416 pages a year, at \$1.50 in advance.

The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, now in the 5th volume, bound volumes \$1.25.

The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance.

The Rochester Gem, at \$1.50 in advance.

All Communications addressed to me, at Wheatland, Monroe county, will be promptly attended to. September 19, 1834. H. G. W.

TOWNSEND & DUFFEN, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of *Duffen, May & Co.* offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New York, January 30, 1835.

RAILROAD CARS.

Messrs. D. & J. MITCHELL, Solisae Foundry, Heli daysburgh, Hamilton county, Pennsylvania, are now prepared to manufacture, at short notice, any number of Railroad Cars—in the most approved and substantial manner. Jan. 24 t

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 184 Water street, corner of Maidenlane.

J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1833.

In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all Instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germanstown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad

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The greatest care and attention has been bestowed upon the growing and saving of Seeds, and none will be sold at this establishment excepting those raised expressly for it, and by experienced seedsmen; and those kinds imported which cannot be raised to perfection in this country; these are from the best houses in Europe, and may be relied upon as genuine.

It is earnestly requested whenever there are any failures hereafter, they should be represented to the subscriber; not that it is possible to obviate unfavorable seasons and circumstances, but that satisfaction may be rendered and perfection approximated.

Also—French Lucern, White Dutch Clover, white Mulberry Seed, genuine Mangel Wurzel, Yellow Locust, Ruta Baga, and Field Turnip Seeds, well worth the attention of Farmers.

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Catalogues may be had at the Store; if sent for by mail will be forwarded gratis. Orders solicited early, as the better success can be done in the execution.

Mr. Thorburn is also Agent for the following publications to wit:—New York Farmer and American Gardener's Magazine; MECHANICS' MAGAZINE and Register of Inventions and Improvements; AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; and the New-York American, Daily, Tri-Weekly, and Semi-Weekly: either of which may be seen and obtained by those who wish them, by calling at 347 North Market st., Albany.

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Builder of a superior style of Passenger Cars for Railroads,

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soon expected.	at an angle of 45 deg's with splicing plate, nails to suit.

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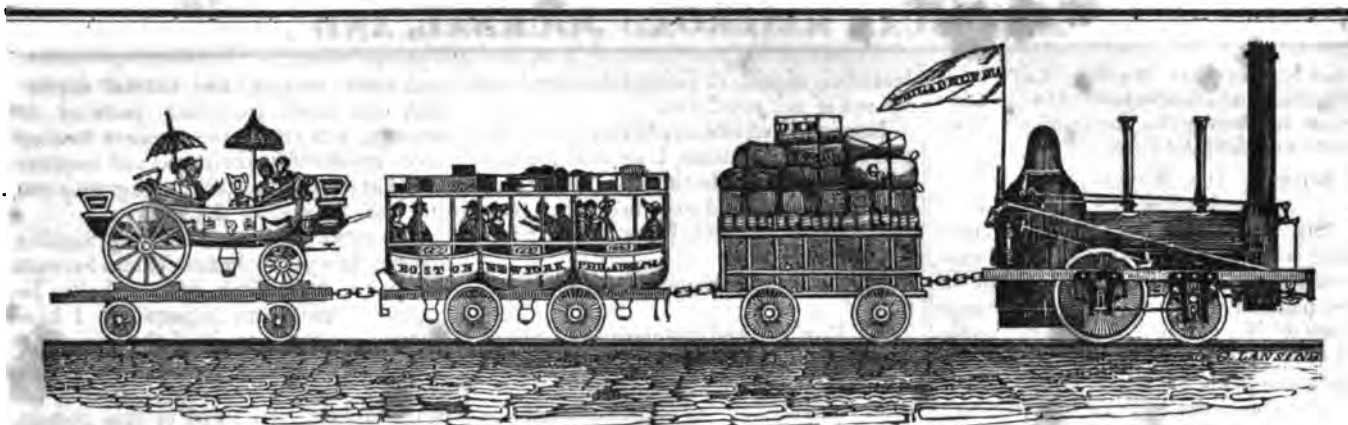
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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JANUARY 31, 1835.

[VOLUME IV.—No. 4.

For Contents, see last page.

AMERICAN RAILROAD JOURNAL.

NEW-YORK, JANUARY 31, 1835.

¶ We would ask particular attention to the Report of the different Committees appointed by the Baltimore Internal Improvement Convention, and, in short, to the *whole* Journal. It contains matter for serious reflection by all who feel an interest in the continued prosperity of this city, or state.

NEW-YORK AND ERIE RAILROAD.—After years of anticipation of the benefits, and estimation of the cost, and doubt, by many, even of its friends, of the success, of this great work, we now have something before us upon which we may rely. The Report of BENJAMIN WRIGHT, Esq., who was appointed by the Governor, under an act of the Legislature, to make the survey, which was made on Thursday, 29th inst., to that body, is far more favorable, and presents much fewer obstacles, than was anticipated. We had heard much of the favorable route ascertained by the engineers, but the most sanguine friends of the work could not have anticipated one with so few and moderate elevations to overcome.

This report will do great credit to the able and so justly celebrated engineer whom the survey was entrusted; and to his assistants, Mr. James Seymour, and Mr. Charles Ellet, each of whom had charge of one of the grand divisions, as well as to those who composed their respective corps, for their industry and perseverance in accomplishing a survey and estimate so extensive, in a period so limited. By this report it will be seen that the obstacles, heretofore considered insurmountable, are by no means equal to those overcome by our neighbors of Pennsylvania, and of Maryland. They will not, we feel confident, delay for a single day, the progress of the work. And it is to be hoped that the information now before the Legislature will insure its favorable action upon the application of the company, for the aid of the State.

The New-York and Erie Railroad can only be considered as a great national work. It will be as great an improvement upon the present, as it is upon that mode of com-

munication in use before the construction of the canal. The canal reduced the cost of transportation in the proportion of 100 to 25 dollars per ton, and the time as 18 to 6 days, from Albany to Buffalo. The railroad will produce an equal improvement upon the present mode of traveling, and the transportation of light and valuable freight—only the order will be reversed, thus: the time will be reduced as 4 to 1, and the cost as 2 to 1, or thereabouts. In these estimates we may not be precisely, to the penny, correct; but we are in the main correct, and are willing to risk the little, whether it be of reputation or of property, we possess, on the result, if the work shall be speedily and properly constructed. Upon these two points, however, and especially the first contingency, rests the success, not only of this, but of ALL the great works of internal communication, whether now in use, or in contemplation in our State.

By the reports of two committees appointed by the Internal Improvement Convention, held at Baltimore, which will be found in this number of the Journal, it will be perceived that there is an untiring spirit of honorable enterprise pervading, and which does great credit to, the States interested in the works now in course of successful construction south of us; which, if permitted to take, will for a long time retain, the lead of us in such works; and will also divert from us a great share of that immense and rich trade which we have claimed as our right—which right, however, will be found, when too late for us to enjoy it, to be vested only in those who had the prudent foresight to secure it, not by acts of legislation only, but by acts of ENLIGHTENED POLICY and persevering industry, worthy of an age of statesmen and patriots.

With a climate more favorable, and little over one half the distance to construct their works, Maryland and Virginia will at no distant day divert to their seaports much of the produce of the fertile country west of the Alleghenies; which, with an easy, cheap, and, above all, speedy means of reaching this port, would certainly come here; and, when they purchase the produce of the West, they will assuredly supply them with those articles of convenience and luxury which are now mostly obtained in New-York. Does it not then become the imperative duty of our citizens, and especially of the present Legislature, to adopt such measures as will secure to us the benefits

we now claim as our own; and which, by the favorable topography of our state, we may do, (notwithstanding the advantage of our neighbors in climate and distance,) if we construct a continuous line of railroad to Lake Erie, and thereby obviate the great difficulties under which we now labor for more than one third the year? As a matter of policy, at least, if not as an act of justice, to many of our own citizens, we think the Legislature should act promptly and liberally in this matter.

There is another reason to be urged in favor of prompt action by our Legislature. Not only are Pennsylvania and Maryland moving shoulder to shoulder in the cause of internal improvements, but Virginia is also aroused from her long sleep. She has witnessed within her own territory the benefits of a railroad, a circumstance which we, two years ago, predicted would be worth to her citizens five years of argument and speculation; and she is now disposed to remedy the evils of her long delay, and has come forward and taken such a share in the stock of the contemplated James river improvement as will ensure its success; and we hold it certain, that if that work should be made into the valley of Virginia, and the New-Orleans and Nashville road, now under survey, and said to be through one of the most favorable routes in the world, also completed, before the New-York and Erie road is commenced, the great railroad thoroughfare from Boston to New-Orleans, will never pass through the interior of New-York, but must, beyond question, find its way through Washington City, and the Valley of Virginia, or further south, and connect with the New-Orleans road at Nashville; whereas, if we forget sectional feelings and self-interest, and look only to the general good, we may secure the benefits of this great thoroughfare, and by continuing it through the corner of Pennsylvania to Ohio, and connect with the Mad river Railroad, we may then with little difficulty connect with the New-Orleans and Nashville road, as we understand that charters will be granted this winter, both in Kentucky and Tennessee, for its continuation to Louisville, thus holding out to us the right hand of fellowship, and the offer of their best efforts to make the city of New-York the depot of the produce of their soil. Shall we slight the offer to gratify private interest, or sectional feeling? We SHALL SEE!

On Thursday last, on motion of Mr. CASH, eight times the usual number of copies of the report of Judge WRIGHT, of the survey of the New-York and Erie Railroad, were ordered to be printed, and 100 additional copies for the use of the engineer.

Report of BENJAMIN WRIGHT, Esq., Civil Engineer, who was appointed by the Governor to Survey the Route of the New-York and Erie Railroad.

To JOHN A. DIX, Esquire,
Secretary of State:

SIR:—His Excellency the Governor having been pleased to appoint me to execute the survey, and make an estimate of the expense of a Railroad from "at or near the city of New York to Lake Erie" under the act of May 6th 1834, which said act requires me to file the report, maps, profiles and estimates in the office of the Secretary of State:—

In conformity to said act I now present my report, maps, profiles &c., to be filed in your office, as the law directs, and beg leave hereby

TO REPORT:

That in undertaking the important and responsible duty of surveying the route of a railway communication from the Hudson river, near the city of New York, to Lake Erie, I deem it essential to keep in view the great public objects sought to be attained by the proposed work. It was obvious that the road was to be constructed, not only for the accommodation of the inhabitants of the district immediately adjacent to the route, but also in order to furnish the means of a regular, rapid and uninterrupted intercourse, at nearly all seasons of the year, between the city of New York and the extensive and populous communities upon the Western lakes and waters.

The vast and acknowledged benefits which had been experienced throughout a great part of the State, and especially by its commercial emporium, from the construction of the Erie Canal, as well in the increase of population and wealth, as in the progress of agriculture and trade, the augmented value of lands, and the rapid and unexampled growth and creation of cities, towns and villages, along the route, had plainly proved that a thoroughfare running through the southern tier of counties, and properly suited to their topographical character could not fail to impart similar advantages to that important and valuable section of country, while the pressing necessity of establishing a channel of communication within this State which should be open during nearly, or quite the whole of the winter months, and thereby remedy the evils occasioned by its high northern latitude, had not only been felt sensibly by the inhabitants of the metropolis, but had excited public attention throughout a great portion of the fertile and extensive regions upon the upper Lakes, and in the valley of the Mississippi.

The long line of counties in our own State, through which the road would pass, favored as they are with a healthful climate and an enterprising population, abounding in natural resources which the proposed work could not fail to develop, also possessed an additional importance in their peculiar topography, being intersected in numerous directions by important streams, leading into that section of the country from other parts of the State, and thereby furnishing striking facilities for connecting the proposed road with lateral

branches, capable of accommodating large masses of our population.

Keeping therefore steadily in mind these general considerations, I deemed it an incumbent duty in selecting the line of location for the proposed road, to obtain a route which as far as should be practical might combine:

1st. Reasonable economy in its construction.

2d. Rapidity and regularity of communication for passengers, light merchandize of value, and the public mail.

3d. Cheapness of transportation for bulky commodities.

4th. Facilities of connection with lateral branches.

5th. The general accommodation of the inhabitants, and the development of the resources, of the country along the route.

And I considered it also necessary to take into view, not only the present, but the prospective advantages of the route, and to arrange the graduation of the whole work, in reference to such further additions and improvements as might hereafter become necessary in order to accommodate a great increase of trade and transportation.

Being guided by these general outlines, I commenced the survey of the route on the 23d of May last, under the appointment which I received from his Excellency the Governor on the 21st of that month.

The work was divided into two grand divisions: of which the *Eastern* extending from the Hudson river to Binghamton, was under the direction of James Seymour, and the *Western* from Binghamton to Lake Erie, was placed under Charles Ellet, Jr., both acting as my assistants and subject to my supervision.

Those gentlemen, with my advice and approbation, each had sometimes two, and often three and four parties employed in explorations through the season. From each of them I have received separate reports, with their views of plans and description of country through which each had passed.

I take great pleasure in stating, that the surveys thus committed to their care, have been executed to my entire satisfaction, and I refer to their reports and estimates of quantities, as exhibiting the industry and skill with which their duties have been discharged.

I have personally inspected the lines surveyed nearly their whole length, and have particularly considered and examined every part of the route, at which there could be any reasonable doubt or difficulty, and we have fully advised and compared opinions, as to all prices estimated for the graduation of the work.

It is possible, and I may say probable, that the shortness of time allowed for the completion of so long a line of survey, in some instances not noticed by me, may have prevented our ascertaining the very best and cheapest route, of which some portions of the country may have been capable; but I have become perfectly satisfied from the lines already run, and minutely measured, that a feasible route has been obtained, free from formidable difficulties, and capable of being completed with economy and despatch.

A more minute and careful exploration, over some particular parts of the country, will enable the engineer to adopt very considerable alterations and improvements at many points, both as to graduation, and also the cost of the work.

The great object of securing rapidity and regularity of communication between the city of New York and the Lake, being one of paramount importance, I have studiously sought to avoid the use of stationary steam power on inclined planes, as being productive of delay, danger, expense and difficulty; and in this respect, have been so successful, that, with the exception of one single plane near Lake Erie, I have brought the whole line within the power of Locomotive Engines, drawing passenger cars, light merchandize and the public mail.

The steepest acclivity encountered on the whole line, with the exception before-mentioned, will be only one hundred feet per mile; and having been furnished with satisfactory evidence that by recent improvements in the locomotive steam engines, on the Baltimore and Ohio Railroad, they have been enabled to ascend an acclivity of one hundred and seventy-six feet to the mile, drawing between five and ten tons weight, I rely upon that fact in stating, that locomotive steam engines may be advantageously used on the whole of the proposed route, from the Hudson river to the head of the plane near Lake Erie: that they will be able to pass its steepest grades, drawing at least 70 or 80 passengers with their baggage; while upon at least nine-tenths of the whole route, they will be able to propel very great burthens at a great rate of speed.

In order, however, to obtain these easy grades of acclivity, I have been compelled to pursue, by a serpentine line, the valleys of streams, and thereby to lengthen very considerably, the linear extent of the route.

The general face of the country is undulating and marked by bold and prominent features; but, nevertheless, it is intersected by numerous rivers and their branches, which have a gentle descent, and fortunately pursue the general direction necessary for the route, in much of the distance.

It is this all-important and cardinal feature in the topography of the country, and the facilities which the valleys of those streams thus present, for obtaining gentle ascents and descents, and moderate graduation, which will explain the reason why I have been able to find a cheap and easy route, without the aid of stationary steam power, through portions of the State which, to the eye of the passing traveller, crossing as he does the numerous hills which are traversed by the ordinary stage roads, would seem to present insuperable obstacles to the accomplishment of the proposed work.

An examination of the plans and profiles returned with this report, will show that the route instead of passing directly over, goes around the hills; and that it has not been necessary to surmount any considerable acclivities, except in three or four instances, in which the line crosses the

natural boundaries of the great valleys into which the route is topographically divided.

It is true, that the departure from a straight line thus occasioned by following the winding of the water courses, has considerably lengthened the whole route between New York and Lake Erie—But when it is considered that great rapidity of transportation, and cheapness of construction have been thereby secured, and a greater portion of country accommodated; that the conformation of the country wholly forbade the adoption of any other route, more direct, without enormous expense; and that the circuit of route will be comparatively less than that of the Pennsylvania Canals, its deviation from a direct line will not be regarded as a formidable obstacle or objection.

The natural boundaries of the valleys, which are pursued by the route, will serve to subdivide it into six grand divisions, to wit:

The First or Hudson River Division, extending seventy-three and a half miles from a point in the Hudson river, twenty-four miles north of the City Hall of New York, to a point in the Deer Park Gap, of the Shawangunk Mountain, dividing the waters flowing into the Hudson from those flowing into the Delaware.

The Second or Delaware Division, extending from the point last mentioned through the valley of the Delaware and its tributaries one hundred and fifteen miles, to a summit, twelve miles N. W. of the village of Deposit, in Delaware County, dividing the waters of the Delaware from those of the Susquehanna.

The Third or Susquehanna Division, extending from the point last mentioned through the valley of the Susquehanna and its tributaries one hundred and sixty-three and a half miles, to a summit thirteen miles S. W. of the village of Hornellville, in the county of Steuben, dividing the waters of the Susquehanna from those of the Genesee.

The Fourth or Genesee Division, extending from the point last mentioned across the valley of the Genesee thirty-seven miles, to a summit three miles E. of the village of Cuba, in Allegany county.

The Fifth or Allegany Division, extending along the valley of the Allegany and its tributaries eighty-three miles to the head of the inclined plane, distant four or five miles from Lake Erie, on a straight line.

The Sixth or Lake Erie Division, embracing the short and rapid descent to the Lake, including the inclined plane and the two branches, one to Portland, nine miles, and one to Dunkirk, eight and a half miles.

It will be perceived by an inspection of the profiles, that the only points where the rates of ascent exceed 60 feet per mile, will be found on the summits above specified, as forming the boundaries of the six Grand Divisions of the route. The acclivities in passing these summits are respectively as follows:

One grade of 100 feet to the mile, in passing from the Hudson River Division, down

the west side of the Shawangunk mountain into the Delaware Division;

One of 70 feet, and one of 61 feet to the mile, in passing from the Delaware Division to the Susquehanna Division;

One of 70 feet, and one of 65 feet to the mile in crossing the ridge, between the Susquehanna and its tributary the Chenango River;

And one of 72 feet to the mile, in passing from the Susquehanna Division to the Genesee Division.

I have no doubt that all these ascents and descents above specified, may readily be surmounted by locomotive engines drawing passenger cars, light merchandize and the mail. But in order to aid the passage of burthen cars heavily loaded, it will be necessary to station at the several points above specified, either auxiliary locomotive engines, as is practised on the Liverpool and Manchester Railroad, or an increase of animal power, as is used in passing the Parr Ridge, on the Baltimore and Ohio Road. That this can be effected without any material interruption or inconvenience, will be obvious, when it is recollected that the western slope of the Parr Ridge, on the last mentioned road, has an ascent of no less than 253 feet to the mile, an acclivity nearly three times as great as the steepest grade on the proposed route, but that it is nevertheless surmounted at all times by burthen cars heavily loaded, aided only by an increase of animal power.

It will also be borne in mind, that at least three-fourths of the heavy tonnage passing on this road, will descend eastward towards tide water. The elevation of the head of the inclined plane near Lake Erie, being 1303 feet above the Hudson River, the products of the Western country passing eastward, will necessarily descend 1303 feet more than they will ascend, and their passage will consequently be aided to that extent by their own gravitation.

It is, however, by no means impossible, that in the course of twenty years, the great increase of the population and agricultural products of the interior, and the necessity of expediting their passage to market, may render it expedient and economical to adopt additional tracks with a compound moving power and grades reduced in all cases to 30 feet per mile, with stationary engines, operating on inclined planes, and located at intermediate points along the road. In that event, the entire change might be effected along the whole line, without altering more than thirty or forty miles of the Road.

And although I do not believe that this change will ever be made or become necessary, except in the event of so great an increase of trade as to make steady uniform power the best, in which case I believe that stationary power applied on the present grades would be found the best, and used as Messrs. Walker & Rastick proposed on the Liverpool and Manchester Road, as *reciprocating power*.—I have thought it proper to state how far it would affect the graduation of the road to substitute planes and stationary power, and grades in other places of 30 feet per mile.

The change of plan last mentioned would only apply to burthen cars in any event, as passenger cars would be liable to less dan-

ger, interruption and delay, by using the locomotives of extra animal power to surmount the dividing ridges.

In making the survey and location, I have had lines of exploration made on various parts of the route, in two or three different directions, and more particularly near the Hudson River, where four different routes to several landings were examined, and are all represented on the maps and profiles herewith returned; and if the funds had held out to accomplish some further examinations in Rockland county, and time had permitted, I should have pursued still another line from a point on map No. I, marked Z, and followed on the northern and eastwardly side of the Hackensack River, in the direction of the dotted line, so as to join the line which runs to the River at Tappan. Such a line ought to be explored before the final location of the Road through Rockland county.

Another part of the line in Orange county ought also to be noticed, as deserving of further examination, which is exhibited on maps Nos. 3 and 4. A strong and ardent desire to accommodate by passing in the immediate vicinity of so important a town as Goshen, and former examinations for a Railroad having produced impressions favorable to that route, I had supposed it would prove the best ground, and therefore spent our labors upon it; and it was not until it was too late, that we observed the formation of the country from near Cheater through by Florida, and the practicability of passing the Wall Kill near Pellet's Island, and joining the present line some six or seven miles west of Wall Kill, that we supposed we could change from the route near Goshen. This route requires an instrumental examination, but unless it prove greatly superior to that by Goshen, as now returned, the accommodation of so important a town ought to give it the preference. The routes between the Wall Kill and Shawangunk mountain are exhibited on the map and profiles, and a final location on this part is intimately connected with the suggestion about the Florida route.

It has been proposed to cut upon the top of the Deer-Park Gap, (which is a deep depression of the Shawangunk Mountain,) about 50 feet at the highest point. This is done in order to reduce the grade upon each side, and particularly on the west side, to 100 feet per mile. The east side can be easily reduced to a grade of 60 feet, for a short distance, and then much less.

I have looked at this point, and given it considerable thought, to determine what ought to be the present plan, in reference to future improvements, when the great increase of business on this road will demand every facility that the nature of the country will permit; and it has brought my mind to the conclusion, that before the lapse of 20 years after the completion of the road, a tunnel will be driven through the mountain, of about three-quarters of a mile in length, whereby its elevation would be so reduced, as to permit a grade of probably 75 to 80 feet, on the west side, and about 30 on the east. As the acclivity of 100 feet to the mile on the west side of the

mountain, is the steepest grade encountered on the road, it has also appeared to me to be well worthy of observation, how far this ascent could be relieved, by the adoption of an inclined plane with a stationary engine, believing, that if it is admissible on any intermediate point on the route, it might be employed at this point, for the relief of the burthen cars, to great advantage. The idea of the tunnel and the stationary engine, will, however, be matters of subsequent inquiry, at some future time, and are now referred to, only as parts of an ultimate plan, proper to be borne in mind, in the permanent location of the route.

The line as located, then follows from the foot of Shawangunk Mountain, by a high embankment across the Valley of Basher's Hill, and then crosses the Delaware and Hudson Canal without difficulty, and soon enters the Valley of the Never-sink River, which it follows to the mouth of a branch of this river, called the Sheldrake, and up that to its source: thence crossing the heads of the several branches of the Mongaup, it reaches the head of the Callicoon, (a branch of the Delaware,) which it follows to its junction with the latter river.

An examination of the ground plans will show, that a route has also been surveyed down the Popackton, or eastern branch of the Delaware, and there are also exhibited and marked several other routes through Sullivan County, which have been examined, and regular surveys carried over them, and profiles made of some.

The route passing near Monticello, which is the County town of Sullivan County, would on that account deserve a preference, if the facilities and advantages are nearly equal as to other points, such as grade and cheapness of construction; and although our surveys, as we made them, did not show as favorable a line by Monticello as by the other route, I think a further and more critical examination should be made through this district of country, to find a more favorable route than we have yet seen; and should this be the case, we should, I think, shorten the route some miles, and obtain the advantages of carrying it through a more populous and settled country.

Although the route marked on the plan as following up the Eastern, or Popackton branch, and then the Beaver Kill and Willwemach and Little Beaver, has been regularly surveyed, and profiles of it returned, I however consider the route by the Callicoon to be so far preferable, that I have not required my assistant to give me quantities on this route, and have not of course estimated it, but it can be done hereafter, if necessary or useful.

In carrying the route of the Railroad through the heart of Sullivan County, and thereby giving great and permanent advantages to a large district of country, capable of sustaining a considerable population, I will make this passing remark, that by passing down the valley of the Never-sink from the foot of the Shawangunk Mountain until I reached the valley of the Delaware River, and then passing up the Delaware to the mouth of the Callicoon, I

might have found a route of much easier grade, and which would not average over fifteen feet to the mile. But to that plan there are, in my mind, serious objections. 1st. It would be a more expensive line to grade, on account of its passing along steep side hills, and heavy ledges of rocks, requiring expensive rock excavation. 2d. It would not accommodate, or be very useful to Sullivan County, as the country along the bank of the Delaware is not generally favorable to cultivation. 3d. It might come into collision with the Delaware and Hudson Canal, and perhaps divert some of its legitimate and fair business; and in its construction it might interfere with and injure that important and very useful work, for the execution of which, its enterprising proprietors deserve to be gratefully considered.

The line then passes up the Delaware from the Callicoon to the village of Deposit, from which a lateral road may easily be extended into the heart of Delaware County. The route then crosses by a bridge the main or Mohawk branch of the Delaware, and thence follows up the Oquago Creek to its source, on the route towards Bettsburg, from whence it descends to the Susquehannah, and passing that river near Nineveh, follows up the valley of Belden Brook to its source, and then taking the head waters of Page Brook, follows that down the Chenango to Binghampton, or its vicinity.

An examination of the maps and profiles will show, that several routes have been examined between the Delaware River at Deposit and the Chenango at Binghampton, and that lines were run on the most favorable ground, on a nearly direct course between Deposit and Windsor on the Susquehannah, and between Windsor and Binghampton from the Susquehannah to the Chenango.

Both these summits, however, proved to be considerably higher than those on the route chosen; and they cannot be overcome but by stationary steam power. For a more particular description in detail, of the difficulties to be overcome, I refer to the report of Mr. Seymour, and will only add, that after having attentively examined these routes, I am decidedly of opinion, that the northern route by Bettsburg and by Nineveh and Page Brook, ought to be adopted. That route, moreover, will possess a local advantage of peculiar value, in the facilities it will give to various branch Railroads leading into the populous and wealthy sections of the State, along the valleys of the Upper Susquehannah, the Unadilla and the Onondaga branch of the Chenango, and thus accommodating the counties of Otsego, Chenango, and Cortland, and parts of the adjacent counties.

When the line came near the mouth of Page brook, on the Chenango, it became a question to determine which side of the Chenango we should pass down to near its mouth. A desire to approach near, and even pass into, the growing and important village of Binghampton, determined me to have the survey made on the east side, but ascertaining that the Chenango Canal had not then been finally located, I directed a survey on the west side also, and to pass

the river near the mouth of Page's brook. This part of the line I do not consider as settled; neither can it be finally determined until the canal is nearly completed; when that shall be done, we can see if there is a fair chance of carrying our railroad on the upper side at a reasonable expense; and should this be the case, a preference ought to be given to the east side of the Chenango, so as to approach near to Binghampton, and pass over the river near the upper part of that village.

From the Chenango river the route in following down the Susquehannah valley for about 40 miles, passes through the flourishing village of Owego, where it will become connected with the steamboat line now in preparation for navigating the Susquehannah, and also with the Owego and Ithaca Railroad, which will connect the main line with the important and fertile section of the State adjacent to the Cayuga and Seneca Lakes. After descending for 40 miles along the east branch of the Susquehannah, we approach near the Pennsylvania line, north of Tioga river, (being a large branch of the Susquehannah) and pass up its valley by Elmira, Big Flatts, and Painted Post, to the forks of the Conhocton and the Canisteo; and then following up the Canisteo to its source, we pass Hornellsville, Almond, and over the summit between the waters falling into the Susquehannah and the waters of the Genesee river.

Of nearly 180 miles on the route between the point where we leave the valley of Page brook and near Almond, the grades are all extremely easy and favorable, or can be made so.

From near Almond, in going on westward, we pass the dividing ridge where for the present we have made our grade line 72 feet per mile, but which can be somewhat relieved; and passing down Dike creek, we fall into the Valley of the Genesee river, and run down that a few miles and then up the Valley of Van Campens brook, through the villages of Friendship and Cuba, until we take the Valley of Oil creek, then down that to its junction with Ischua creek, and down the Valley of Olean creek to the Allegany river.

Through this district from the summit between the waters of the Susquehannah and Genesee and the waters of Genesee and Allegany, we have some grades which reach 50 feet per mile as the line is now run, but it is believed that considerable improvement will be made in this part on a revision of the line.

Having reached the Valley of the Allegany, we pass down it about 26 miles, over excellent ground, generally, to the Indian village, near the Cold Spring creek. There leaving the Allegany, we pass up the Valley of the Cold Spring and over a small swell of land, and descend into the Valley of the Little Conewango, a branch of the Large Conewango; and passing down that stream, and the Large Conewango, passing the village of Randolph, in Cattaraugus county, and the villages of Waterboro' and Kenedyville, in Chataque county, following down the Valley of the Great Conewango to the Casadaga branch, and up that to its junction with Chataque outlet,

we then follow up the Casadaga valley to Bear creek, and up that to near Bear lake: here we arrive at the dividing point between the waters which run southerly into the Alleghany and those which run northerly into Lake Erie.

At this point we are only about five miles in a direct line from Lake Erie and 740 feet above it; and here is a place where we find ground favorable to descend by one plane 506 feet in a distance of about one and a half miles; and at the foot of this plane we find ourselves nearly equi-distant from Dunkirk and Portland.

At Dunkirk the Government of the United States have expended considerable money in the construction of a harbor, and are preparing to expend more. At Portland there has been no money expended, except by individuals. The Government of the United States have had a regular survey and estimate of cost to make a harbor. I have obtained plans of each of these places, and return copies of them herewith. It is said that the cost of making a harbor upon the plan reported by Captain Maurice, of Portland, would be forty thousand dollars.

It will be seen by the maps and profiles returned, that a route was surveyed from Randolph, in the County of Cattaraugus, up the Valley of the Great Conewango to its source, and then striking off towards Dunkirk. This route was tried in order to find a more direct and shorter course to Dunkirk or to Fayette, at the mouth of Silver creek. This latter place has claims for its natural advantages for a harbor, and probably will receive attention at some future day.

In running the line to the head of the Conewango, and from thence beginning to descend the declivity toward Lake Erie, I was in hopes of finding ground favorable for descending at 50 or 60 feet per mile, and reaching Dunkirk by that grade, and thereby doing away the necessity of stationary steam power and inclined planes, but I found the whole face of the country so cut by gulfs and intersected by ridges, that I was defeated in my project, and abandoned it. The plan appears to me to deserve further exploration before a final decision.

I had also lines of survey run on each side of Chataque Lake, and thence to Portland, which are particularly mentioned in Mr. Ellet's report to me: but I have not had maps and profiles of them made.

In selecting the Casadaga route, I have considered the advantages of its passing through the centre of the County of Chataque, and approaching within about three and a half miles of Jamestown, at present the largest of all the towns in this valuable county. Its approximation also to the harbors of Portland and Dunkirk, tends to entitle it to a preference, while the strong probability that improvements will soon be made in the Alleghany river so as to render it at all times navigable for steam boats, and the fact that it may now be navigated during a considerable period in the spring, render it desirable to continue the route as far as practicable down the valley of that stream, and thereby facilitate the direct communication between the city of

New York and the great valley of the Ohio. And it ought also to be borne in mind that the construction of the road as far as this point, will go far to insure its continuation through the Western States to the Mississippi river, in which event that great western branch would leave the main line near the mouth of the Casadaga creek.

The above are the general outlines of the route, but for more minute particulars, I beg leave to refer to the Reports of my assistants Mr. Seymour and Mr. Ellet, which are herewith presented, with the details necessary.

The total amount of linear extent from the Hudson river to Lake Erie will be 483 miles, which distance may however be shortened from 10 to 15 miles by alterations in the route which may be found desirable upon a further survey. The curves upon the roads are generally easy, none of them having less than 500 feet radius.

The graduation of the road has been estimated throughout, for a double track including embankments in all cases of solid earth, and embracing all necessary bridges viaducts and culverts, together with the expenses of grubbing and fencing, comprehending in fact the whole cost of the road, except that of superintending, of the damages (if any) to be paid for the land to be taken, and the expenses of the Engineer department.

According to the report of Mr. Seymour the expense of graduation, thus estimated, for the 222 3-4 miles between the Hudson river and Binghamton will amount to \$1,551,982, being \$6,968 10-100 per mile; and according to the report and estimate of Mr. Ellet the expense of graduation thus estimated for the remaining 260 1-4 miles, will be \$1,165,536, being \$4478 51-100 per mile. Total graduation of the 483 miles \$2,717,518, or \$5,626, 33-100 per mile, including fencing, clearing in timber land 100 feet on each side (to prevent trees falling on the road,) and also all bridges over rivers, viaducts, culverts, road crossings, &c. &c.

Cost of grading as above \$2,717,518 add 10 per cent. for contingencies.

271,751

\$2,989,269

The cutting and embankments are all 25 feet wide, and the slopes of the embankments are one and a half base to one perpendicular. This I consider as a permanent and solid form, and calculated for stability.

The expense of superstructure will vary according to the particular plan which shall be adopted.

I have caused cross sections of several different roads now completed to be drawn, and have also drawn some which I think well adapted to the country through which the road will pass, for 400 miles, if a wood and iron road is adopted—there may be seen marked No. 5. That marked No. 2, is also of wood and iron, and is the common road as now built between Schenectady and Ballston, and such as will be built between Schenectady and Utica.

Such a Road as No. 2, if built of yellow pine and oak or chesnut, will cost in Orange or Rockland about 2880 dollars per mile.

Such as No. 5, will cost about 3400 dollars per mile.

Such as the Camden and Amboy, and the Columbia and Philadelphia Road, cost 10 to 12,000 dollars per mile.

The Petersburg and Roanoke cost about 2600 dollars per mile, as I have been informed.

These are all for a single track with one turn-out or siding to each mile.

If the sum of \$3,400 per mile be taken it amounts to

1,642,900

\$4,631,469

Add for Engineering, &c. 3 per cent. on 4,359,718.

130,791

Total, \$4,762,260

This sum will grade and bridge over rivers the whole road for two tracks, and put down one track: which is all that ought to be done, until the road is travelled nearly its whole length; and this also includes the inclined plane and steam power to operate upon it, and also a long and expensive wharf into the Hudson River.

These estimates are, in my opinion, liberal, and such as will make an excellent road, and, as I have before observed, there are many places where a great reduction might be made in the expense, by a small alteration of the grade. There are also very great reductions which may be made in the out-lay of capital in the construction of this road, by making timber work in many places where I have made calculations of earth embankments.

There is no doubt that when a final location of a working line shall be made, the Engineer would be able to make small variations in the line which would very greatly reduce the expense. I make these remarks to shew that there is no doubt in my mind of the estimate being amply sufficient for grading the road.

The bridges over the large rivers, I have also estimated higher than they will cost, if only built without regard to roofing or otherwise protecting them from the weather. I have considered and planned these bridges to be only 16 to 18 feet wide, and so formed as to have a double track over them, but that so fixed as that loaded trains of cars cannot pass each other on those large bridges. I did not think so much weight, as two trains of loaded cars passing different ways, ought to be permitted to pass on a bridge at the same time. It would perhaps bring 50 tons or more on it at the same moment, which is improper, unless in one long extended train.

I have also estimated one turn-out or siding to each mile. If locomotive power is used on the long easy grades before mentioned, these turn-outs ought to be dispensed with, and only placed at every 5 to 10 miles, as they are found extremely troublesome when locomotive power is used, owing to the carelessness and inattention in leaving them open, when they ought to be shut. I find that on Railroads now in use, the test of experience has shewn it necessary to take up turn-outs which had been placed every mile, and only place them once in 10 miles, and that at the water stations for the locomotive, and in this case the man who attends the water stations sees to the turn-out being in its place whenever the cars are coming in sight.

In making the estimate, I have put down the item of fencing and also clearing away the timber on each side of the Railroad for 100 feet wide, to prevent trees from falling on the road. These items are of that kind that in many instances there may be ar-

arrangements with the owners of property to save some part of the estimated cost.

I have said that water stations, where locomotives are used, are generally about 10 miles apart. This is the case on some roads—on others these stations are 12 miles and more distant. This is regulated by the capacity of the water cars or tanks carried by the locomotive.

The country through which we pass is admirably adapted to furnish water convenient and cheap, as the springs in the sides of the hills are elevated above our grade; so that it will only be necessary to introduce some aqueduct logs, and bring the water to the proper elevation required.

In the reports of railroads which have been constructed and are now in use, the heavy items for pounded stone, which has been used for filling up trenches, have added very greatly to the expense. Experience has, however, satisfied most of the practical engineers, that the road does not stand as well when laid on broken stone, as when laid on plank or timber, and the estimates have been made on the latter plan.

It is true that almost every where along the line of this proposed road, there is small flat stone or gravel or sand, and when the plank or scantling are laid in trenches, the small flat stone may be thrown in and rammed down, and they operate as drains to cast off the water from under these timbers into the side drains: and these being properly prepared to take away all water in them, the bed of the road is kept dry and solid.

Although the appearance of the road as located is circuitous, the curves have all more than 600 feet radius. As we have run the lines, and probably in making a final line of location, it will be found that the shortest or boldest curve need not be less than 600 feet radius. These are easier curves than some on the important roads now in use in the United States, and I do not consider that any difficulties will arise in locomotive engines turning them.

The Report of the Engineer on the Eastern Division, will show two routes from the town of Liberty in the county of Sullivan to Shohocking at the junction of the Potomac, or the East Branch of the Delaware with the West Branch in Delaware County.

I have before observed that the route down the Callicoon was preferred, because it had less difficulty as to ascent—and the Beaver Kill route would have one inclined plane near Young's Gap. This route by the Beaver Kill is, however, nearly 9 miles shorter than the Callicoon route, and admitting that the tunnels (which are represented) are made instead of going round the Bend at Hawk and Sprague Mountains, then the distance will be shortened 3 miles more at least, making 12 miles shorter.

But still it appeared on a comparison, that the saving in ascent and descent, amounting to something more than 300 feet, the easier grading on the Callicoon route, and the easier curves on the line by the Callicoon and Delaware than on the Beaver Kill route, decided my mind in favor of the Callicoon route, although at increased distance.

The law under which this survey was made, provides that it shall commence at the City of New York or its vicinity, or at such point as is most eligible and convenient.

The point on the Hudson River where the road would strike, it being still subject to further revision, and knowing that no great difficulties could arise in locating the

road through the county of Westchester, the want of time and means prevented my effecting this survey. Considerations of policy would require this piece to be delayed until the other parts shall be in great forwardness, and then it will be made without doubt. All which is respectfully submitted by

BENJAMIN WRIGHT,
Civil Engineer.

January, 1835.

[From the Baltimore Patriot]

INTERNAL IMPROVEMENT CONVENTION.

The Committee of Internal Improvements appointed at the last meeting of the Convention, and instructed to report upon the present state of the public works, instituted by the people of Baltimore, and particularly to examine and report upon the propriety of recommending a town meeting to take into consideration certain proceedings of the citizens of Cumberland, in relation to a proposed Convention, beg leave to

REPORT:

That in discharge of their duty, under part of the first resolution, little else will be required than a reference to the reports which have been made from time to time, of the progress of the public works committed to the care of Incorporated Companies. These reports having been published and diffused over the community in every form, are no doubt familiar to the members of this Convention and to the citizens generally. It is therefore rather for the purpose of presenting a connected view of the subject of Internal Improvements, than of entering into any details of the actual operations upon the public works, that the committee now propose to submit a brief retrospect of the origin and progress of that system—of the causes which have impeded its advance,—of its present actual condition—and of the measures which ought to be adopted to insure its successful consummation.

In the year 1827 an immense meeting of the citizens of Baltimore was held at the Exchange, for the purpose of adopting such measures as might be found advisable to revive the city from the depressed condition to which it had fallen. The wise and experienced men who conducted that meeting, had seen for several years preceding that our city was gradually declining—that our foreign commerce was becoming more and more contracted, and our domestic prosperity keeping pace with every thing else, in the downward course. In tracing the causes which existed at home to produce this state of things,—such as the late war—its heavy national debt, and the resumption of specie payments by the banks, which reduced the currency, from greatly upwards of one hundred millions, to forty-five millions of dollars, it was hoped that when these causes had expanded themselves, the country would have passed the ordeal, and prosperity would once more spread over the land. But a little while however soon demonstrated that the causes of this national depression lay much broader and deeper, and would demand an essential change, in our national habits, pursuits, and policy. The universal peace in Europe had left the world at rest, which it could scarcely be said to have enjoyed for a period of more than thirty years. Nations which during that long period had been engaged in desolating wars and bloody revolutions, were once more thrown back upon the cultivation of the earth—the peaceful pursuit of industry and commerce, and the improvement of their social condition. The United States, which during that period might be said to have come into existence as a nation, and who had profited by her neutrality, to push her commerce into every part of the world, could not but feel the effects of the great moral and political revolutions which had just occurred; but still the conviction that an essential and radical change in our position to the rest of the world had taken place, was slowly and reluctantly adopted. Commerce was still pursued with characteristic enterprise, and

years of disaster and disappointment could not drive them from the ocean. The habits and pursuits of a people are at all times difficult of reform or change, and with us it was peculiarly the case, for ours had grown with our growth and strengthened with our strength; we knew no other, and to change or abandon them was like changing our nature. Nothing but the convictions of experience could operate upon the minds of such a people, and it required years to demonstrate that the true policy of this nation consisted in turning its capital and enterprise to the cultivation of its own resources, to improve and facilitate domestic intercourse by roads and canals, to connect the interior seas with the Atlantic—to improve the navigation of our great rivers—to open the mines of wealth, which a bountiful Providence had placed within our reach,—to supply our own wants by the encouragement of manufactures—to foster the arts and sciences—and by all those means to build up a great empire, whose commerce would equal the world and whose independence and prosperity would be permanent and enduring.

It was with such views, and under such convictions, that the people of Baltimore, in 1827, embarked in what has since been called the system of Internal Improvement, and recommended the immediate construction of a railroad to the Ohio river. The necessary legislative enactments were soon obtained from this and the adjacent states, the various routes surveyed, and after careful deliberations, a selection was made, and the work commenced.

THE GREAT OBJECT OF THIS WORK, WAS TO FORM A DIRECT CONNECTION OF THE WATERS OF THE OHIO AND THE CHESAPEAKE, by a mode of communication then entirely novel in this country, but which information from abroad in regard to such works, satisfied us were peculiarly applicable to the improvements of our own country, and which our own experience since has confirmed.

In regard to the progress of the work, the Committee refer to the annual reports which have been made by the Directors to the Stockholders; and the committee take this occasion to say, that when the vastness of the enterprise is considered; the novelty of its character, which denied the lights of experience; the appalling difficulties which presented themselves at every step of its progress; and compare them with the unshaken firmness and perseverance of the Board of Directors, it is but common justice to accord to them the highest praise for their devotion to the public service, and their zeal in the advancement of the public interest. It is seldom indeed there will be found combined more individual worth, and moral and personal influence, than is united in those to whom this great work has been entrusted.

It appears from the last annual report of the Directors for 1833, that a controversy which had existed between the railroad and the Chesapeake and Ohio Canal Company, in respect to the right of way along the valley of the Potomac, had resulted in a compromise, by which the railroad company had obtained the privilege of continuing the railroad from the Point of Rocks to Harper's Ferry, at which point the extension of the railroad is by the same compact to terminate, until the Chesapeake and Ohio Canal shall have been completed to the town of Cumberland in this state.

The annual report from the railroad company to the Stockholders states, that the road from the Point of Rocks to Harper's Ferry is nearly done, and "it is expected will be finished soon enough to enable cars to pass the entire distance from Baltimore to Harper's Ferry, eighty-two miles in all, the coming November."

The report at p. 13 proceeds as follows:

"At a time when the road approaches so near to that point, which as has hitherto been generally understood, must limit its extension for the present, and where it unites with the Winchester and Potomac Railroad, it is perhaps expected that the Board of Directors should express their opinions as to its further progress."

This seems more particularly to be called for, while the mind of this community is so feelingly alive to the efforts which have been successfully made by a rival city, to draw from its more appropriate channel the rich commerce of the

western valleys. The Baltimore and Ohio Railroad, indeed, resulted from the public opinion, which in 1826-7 declared the necessity of an effort on the part of the city of Baltimore to maintain possession of a trade heretofore enjoyed, essential to her prosperity, and threatened by the enterprising public spirit of the neighboring states. Those to whom the great enterprise of a railroad communication with the west was intrusted, were furnished by their constituents with the splendid, but vague idea only, of a bird's flight line to the Ohio river. The subject was a new one in the United States, and, indeed, almost new in England; and although the best talent within the reach of the Company was obtained, every step taken for several years after the commencement of operations was necessarily in the nature of an experiment. In looking back now with the experience that has been acquired, it is easy to see where money might have been saved, and how more work could have been done in the same time; and were the road to be commenced to-day, it is not to be doubted that it could be more economically constructed. At the time, too, that the Baltimore and Ohio Railroad was projected, the great avenue to the west, the river Potomac, was apparently open to the company, and the use of it for the construction of the road was contemplated, after the report of the first reconnaissance of the engineers was received. This avenue, however, was closed by judicial decision; and it was by agreement and purchase only that the company have been able to advance as far as to the mouth of the Shenandoah. As one of the considerations of this agreement, the railroad company was obliged to stipulate, that it would not attempt to ascend the banks of the Potomac beyond Harper's Ferry, until the canal should be finished to Cumberland, provided this were done within the time allowed by the present charter of the canal company; so that, although the route to the west, by the valley of Virginia, is still open, yet further progress up the Potomac is for the present not to be expected; and the immediate design of the promoters of the road is necessarily postponed in its accomplishment. Under these circumstances, if they will be asked, what are the views of the Board with regard to that communication with the west which the company was created to effect.

It has already been remarked, as well in this as in the 7th annual report, that there was every reason to believe that a communication with the west might be effected by means of the valley of Virginia, and that as soon as the Winchester and Potomac Railroad should be finished to Winchester, a great portion of western travel and transportation would seek the Ohio river by that route, and that perhaps, ultimately, a railroad from Winchester to Staunton, and from Staunton through Jennings Gap, would complete the entire railway communication.

In anticipating the adoption of this, however, as a practicable mode of establishing the desired connection with the western waters, the Board have never lost sight of the original route by the Potomac, and they still firmly believe, that this will, one day, and that not a very remote one, be accomplished.

In the opinion of the Board of Directors, the immediate interest of the stockholders, as well as of the city of Baltimore, and the State, of which Baltimore is the heart and the emporium, now lies in the completion of the Chesapeake and Ohio Canal to Cumberland; both in reference to the agreement of compromise already alluded to, and as forming an important link in the chain of communication, and furnishing a means of conveyance from the coal mines to tide, or to the junction with the railroad at Harper's Ferry. For the present, therefore, the Board would not think, even if they held it in their power, of making the railroad parallel with the canal; but, taking up the route where the canal terminates, at Cumberland, would push it across the mountains, upon the trace originally intended for it, and to the point of its original destination. The Chesapeake and Ohio Canal and the Baltimore and Ohio Railroad ceasing to be, as they were for many years, hostile opponents, would then be united in interest, in every particular, and would jointly afford the desired communication. If, at any future day, the state of the trade should require it, and the income of the road should justify it, freed

from the condition that now fixes Harper's Ferry as the western limit on the Potomac, the road might be brought down the River, and the continuous railroad communication, as first designed, be finally accomplished.

In the prosecution of the design thus marked out, the parties most deeply interested are the State of Maryland and the City of Baltimore; and it is to the public spirit and liberality of these, that the Board confidently look for the means to prosecute it successfully.

From the view which is here presented, the construction of a railroad communication with the west is postponed to a period necessarily indefinite; tho' the Directors indulge the hope that at some future day it will be resumed and accomplished upon the plan originally projected. For the present, however, it is true policy and common sense to consider the projected railroad to the west as terminated at Harper's Ferry, and that the company have neither the moral nor physical power to go beyond that point, by reason of judicial decisions, and their own compact with the Chesapeake and Ohio Canal Company.

In this state of things it becomes an energetic people, instead of indulging in vain regrets over their disappointment, to look forward and promptly adopt such measures as the existing state of things call for.

The Directors of the Railroad Company have freely expressed their opinion, that the immediate interest of the city of Baltimore and the State now lies in the completion of the Chesapeake and Ohio Canal to Cumberland. This proposition, after all that has passed, and coming from the source it does, is calculated to excite surprise, when thus broadly presented. But this ought not to deter us from giving it proper consideration, and weighing it with candor and liberality.

The question would be perhaps more simple if it were presented not as an alternative proposition to be accepted or rejected, but rather as a matter about which there is no choice. The people of Baltimore have expended about three millions of dollars, in the effort to make a railroad communication with the west, and having arrived at Harper's Ferry, are impeded in their progress by another company, who are decided to possess the exclusive right of way from that point. To aid this company, therefore, in the extension of their work, seems no less the dictate of policy than of necessity, as otherwise the vast amount of money expended in the construction of the railroad to that point would be comparatively of little value. The completion of the canal to Cumberland, independently of the benefit to the railroad, would bring a vast trade within reach of Baltimore enterprise, besides affording great facilities and convenience to that which we already enjoy from the south and western country. Indeed, it might be considered that the importance of a communication with the coal region of Alleghany is of itself sufficient to justify the construction of the canal, and to call for such aid as it may be in our power to afford.

The Committee having thus briefly expressed their opinions on this part of the subject, would recall their own and the attention of the Convention to the great and important object of a communication with the western waters. At a very early period in the history of Internal Improvement, this was the ultimate object to which the efforts of all the States and companies was directed. New York, Pennsylvania, Maryland, and the District of Columbia, all engaged in the enterprise—opinions were divided not only as to the best route, but also the best mode which should be adopted. Some advocated the valley of the Potomac, whilst others preferred the valley of the Susquehanna. The zealous advocates of railroads would not listen to any thing else, whilst the steady supporters of canals as tenaciously adhered to their system. In the mean time the various works which had been projected were pushed forward with all the efforts which power and interest could exert, stimulated to an increased action by the zeal of rivalry, and the anticipation of triumph. The State of Pennsylvania has completed a canal communication from Columbia to Pittsburg, and by means of a railroad, the communication is now opened on the whole line from Philadelphia to Pittsburg. New York,

also, by means of her canal and the Ohio canal, now enjoys the benefit of a direct communication with the western waters, and these two great cities are now engaged in a successful competition for the trade of the western country. The works which have been projected in Baltimore and the District to engage in the contest for this trade have, after a period of nearly seven years, reached about one-fourth of the distance to the western waters. The railroad has terminated at Harper's Ferry, a distance of eighty-two miles from Baltimore, whilst the canal has advanced altogether a distance of 104 miles from tide. The total expenditure on these works is about eight millions of dollars.

The Committee look to the extension of the canal to the eastern base of the Alleghany as a work of great importance, and entitled to receive the support of the people of Baltimore, the State of Maryland, and the western States. We must turn in another direction to find a mode of communication with the west—easier, more expeditious, and at less cost.

If we have to wait for the completion of these great works to enter into a competition for the trade of the west, we should find it firmly fixed at New-York and Philadelphia, and our efforts to withdraw it would be in vain. Competition would be too late to rescue from these powerful cities a trade which they had enjoyed for years. If we expect to participate in it we must be early in the field; the delay which has already occurred will render the competition more equal on the part of our eastern neighbors. It is true the natural advantages of our position are great, but it must be borne in mind that this very system of roads and canals has the direct effect of reducing the importance of distances, and will bring all the Atlantic cities upon a much closer equality in reference to the trade and intercourse with the western country—and the vast capital of these great cities, combined with the increased facility and diminished expense of transportation, gives them advantages that will call for all our energies to preserve a trade which has been the source of our rapid advance, and which is now more than ever essential to our permanent welfare and prosperity.

The Committee believe that this important object may be effected, by forming a junction with the Pennsylvania works.

The state of Pennsylvania, as before remarked, has already opened a canal along the valley of the Susquehanna, (and crossing the summit of the Alleghany by a railroad,) thence to Pittsburg; to form a connection with this route has long been a favorite object with some of the citizens of Baltimore, who anticipated the improvements which have been effected in Pennsylvania; and during the same session of the Legislature of Maryland, which incorporated the Ohio Railroad and Canal Companies, a charter was granted to the Susquehanna Railroad Company to extend a railroad to the nearest and most practicable point upon that river. The stock of this company was promptly subscribed for, and its operations were commenced in the full confidence that the liberal policy of the state of Maryland in regard to the extension of improvements through her territory, would be followed by Pennsylvania, and a charter granted to the Maryland company. In this reasonable expectation the advocates of that work were disappointed, and it was not until the last session of the Legislature of that state, that a law was passed which opened the way for the proposed improvement; by that act a railroad is authorized to be constructed from the Maryland line to the borough of York, from which point there is a canal now in operation which communicates with the river Susquehanna,—from the present termination of the Baltimore and Susquehanna Railroad to the town of York, the distance by any of the routes selected for its extension will not exceed sixty miles, and will probably fall short of that number. The cost of the work as estimated by able engineers, will be less than a million of dollars, and it could be completed within eighteen months from the time of its commencement.

The completion of this work would effect the double object of securing the Susquehanna trade to this city, and of effecting a direct communication with the western waters by means of the

Pennsylvania Canal, in the shortest possible time, and at the least expense to ourselves.

The trade of the valley of the Susquehanna, which includes a thousand miles of natural navigation, (the greater part of which is now improved by canals, and which comprises one of the finest countries in the world,) is of vast importance to this city; it has been a fruitful source of profit to our enterprising traders, and has heretofore amounted annually to millions of dollars. But it has diminished—is diminishing, and will be entirely lost, unless some effort be made to secure it. In this point of view alone, it would seem that the extension of the Susquehanna Railroad would be an object worthy of the especial consideration of this convention, but when taken in connection with the fact that it opens the most direct and immediate communication with the western waters, it may fairly present itself for patronage and protection. The committee will avail themselves of another occasion to present to the convention, a view of the trade of the valleys of the Susquehanna and its vast importance to this city. Its magnitude is not sufficiently understood or appreciated by the citizens of Baltimore, and its value is only beginning to be felt as it is about to be lost.

The committee have thus shown in the plainest way in which they could find language to express themselves, the present state and condition of our plans of internal improvements, and the causes which have impeded their progress up to this time.

The conclusion to which the committee have arrived, after the best consideration they have been able to give the matter, is,

First, that it will be the true interest and policy of the people of Baltimore to encourage and promote the completion of the Chesapeake and Ohio canal to Cumberland; and

Secondly, that it is the true interest and policy of the people of Baltimore to encourage and promote the completion of the Baltimore and Susquehanna railroad, to the town of York, and the river Susquehanna.

The next and most important matter is to suggest the means by which these great works are to be accomplished.

On this point, the committee have no hesitation in coming directly up to the question, and giving their decided opinion, that *it can be accomplished in no other way than by means of the authority of the state, and the pledge of its credit, with such aid as may be obtained from the government of the United States.*

If the position assumed by the committee in the previous part of this report, that the system of internal improvement is the natural and necessary policy of the nation, growing out of its actual condition, be a correct one, it follows that the government is bound to support and maintain it by all the means in its power. There is no State in the Union to which this remark will apply with greater force and truth than to Maryland; fixed in the centre of the Union, with the finest bay in the world leading to her emporium, she has every facility of commerce and intercourse—looking into the interior from Baltimore, she occupies the nearest position upon the Atlantic to the northern and western countries. The great river Susquehanna on the north, and Potomac on the south, open natural channels of communication with the lakes and the western waters, and all the artificial improvements of roads and canals over this immense extent of country do but come in aid of what nature has done for us. Such is the advantage of our natural position, that we have but to stretch out our arms to the Potomac and the Susquehanna, and avail of the trade which others are seeking to draw off from its natural outlet.

The State of Maryland, it is true, has advanced a liberal hand to the support and encouragement of individual enterprise, and in the incipency of the system, it was perhaps as much as might have been expected. But, in the present state of things, a bolder and more decided course must be adopted by the State, or the public works will fail altogether. Individual means and credit are exhausted, and it would be a vain deception to attempt to conceal it. In making an appeal to the State for aid, no people can do it with more confidence than the people of Maryland. It may be fairly estimated that eight millions of dollars have been expended in the various works of internal improve-

ment; of this sum the State holds \$500,000 in the Ohio Railroad; \$500,000 in the Ohio Canal Company; \$100,000 in the Susquehanna; \$500,000 in the Washington Railroad; which, with some other contributions to public works, may make the State's subscription to public works amount altogether to two millions of dollars. How different has been the policy of New-York, Pennsylvania and Ohio? There the States upon their own credit have undertaken all their public works—and what has been the consequence? New-York has an intercourse with the lakes and the western country—Pennsylvania has converted every stream in her vast territory into a feeder for a canal, and is the first to pass the Alleghany mountains—Ohio has constructed a canal through the State to a port upon Lake Erie, whence she finds an easy way to New-York. Other States have pursued the same policy, and their people are deriving the benefit from it. It is time the State of Maryland should take the lead of her people in this great effort to sustain their vital and important interests, and her own standing in this great confederacy.

The committee cannot permit this occasion to pass without exhorting the Convention to a steady perseverance in the objects which have brought them together. They cannot fail of success; there is too much spirit and enterprise, too much wealth, and too much pride, in the people of Baltimore, to permit it to sink below its natural position. It needs only that we should give a concentrated expression to public opinion to produce a combination of action, and effect all that we desire. The public works must and will be completed, and no power upon earth can prevent it. Let us act under these impressions, and with this conviction, and Baltimore will soon resume her position amongst the Atlantic cities.

The Committee, in obedience to the requisition of the Convention, have had under consideration the proceedings of the citizens of Cumberland, in relation to a proposed Convention, to be held in this city, on the eighth of December next,—and beg leave to submit the following remarks:

The Committee on Internal Improvement, to whom was referred the Resolution requiring them “to enquire into the expediency of recommending to the citizens of Baltimore to assemble in Town Meeting, for the purpose of considering the proceedings of a meeting in Alleghany County, in relation to the Chesapeake and Ohio Canal,” beg leave respectfully to report—that while the field of labor entrusted to their particular care is extensive, and necessarily requires arduous and close investigation, they feel that their labor is very much lightened, and the extension of their investigation much contracted, in consequence of the specific nature of the resolution under which they are called to act. The inquiries which naturally present themselves to the minds of your Committee, in relation to the subject of this resolution, are first, the nature and object of the Chesapeake and Ohio Canal; and second, the relations which the City of Baltimore bears to it.

The Convention is no doubt aware that one of the most serious subjects which ever engaged the attention of the Father of his Country, was the completion of an easy, safe, and speedy communication between the Eastern and Western portions of our land; justly believing that if such an object could be accomplished, it would tend greatly to prevent that alienation of affection among our citizens, which might grow from the circumstance of their being widely separated by the great natural barriers which would exist between them—and at the same time, by an interchange of commercial intercourse, create those sympathies which would naturally bind them to each other by a common interest; with these views his attention was directed to the Valley of the Potomac, as being a route which seemed to present greater facilities for the accomplishment of so desirable an object than any other. The first efforts made for this purpose were to incorporate a Company, who endeavored to improve the bed of the river so as to render it navigable as far as possible above tide water, without incurring the expense and labor of excavating a Canal—and large sums of money were expended, but without producing any important effect. In the year 1824, a Company was incorporated for the purpose of building a Canal along

the banks of the river, from Washington City to the Ohio River, having all the rights and privileges appertaining to the former Company—and in the year 1828, the first earth was removed, in the commencement of this important undertaking. Since that period, it has been gradually progressing, aided by the patronage of the Government of the United States and State of Maryland, and its present terminus is found 8 miles above the town of Williamsport, and 108 miles from Washington City. The work itself, so far as it has been completed, is of the most magnificent character, and well calculated for the important purposes which it is designed to subserve. It is 50 feet wide and 6 feet deep, being considerably larger than any similar work in this country—and when completed, will be capable of receiving and bearing upon its bosom the incalculable wealth of the interior, with more facility and to a greater extent than any similar work in the country. It will be one of those arteries which by the action and re-action of commercial facilities, rendered to the East and to the West, will tend to bind our citizens more closely together, and to diffuse the blessings of prosperity and peace to the most distant portions of our land. But it would appear to be useless to detain this Convention and to occupy its time in enlarging upon the object of this work. So national is its character, and so palpable its object, that “he who runs may read, and the wayfaring man, though a fool, need not err therein.”

Your Committee now approach a more important consideration, viz.: the relation which the City of Baltimore sustains to this important work; and in doing so, it is natural to inquire what are the facilities which she enjoys in comparison with her eastern neighbors, the cities of Philadelphia and New-York, as regards a communication with the West. As respects local situations we see she has decidedly the advantage. The distance from Baltimore to Pittsburgh, on the Ohio River, is about 240 miles; while from Philadelphia it is 300, and from New-York, perhaps, not less than 500 miles. But the advantageous position of Baltimore, in a commercial point of view, will be more readily seen, when we consider the relative price of transportation, by wagons, between it and Pittsburgh, and Philadelphia and Pittsburgh. For many years the difference in favor of Baltimore was from fifty cents to one dollar per hundred pounds—and while she was enabled to present a market for the purchase and sale of such goods as would not bear any accumulation of charge for transportation, such as groceries, domestic goods, hardware, &c. she even caused her eastern neighbors to become tributary to her prospects and to acknowledge her superior position, in regard to the great West, by becoming the place of transit for the goods purchased there. Under these happy circumstances she was rapidly growing into importance, until the successful application of steam in the navigation of the Western waters gave the first severe blow to her prosperity, and transferred to the city of New-Orleans much of that trade, which, until then, belonged to her. But this event only affected her in common with the cities on the eastern seaboard, and left her with all her natural advantages still unimpaired—and had nothing occurred to counteract these advantages, she might, notwithstanding, have gone on a career of substantial and unflinching prosperity. But unfortunately for her prospects, this change has occurred, and unless she can find a remedy, she must see the fountains of her prosperity, one by one, dried up, and eventually become an object of loneliness and desolation to the passing traveller, as he contemplates the remains of her former glory. The State of New-York, under the auspices and energies of one of the most gigantic minds of which our country could ever boast, conceived and executed the magnificent plan of uniting the waters of her own Hudson with those of the far distant Western Lakes, and as a result, her emporium is now deriving the rich returns of so noble and enlightened an enterprise. In consequence of these spirited and successful efforts, the young, though vigorous State of Ohio, finding her interests so deeply involved, undertook to accomplish a similar work from Lake Erie to her Southern Boundary, on the Ohio River, thus affording a continuous Canal, Lake, and River navigation, from the

Ohio River to the City of New-York, a distance of more than 1000 miles, and as a consequence of these stupendous efforts, your Committee would state the singular fact that goods may be delivered at Portsmouth, at the Southern terminus of the Ohio Canal, from the City of New-York, more than 1000 miles, at a less rate of transportation than would be required from Baltimore to Wheeling, a distance of only 290 miles, even at the lowest prices at which our carriers can live and sustain their wagons and teams.

The great State of Pennsylvania, finding herself likely to be outstripped by her northern neighbor, in the race for the golden prize, devised and executed a system of Canal and Railroad transportation from Philadelphia to Pittsburgh. By this means, goods may now be transported from the former city to the latter in the short time of about 10 days, at the rate of \$1 to \$1.25 per hundred pounds; so that her commercial emporium has not only regained all she lost in consequence of the early completion of the New-York and Ohio Canals, but is continually experiencing an accession of trade, derived from one of these very sources. From this view of the case, it will be seen that our natural advantages, without being improved by some artificial means, are no longer of much avail to us in the transportation of goods westwardly. But your Committee would also shew that, as a commercial city, Baltimore is likely to be affected quite as seriously in the other direction. The superior natural advantages of Baltimore were at one time quite as valuable to her in the reception of produce from the West as in the transportation of merchandise towards that quarter. Wagons could always afford to haul much cheaper to her than to Philadelphia, and as a natural consequence, immense quantities of Bacon, Tobacco, Glass, Wool, &c., the products of the West, sought their natural market here, but such, unfortunately for her, is not the fact under existing circumstances; all those articles and many others now find a cheaper mode of transportation to Philadelphia, by the Pennsylvania Canals, and although the Tobacco crop of Ohio is still brought to this market, via the Pennsylvania Canals, in consequence of the facilities rendered by our inspection laws, and from the fact of its being a large market for that article, as the product of this State, yet it cannot be supposed that such can long continue to be the case, but that Philadelphia will soon afford all the facilities which may be necessary both to command and retain the trade.

Your Committee have been thus minute, perhaps prolix, in their detail of the present commercial prospects of our beloved City, in order that they might impress them more forcibly upon the mind of each member of this Convention, and induce him to look more anxiously about for some mode of relief from the ruin which evidently stares us in the face; and without pretending at all to express an opinion as to the comparative importance of the Chesapeake and Ohio Canal, with other projected works of improvement, your Committee would respectfully call the attention of this Convention to the following views in relation to the relief which will be afforded by this work, provided it is completed even as far as Cumberland, and especially if it be completed to its intended termination, viz.: the Ohio River. The distance from the City of Baltimore to the Point of Rocks, by the Baltimore and Ohio Railroad, is about 70 miles, at which point the Baltimore and Ohio Railroad Company will deliver goods at the rate of 20 cents per hundred pounds—thence per Chesapeake and Ohio Canal to Cumberland, 140 miles, upon which distance goods may be transported at the rate of 2 cents per ton per mile, or for 14 cents per hundred pounds for the whole distance—thence to Pittsburgh by wagon, the price of transportation, say 105 miles, cannot exceed 50 cents per hundred pounds, making the cost of transportation the whole distance, 84 cts. and allowing 16 cents more for the cost of freights and agencies in transshipment, it will be seen that the cost will not exceed one dollar per hundred pounds from Baltimore to Pittsburgh. Your Committee believe, moreover, that the rate of transportation, especially upon the Canal, are high—the price charged for toll upon the Pennsylvania Canal, is believed to be only 11 mills per mile, which is but little more than one half the present

rate charged upon the Chesapeake and Ohio Canal; and they have no doubt that when the immense transportation to be done between the East and the West shall have taken this channel, the price will be materially lessened, so that, eventually, goods may be delivered on the Ohio River at perhaps little more than half the foregoing estimate.

The assurance recently given in the late annual report of the Baltimore and Ohio Railroad Company, that the Railroad will eventually take this route, and the prospect that with the completion of the Canal to Cumberland, the Railroad will be also completed across the mountains, is not the least encouraging item in connection with this subject, which your Committee would present for the consideration of this Convention.

The distance from Philadelphia to Pittsburgh, by way of the Union and Pennsylvania Canals, is 440 miles, and by way of the Columbia Railroad and Pennsylvania Canal, 490 miles. The distance from Baltimore to Pittsburgh, via Baltimore and Ohio Railroad and Chesapeake and Ohio Canal to Cumberland, and thence to Pittsburgh, is about 300 to 320 miles, so that our naturally advantageous position will always give us the preference on account of the great cheapness of transportation. Your Committee do not draw the comparison between the Pennsylvania Canal and the Chesapeake and Ohio Canal, &c. from invidious motives; but simply with the view to show our relatively greater natural advantages, and that with those advantages, properly improved, there is no room for despair. No, the great West will give employment to all the channels of communication now opened or in contemplation, and perhaps as many more, and our feelings should rather be those of a family partaking at the same bountiful table, than of rivals, each striving to obtain whatever is within its reach, and greedily grasping at what is not, in order to appropriate it selfishly to himself.

Your Committee have not adverted to the immense advantages to be derived from the transportation of coal, lumber, stone, &c. to be found abundantly distributed along the banks of the Canal, and for which object alone it would be worth all its cost—but have confined their observation to the bearing it has upon the great commercial interests of our city with the West, believing that these fell more especially within the line of the duty devolved upon them, and under the deep and abiding convictions of the truth of the facts and observations recited in the foregoing reports, they submit the following resolutions:

Resolved, That it is the true interest and policy of the people of Baltimore and the State, to promote the completion of the Chesapeake and Ohio Canal to the town of Cumberland, in this State.

Resolved, That it is the true interest and policy of the people of Baltimore and the State, to extend the Susquehanna Railroad to the Borough of York and the river Susquehanna.

Resolved, That this Convention earnestly recommend to the citizens of Baltimore to assemble in town meeting, for the purpose of considering the proceedings of a meeting held in Cumberland, Allegany County, in relation to the extension of the Chesapeake and Ohio Canal, and that the Mayor be and he is hereby requested to call said meeting.

Which were adopted.

Report of the Probable Revenue of the Chesapeake and Ohio Canal, made to the Baltimore Convention, December, 1834.

MR. STEWART, from the Committee appointed to report as to the probable amount of tolls receivable on the Chesapeake and Ohio Canal, after it reaches the Coal Mines near Cumberland, and after its completion to Pittsburgh, made the following Report:

That the Committee have given the subject an attentive consideration, and the result is a firm conviction that the Chesapeake and Ohio Canal will afford a more profitable investment of funds than any other similar work of Internal Improvement in the United States; possessing, as it does, advantages in reference to climate, distance,

structure, and sources of revenue, decidedly superior to any other constructed or contemplated. To satisfy the public of the correctness of this position, the Committee will not deal in (what is too common on such occasions) assumed facts and speculative reasoning, but they will content themselves with a brief and plain statement of well known and ascertained facts, about which there can be no controversy, and which they respectfully submit, without comment, leaving an enlightened public to supply the argument and the conclusions.

The object of the Chesapeake and Ohio Canal is to connect the tide water of the Atlantic with the Ohio and Mississippi, and ultimately with the Lakes, and as its revenue must, in some measure, depend upon its ability to maintain a successful competition with other similar works, the Committee will submit, in the first place, a comparative view of the three great lines of communication between the Atlantic and the West,—the New-York, Pennsylvania, and the Chesapeake and Ohio Canals. The Committee are, however, far from indulging the erroneous idea that these works can be properly regarded as rivals, that the one can possibly supersede the other, or that their interests can come materially into conflict; on the contrary, a moment's reflection upon the immense increase of the population and commerce of the West must satisfy every one that the time is not distant when not only these, but additional communications, will be indispensable to give vent to this vast and increasing intercourse.

COMPARATIVE VIEW,

As to distance, time, lockage, dimensions, climate, and cost of transportation, on the New-York, Pennsylvania, and Chesapeake and Ohio Canals, in connection with the Ohio River and the Lakes.

The distance from New-York to the Ohio river, by the New-York and Ohio Canals, is 1,008 miles—670 thereof canal, 145 river, and 193 lake navigation; on this line there is 1,877 feet of lockage—699 on the New-York, and 1,185 on the Ohio Canal; and three transshipments, one at Albany, another at Buffalo, and a third at Cleveland.

From Philadelphia to Pittsburgh, by the Columbia railroad and Pennsylvania canals, is 394 miles—276 by canals and 118 by railroads; the ascent and descent on this route is 5,920 feet; and, by the Schuylkill, Union, and Pennsylvania Canals, the distance is 441 miles, ascent and descent 4,514 feet, 1,944 by locks, and 2,570 by inclined planes; and, as the latter route is found to be the cheapest for transportation, it is adopted for the purpose of this comparison. On this line there are two transshipments, one at Holidaysburg, and the other at Johnstown.

From tide water at Washington City to Pittsburgh, by the Chesapeake and Ohio Canal, is 341 miles continuous canal, lockage 3,215 feet; and when the canal shall have reached Cumberland, the distance from tide, to the navigable waters of the West, will be only 258 miles, viz.: 186 miles by the Chesapeake and Ohio Canal, and 72 from thence, by the Cumberland road, to Brownsville, on the Monongahela, where steamboats now arrive and depart for New-Orleans daily, for several months in the year, and on which the cost of transportation would be \$13 58 per ton, viz.:

By canal 186 miles, at 3 cents per ton, \$5 58
By Cumberland road to Brownsville, 72 m., 7 00
By steamboats to Pittsburgh, 1 00

\$13 58

The dimensions of the New-York and Ohio and Pennsylvania Canals, are the same, viz.: 40 feet at water line, 28 at bottom, and 4 feet deep. The Chesapeake and Ohio Canal is 60 feet at water line, 42 at bottom, and 6 feet deep, being 50 per cent. larger than the New-York, Ohio, and Pennsylvania Canals; the cross section of the one is 306 square feet, and the other only 136, and the moving power differs in the ratio of 100 to 171. It is ascertained on the New-York, Ohio, and Pennsylvania Canals, that freight boats travel from 2 1/2 to 3 miles per hour, and having relays of horses, usually travel night and day, making from 60 to 70 miles in 24 hours. For the purposes of this comparison we

will assume 45 miles as the average in 24 hours; the cost of transportation we estimate at 3 cents per ton per mile, (two for tolls and one for freight;) each transshipment is supposed equal to one day's delay, and to cost 12 cents per ton.

The trade of the lakes at Cleveland will have to travel 701 miles to New-York, 623 miles to Philadelphia, and 523 miles to Washington City, by way of Pittsburgh.

Applying the above facts and principles, the result is as follows:

Canal-section.	Distance to Ohio river.	At 45 miles per day,	Time, days.	At 3 cts. per ton per mile,	Cost per ton.
N. Y. Canal, 1,008			23½		\$30 34
Pennyl'a do. 441			10		13 23
Ches. & O. do. 341			7½		10 23

And it will be observed that the above is the comparative result as to distance, time, and cost, without claiming any thing for the Chesapeake and Ohio Canal, on account of its enlarged dimensions or for its continued navigation for one or two months in the year, after the New-York Canal is closed by ice; nor have the Committee added any thing to the delay or expense of transportation on the New-York and Pennsylvania Canals on account of three transshipments on the one and two on the other, which will certainly more than counterbalance any supposed advantage that can possibly be claimed in any other respect.

As doubts have been expressed as to the practicability of a continuous water communication by the Chesapeake and Ohio Canal, the Committee beg leave to remark, that repeated examinations and measurements, made during the driest seasons of the year by the United States Engineers, as well as those of the Company, have uniformly resulted in demonstrating that the supply of water at the summit level is abundant. Mr. Sullivan, one of the Board of Internal Improvement, affirms, in his report, that the "supply of water capable of being brought to the summit level, is more than treble that required," and that the Canal is competent to the passage of tonnage sufficient to realize tolls, at the usual rates, equal to 5,500,000 dollars per annum, or 30 per cent. upon its estimated cost; and more recent surveys have also demonstrated that the principal coal vein at Savage, and other points where opened, is within 48 feet of the elevation fixed for the tunnel; and from the indications of coal on both sides of the ridge, near the commencement and at the termination of the tunnel, the opinion is entertained that it may pass through a continuous coal vein of fifteen or twenty feet in thickness; if so, the coal would more than compensate for the whole expense of its excavation.

In England there are many tunnels nearly as extensive as that here proposed, and some exceeding it, viz.: The Bridgewater Canal has a tunnel of 4 miles in extent; Huddersfield 3; Derby 2; Ellsmere 2; Grand Junction 2; Hereford and Gloucester 2; Kent and Avon 2, &c.

Having thus established, by a statement of facts which it is believed cannot be controverted, the decided superiority of the Chesapeake and Ohio Canal, in reference to *climate, distance, structure, and cost of transportation*, it remains for the Committee to submit some facts calculated to show the probable amount of revenue or tolls receivable after the Canal reaches the coal mines, and after it is completed to Pittsburgh; and, in this respect, they think the superiority of the Chesapeake and Ohio Canal will still be more conspicuous.

The sources of revenue relied on are,

- 1st. Coal—by far the most productive source of revenue on all canals where found, in Europe and America.
- 2d. Lumber—abounding on this Canal, and affording one of the principal sources of revenue on the New-York Canal.
- 3d. Lime of the best quality, and at the cheapest rates, made on the line of this work.
- 4th. Iron and other minerals, and marble, found in abundance, and of superior quality, on the margin of the Canal.
- 5th. The products of the Potomac fisheries, equal to any in the Union.
- 6th. Rent of water power—being abundant for milling and manufacturing purposes.

7th. Agricultural produce from the western and other states, and parts of Virginia, Pennsylvania, and Maryland.

8th. Merchandise, &c. for the western States.

And first, of coal. The Committee lay down this position with perfect confidence, that *bituminous coal, of superior quality, can be delivered on tide water for a less sum, by this canal, than it can be delivered at any other port on tide water in the United States.* If this be true, it follows as a matter of course, that there will be no limit to the demand for exportation but the capacity of the canal to deliver it.

Let the truth of this be tested by adopting the prices paid for mining, tolls, and transportation, on canals now in operation in Pennsylvania and New-York.

The Chesapeake and Ohio canal will penetrate and pass through coal banks from ten to twenty feet in thickness on the margin of the Potomac above Cumberland, from which the coal can be thrown into the coal boats with a shovel; and to show the inexhaustible supply at the Savage coal mines, the Committee refer to the following extract from the report of one of the Chief Engineers, N. S. Roberts, Esq. in 1829, to the Board of Directors, in which he says, "The coal district thus accommodated, would be not less than five miles wide, covering a surface of more than 200 square miles. Over at least one fifth of this it is believed the thick vein of coal extends, which measures, where it is now opened, at least 13 feet thick. But the coal mines that could be opened, within five miles of Westernport and Savage, would yield coal to an immense amount. As each square mile of the great vein alone would yield more than two hundred millions bushels of coal, or 60,000,000 tons, and if it could be exported at the rate of five hundred tons per day, it would require four hundred years to exhaust one square mile of the great coal vein! Iron ore of excellent quality is said to abound in this coal district; and with the facilities of a canal transportation, together with the cheapness of bituminous coal, charcoal, and subsistence, in a very healthy country, would be an inducement to the enterprising of our citizens to extend the manufacture of iron to a great amount, and thereby improve and give great value to the water power that might easily be created on Savage river and the Potomac, for all the manufacturing and mechanical purposes of a very extensive population."

It is a well known fact, that on the Monongahela river, coal excavated from similar mines is now delivered at thirteen steam mills and factories, at one cent per bushel. It is presumed it will not cost more, under similar circumstances, to deliver it in a coal boat on the Potomac; but let this sum be doubled, and say that coal in boats will cost 2 cts. per bhl.

Tolls.—The tolls charged on the Pennsylvania canal for transportation of coal, is half a cent a ton per mile, which at 28 bushels per ton will be nearly 4 do. do.

Freight.—A boat carrying 1,680 bushels, travelling 2 miles per hour, or 48 miles in 24 hours, (less than the usual speed,) will reach tide in 4 1-2 days; it will require, say 2 men, \$2, a boy and horse 75 cents each, making \$3.50 per day, or \$15.75 for the trip, equal to nearly 1 do. do.

It is presumed that the returning freight from Washington and the Baltimore railroad will at least pay expenses; but suppose there be no return loading, charge as above 1 do. do.

Profits.—Add for profits \$32 per load, more than 25 per cent. on the whole capital employed 2 do. do.

Total at tide 10 cts per bhl.

But suppose the canal to terminate at Cumberland, and the coal to be carried 7 1-2 miles on a railroad, and to cost in the boats 4 1-2 cents instead of 2, as above, difference 2 1-2

12½ cts. per b.

The Committee have thus adopted the most liberal allowances, more than they believe will be the actual cost; and they feel confident that the strictest scrutiny into all the elements of the calculation cannot increase the price they have adopted.

If then the bituminous coal from Cumberland can be delivered at tide, for this sum, of course it can be transported coastwise to all our Atlantic ports and towns cheaper than it can be obtained from any other part of the world; and if so, can there be any assignable limit to the demand?

Let us see whether this position is sustained by facts. The cost of transporting coal from Philadelphia to Washington, (as a regular business and not as ballast,) is \$1 50 per ton, or 5 cents per bushel; to Baltimore, coastwise or by railroad from Point of Rocks, 4 cents per bushel; to Boston \$2 per ton, or 7 cents per bushel, and it may be carried to Charleston, or the most distant of our seaports for 8 cents per bushel, which is more than is received by importers from Liverpool, viz.: cost at Liverpool 12 1-2, duty 6 cts.; deduct, also, insurance, commissions, wharfage, &c., and it leaves less than 8 cents for freight. Apply these facts, and the cost of Cumberland coal will be in our principal cities as follows, viz.:

In Washington, Alexandria, and Georgetown, (per bushel) 12 1-2 cts
Present price \$7 per ton, or 25

Saving, 12 1-2

In Baltimore it will be 16 cts., viz.: at Washington, 12 1-2
Freight, 4

16 1-2

Present price, 25

Saving, 8 1-2

In Philadelphia it will cost 17 1-2 cts., viz.: at Washington, 12 1-2
Freight now paid, 5

17 1-2

The price of bituminous coal is now \$7 per ton, or 25

Saving, 7 1-2

[At Philadelphia, Anthracite is \$5 per ton, or 17 1-2 cents per bushel; so that the Cumberland will not affect the Anthracite, but merely supply the bituminous coal, required for many uses to which the Anthracite is inapplicable, viz.: gas, coke, smith's shops, steam purposes, &c.]

In Boston it would cost 19 1-2 cts., viz.: In Washington City, 12 1-2
Freight, 7

Present price in Boston \$9 per ton, or (per bushel) 32

Saving, 12 1-2

Thus it appears, from well authenticated facts, collected with great pains, that Cumberland coal can be delivered, coastwise, at all our Atlantic cities and towns, cheaper than it can be obtained from any other part of the United States, or Europe; and of course the capacity of the canal to furnish it will be the only limit to the supply required.

What, then, will be the capacity of the canal, and the amount of tolls? It is stated by Sir John Sinclair, in his statistics of Scotland, that there was transported in 1824, to the city of Glasgow, (with a population of 147,943,) on the Monkland Canal alone, 1,690,653 tons of coal, equal to 47,338,284 bushels, which, at the rate of half a cent a ton a mile from Cumberland to Washington City, would amount to \$1,690,653, equal to 30 per cent. upon \$6,000,000, the whole estimated cost of the canal to the coal mines at Cumberland. The dimensions of the Chesapeake and Ohio Canal are greatly superior to those of the Monkland Canal. The tonnage on the Schuylkill Canal, engaged principally in the transportation of coal, was equivalent to 12,453,673 bushels; and the coal actually consumed in Philadelphia, in 1833, (independent of the amount

exported from thence, amounting to 11,565,000 bushels. This amount alone, if transported on the Chesapeake and Ohio canal, would have yielded at a 1.2 cent a ton per mile, \$462,600, nearly 8 per cent. on its entire cost. And it is ascertained that the city of Pittsburgh, with a population, at the last census, of 12,568 souls, consumed, in 1833, 7,665,000 bushels of coal, much of it in her numerous manufacturing establishments. The population to be immediately supplied with Cumberland coal, is as follows:

The District of Columbia,	40,000
The city of Baltimore,	80,630
The counties and towns in Virginia and Maryland, bordering on the Potomac and Chesapeake Bay—population,	557,650

Aggregate, 678,270

Suppose the whole of this population, together with the amount exported to other places, shall not amount to more than thrice the quantity consumed in the city of Pittsburgh, whose population is not one-third of that of the District of Columbia alone, scarcely two-thirds of that of the city of Washington, and the tolls at half a cent a ton per mile, would amount, on this limited quantity, to \$19,336 dollars, equal to 15 per cent. on 6,000,000 dollars, the entire cost of the canal to Cumberland. These calculations may seem extravagant, but the facts on which they are founded are well established; besides the fact is notorious, that the tolls on some of the coal canals in England amount to 40 per cent. upon the capital, and shares of stock of £100 are selling in the market for £725. The Mersey and Irwell canal is an instance of this kind. Coal is, however, but a single item: superadded to this the various other sources of revenue relied on, *lime, iron, lumber, marble, merchandises, &c.* and who can for a moment doubt that this canal, when it reaches the coal mines, will yield an ample revenue on the capital invested? And can the United States and the States immediately interested, hesitate to extend, at once, the aid necessary to secure the speedy extension of the canal, now two-thirds completed, to the coal mines? And the more especially when it is recollected that they have already invested more than two millions of dollars in this work, which, with three or four millions expended on the Baltimore and Ohio Railroad, must remain, in a great measure, unproductive, until the canal is carried at least to Cumberland.

But these considerations (merely pecuniary) dwindle to a point, when compared with the higher and nobler objects of uniting and binding together by the ties of interest and intercourse, the great geographical divisions of our country; of connecting, by the nearest and best communication that can be devised, the metropolis of Maryland and the seat of the Federal Government, with the great valley of the Mississippi and the Lakes, thereby attracting a portion of their rich and abundant commerce in this direction, and at the same time opening and rendering productive the richest mines of coal and iron in America, now buried and useless in the bowels of the Alleghanies. These objects alone are worth the whole sum required, even if the investment should never yield one dollar of revenue. When the canal reaches the coal mines its completion to Pittsburgh is secure—its practical results, the benefits and blessings it will every where diffuse, will commend it to the favor of all; but independent of this, the high price of the stock in the market, (at least equal to that of the Schuylkill canal, now more than 100 per cent. above par,) would at once secure the subscription by States and individuals, independent of the United States, to the balance of the stock necessary for its entire completion. If the means were now afforded to extend the work to Cumberland, it is confidently asserted by practical engineers, that the work could be completed in 18 months.

Having shown, as they trust satisfactorily, that coal alone will yield an ample revenue, the Committee will notice briefly the other sources of revenue referred to above: the second of which is

2. *Lumber.*—By referring to the various reports descriptive of the country and its resources, through which the canal passes, it will be seen that the finest forests of timber in the world are found skirting the canal for more than 100

miles of its extent, especially on the Virginia shore, where water power is found in abundance on the spot to convert it into lumber. In 1826 there were 150,236 tons of lumber transported on the New-York canal, which if carried 125 miles on the Chesapeake and Ohio canal, at a cent a ton per mile, would yield \$187,780 per annum, equal to three per cent. on the capital.

3. *Lime.*—Lime stone and coal are found together in vast quantities on this canal, under similar circumstances. Lime is made and sold at the kiln in the West for 4 cents per bushel: double this, and say it costs 8 cents, and 6 cents for transportation, the same as coal, and it can be delivered in Washington city for 14 cents per bushel. At this price it would not only supply all the common uses of lime, but constitute the cheapest and best manure to fertilize and restore to the highest state of productiveness the now barren and impoverished lands on the Potomac and Chesapeake, both in Maryland and Virginia, and of course would become a source of immense revenue on the canal, second perhaps only to coal. The amount of tolls on this article we will not attempt to estimate.

4. *Iron, Marble, and other Minerals of the Alleghanies.*—The fact that Iron ore is found in the greatest profusion, and of the best quality, in the coal region, is well ascertained, and that marble of superior quality abounds on the line of the Canal is equally certain. The beautiful marble composing the columns of the Capitol was quarried out of the bed of the Canal, about 49 miles from the city. The tolls on these articles the Committee will not undertake to compute, but it is obvious that they would be very considerable.

5. *The Fisheries.*—The revenue which may accrue from the fisheries cannot be computed with any kind of certainty; but when the facility and cheapness with which they can be transported, and the low rate at which they can be supplied at the Potomac Fisheries, no doubt it would be considerable. The price of herring is said to be 25 cents per 1000, and shad \$1.50 per 100, and the quantity is so great that fish is a common manure to enrich the lands in the vicinity of the fisheries on the Potomac. Fish could be profitably carried to Cumberland as back loading in canal boats for 25 cents per barrel to Cumberland, which is double the amount paid for coal, the weight being only equal to 2½ bushels of coal, the freight and tolls of which are estimated at 5 cents per bushel.

6. *Water Power* will be equal to almost any demand, and its productiveness must depend upon the number of manufacturing establishments which the very reduced price at which fuel, the raw materials, and the subsistence of labor, can be supplied by the canal, will bring into existence along its line, and at its termination.

7th. *The productions of Agriculture.* And 8th. *The transportation of merchandise, passengers, &c.*—The Committee will not extend their report (which they are anxious to make as brief as possible) by going into a detail of the infinite variety of facts, calculated to shew the prolific nature of these very fruitful sources of revenue. It is well known that they alone contribute most of the tolls received on the New York, Pennsylvania, and Ohio canals, deriving, as they do, very little from coal and other minerals abounding on this; besides, when we advert to the other advantages enjoyed by the Chesapeake and Ohio canal, in reference to *distance, dimensions, climate, and continuity* of canal transportation, no one can doubt that it will enjoy a liberal share of the commerce and trade of the Western States, whose population, judging from the past, will soon exceed that of the East; but, even if this canal were in all respects inferior to those of New York, Ohio, and Pennsylvania, their absolute inadequacy to give vent to the increasing trade and commerce of the West, resulting from its growth in wealth and population, would force upon this work tonnage equal, in time, to its utmost capacity.

Such are the bright prospects to which the patriotic and enlightened contributors to the Chesapeake and Ohio canal may confidently look forward, if the means of its completion are afforded—and the Committee appeal to every candid man to say, whether the facts stated have not fully sustained the declaration with which they set out, that this canal will afford a more profitable investment of funds than any similar work in our coun-

try—justifying an appeal even to private capital, looking alone to profit, to seek the Chesapeake and Ohio canal, as affording a more safe and productive investment of funds than any other now open to them in the United States.

Coal canals have been invariably profitable in all countries, often exceeding in tolls the most sanguine anticipations of the friends of the Chesapeake and Ohio canal. In Great Britain, the profits on coal canals have varied from 10 to 170 per cent. per annum, as appears by the following list, taken from a London price current of canal stocks, of October, 1822;—

	Share.	Selling Price.	Div'd
Coventry,	£100	1070	44
Erewash,	100	1000	58
Forth and Clyde,	100	470	20
Loughborough,	100	3500	170
Neath,	100	410	25
Oxford,	100	730	32
Stratford & Worcester-shire,	140	700	40
Stroudwater,	145	995	22
Trent and Mersey,	100	1710	75
Grand Junction,	100	245	10
Leeds and Liverpool,	100	365	12

beside many others mostly employed in the transportation of coal, some of them 130 miles long, and having one-third more lockage than occurs in the Chesapeake and Ohio canal between tide water and Cumberland.

And even in this country they have been already attended with similar results. The Schuylkill canal, in 1825, when it reached the coal regions, after encountering the greatest difficulties and discouragement, its tonnage amounted to only 5,306 tons—yet, after the mines were opened, and railroads constructed to transport the coal to the canal, the tonnage increased in a few years to 445,849 tons, and the tolls to \$28,481 dollars, besides 16,673 dollars for water power, making \$45,154 dollars—equal to 12 per cent. on its original cost; and the stock rose from the lowest depression to 160 per cent. above par, viz.: 130 dollars for shares of 50 dollars. The New-York canal, in 1833, after very large reductions on its tolls, yielded 1,422,695 dollars revenue, equal to 15 per cent. on 9,500,000 dollars, its original cost. In 1825 the canal commissioners reported that, according to an estimate made, the tolls would pay the whole cost of the canal in 1836; that the tolls would then amount to one million dollars per annum; that in 1846 they would amount to 2,000,000 dollars, and in 1856 to 4,000,000 dollars; and that if fully employed, they might reach 9,031,000 dollars a year, and thus far this calculation has been more than realized. The debt is already discharged, and although the tolls have been reduced nearly one-third, they amounted, in 1833, to nearly a million and a half of dollars.

Thus has New-York, by a wise policy, not only made herself "the Empire State," by increasing her population and her power, and adding countless millions to the wealth of her people and her metropolis, but she has superadded to all this an annual revenue derived from her canal, free from all charges, sufficient to discharge all the ordinary expenses of her State Government, without levying one cent of tax upon her people. And why shall Maryland and Virginia hesitate to realize similar advantages by the completion of the Chesapeake and Ohio Canal, proved by the clearest testimony to be decidedly superior, being a much shorter, more direct, and central communication from the Atlantic to the west, and possessing, in the coal trade, an inexhaustible source of profit in addition to all those enjoyed on the New-York Canal.

Were this work to be now commenced for the first time, there ought to be no hesitation. And surely, after it has been constructed in the most splendid and durable manner, surpassing any similar work in the world, for more than one hundred miles on its way to the west, shall it be suffered to stop or languish on its journey? Will its early patron, the United States, whose seat of government it connects with the valley of the Mississippi, and the Lakes, constituting an enduring bond of national union, promoting alike the national defence in war, and prosperity in peace—will she, with her ample means, suffer this noble enterprise to be arrested in its progress for want

of that aid which she can so easily afford, without creating one cent of taxation, or one dollar of debt, and the more especially, we ask, can this aid be justly withheld, when it is recollected that the subscription of a million of dollars by the United States, at the commencement of the work, was made with an express understanding, as appears by the report of the Committee, that the United States were to contribute "a moiety of its entire cost." Three millions have been subscribed with this understanding; and after individuals and corporations have been thus induced to contribute their private means to aid in the accomplishment of a great national enterprise, will it not be a violation of every principle of good faith and common honesty to withhold further aid, and thus defeat the work, and ruin the individuals and corporations induced, in this way, to embark their means with the Government in a great national undertaking? These considerations belong to the subject, and cannot be overlooked or disregarded by an enlightened and just government. Let the government, then, influenced by a liberal and wise policy, fulfil its engagements, (implied, if not expressed,) to contribute a sum equal to all others, and the means will be at once afforded to complete the work to Cumberland.

All which is respectfully submitted. In behalf of the Committee,

A. STEWART, Chairman.

The following communication is from a gentleman who is evidently acquainted with the subject upon which he writes. We wish it were as well understood, and as duly appreciated, by the citizens generally of this state, and more especially of this city—for they, more than any others, are interested in the speedy accomplishment of the works now in contemplation.

The request of R. A. J., in his private note, shall be cheerfully attended to, and we hope he will furnish us with communications frequently, in relation to a subject in which we take a deep interest, and which he so well understands.

To the Editor of the Railroad Journal:

SIR,—You have justly remarked in your valuable Journal, that many and important improvements are now in progress in Pennsylvania and some of the western states, the direct tendency of which is to draw away from New-York the immense trade of the West. There is one of these improvements which has that tendency in an eminent degree, of the operation of which, however, the citizens of New-York, and, I believe, the public, are but partially informed. A plan has been for many years maturing for uniting the Ohio and Pennsylvania canals, and the subject has been before the Legislature of those two States in various forms, for a number of years past.

The State of Pennsylvania has now completed her canal from Pittsburgh, (including the railroad portage across the Allegheny ridge,) and from the mouth of Big Beaver up to New Castle, and within about eight miles of the Ohio state line, which has reduced the distance by which this extended line of canal can be united to the Ohio canal, through the Mahoning valley, to about 85 miles. The State of Pennsylvania have declared themselves ready, at any time, to construct the canal to the Ohio line; leaving for the State of Ohio about 76 or 77 miles over a route ascertained to be eminently favorable. This junction canal joins the

Ohio canal at Akron, a very flourishing town at the Portage summit, possessing an immense water power, and destined to be an important town.

This subject is now before the Ohio Legislature, and my attention has been called to it at this time, by meeting with an able report from the Hon. Leicester King, chairman of a committee of the senate of that State, recommending the immediate construction of this important work. The committee quote from a recent report of the canal commissioners of Pennsylvania, in which it is observed, "That a cross cut canal, from Akron, on the Ohio Canal, along the valley of the Mahoning to the Pennsylvania canal, would, in the opinion of the canal commissioners, be highly beneficial to both States. It would open a direct, safe, cheap, and expeditious channel for the citizens of Ohio to send their agricultural productions to a market on the sea-board, and enable them, in return, to receive merchandise from the East. It would, by the additional commerce thrown upon the Pennsylvania and Ohio canals, give activity to trade, employment to capital, and business to merchants, traders, and boatmen; and, consequently, it would stimulate and promote the great primary interests of agriculture. Punctuality is said to be the life of business; but to be punctual to engagements requires certainty in the means by which those engagements are to be fulfilled.

"Therefore, in a contest for the rich trade of the West and North-West, we should, if possible, avoid all risks and delays, and consequently broken voyages, that may arise from either flood or low water, by having a continuous canal, from the Allegheny mountains to Lake Erie, and the Ohio river, below its principal obstructions."

The committee also remark, that the proposed canal "will shorten the distance from the point of its intersection with the Ohio canal to Philadelphia, from what it now is to New-York by the Lake and New-York canal, about two hundred miles—save the expense of a double transshipment—avoid the danger and delay of the Lake navigation—lessen the time consumed in the transmission of goods and produce from one extreme point to the other, and render it certain,—all objects of great importance in mercantile operations."

And, again, in closing their report, they observe, "When we take into view the extensive improvements which are rapidly progressing, and in contemplation, in the western part of this State and Indiana, and consider the immense amount of the productions of that vast region of country, which must accumulate during the winter season, to seek an early eastern market through those avenues in the spring, it must be the height of folly to suppose that it would await the opening of the harbor at Buffalo, when it could take this shorter, safer, and more expeditious route to the sea-board, at least five weeks earlier. Nor can they discover any good reason why it should not be preferred at all seasons of the year."

There can be little doubt that the Legislature of Ohio will order the construction of this canal, and there is nothing that presents more forcibly to the mind the importance to the city and state of New-York of those counteracting and great public works now before the Legislature, than the facts and reasoning of this report: showing not only that the business of Ohio would seek by this route the Philadelphia market, but that a large portion of the entire western trade would find the same channel. It is

manifestly for the interest of the State of New-York, before this immense trade shall have sought for itself other channels, to construct such works as will continue and extend this business through the State to its great commercial mart. And there are no more ready or obvious modes than by the railroad to Lake Erie, through the southern tier of counties—the Olean canal and the ship canal: objects, to the promotion of which, with such prudent foresight and laudable zeal, you have directed so much of your attention.

R. A. J.

The following Report was made by Wm. R. HOPKINS, Esq. to the Canal Commissioners of Canada. It is another evidence of their determination to share with us the business which now flows to this city.

To the Commissioners for improving the Navigation of the River Richelieu.

GENTLEMEN,—Having been requested by you to give my opinion as to the best manner of improving the navigation of the River Richelieu, I have to state—

That I see no other method of improvement besides the three mentioned by Mr. Fleming, that is worthy of your attention; and, in my opinion, you can only choose between the three following plans:

First—To dredge out the channel where it is too shallow, and to put two jetties into the River at St. Denis.

Second—To cut a new channel past St. Denis, as proposed by Mr. Fleming, and to lower the shoals in other parts of the channel.

Third—To put in a dam, with a lock, in some part of the river, and by it to raise the water above all but the very highest obstructions, which are to be lowered by dredging.

I shall proceed to give my views of all these plans, requesting your honorable board to bear in mind, that I depend on the correctness of the maps and levels that have been shown me.

Nothing need be said of other parts of the river besides the shoals near St. Denis; when these are improved, the other obstructions can easily be taken away, or got over by dredging, and by the dam, if one is put up.

I will consider, First—The plan of Mr. Kuper to deepen the channel, and to erect jetties.

To deepen the channel only, would do very well; but I think it would be a tedious and expensive work.

The jetties are different; they are of no use; dangerous, (in point of stability,) and detrimental in their operation. When they are short, they change the current of the river, and cause it to wear the bottom and the banks; they will probably undermine at their outer ends, and be torn away, and by these means partly remedy the evils they have occasioned. When they are long, and occupy most of the width of the river, they will raise a head of water, and act as a dam; but, from having a space left open in the river bed, they will be less secure than a dam, although equally expensive, for when ice is passing in the river, it will crowd with the water into this opening, and will act with great force against the point of the work. From this danger, a dam is exempt.

The plan next in order, is that of Mr. Fleming—No. 2.

This plan is sensible, and easy of execution; and will be, as I think, an effectual improvement.

A canal from the head of the shoal near St. Antoine, to deep water below St. Denis, along the west shore of the river, can have no objection made to it, that will have much weight. I think the following plan rather better, but there is little difference in the plans.

It is objected, that mud from the land drains will fill this cut, but I do not think so; the current will keep it clear in all probability, and the mud that does not go away with the current, can easily be removed with scrapers, before it accumulates to any serious extent.

The last plan is that of a dam and lock—No. 3.

This plan is, I think, the best, all things considered, for two reasons:

1st. It will improve the whole width of the river, more or less.

2d. It is the cheapest mode of effectually improving the river.

As to the place for the dam and lock, I choose the island marked B, on the map, as the best. Here the water is shallowest, making it the least expensive point to erect a dam upon; and as the river divides into two branches, one of which can be shut by a bank of earth, the dam need not be very long.

As the Commissioners have prepared materials, and began works here, it will save cost to continue the works at this point.

Mr. Fleming objects to a dam,—

1st. That it will raise the water and injure the river bank.

2d. That deposits will form in the pool of the dam.

3d. That dams are insecure.

As to the first objection, it will have little weight. It is only proposed to raise the water two feet by the dam, in any, except very low water, when float boards are on the dam to raise two feet more water.

For the greater part of the last five years, the water has been as high as it would have been during the five years before that, had the dam then been in. Yet it does not seem that the banks have fallen rapidly of late years. A dam in high water produces much less effect than it does in low water; for when the water is high, it passes a low dam as it would a shoal in the river bed, without a great break in the current.

As to the second objection,—

The deposit cannot be serious, or it would before this have begun to form mud islands, as there is dead water enough now in the river for them to make in, was there any tendency in this way.

As to the third objection,—

Dams are certainly more exposed to accident than any other works within the range of civil engineering. But with proper care in their construction, they need not fail, when not too high; and four feet is a very low dam.

Manner of locating the work.

I would recommend a bank of earth to be carried from the island marked B on the map, to the east shore of the river. (As Mr. Kuper has begun a work there, we may as well follow his line.) This bank must be fifteen feet wide on top, to slope two and a half feet to one horizontal on both sides. The upper side must be protected well with a slope wall.

This bank must be carried from shore to shore, and its top must be two feet above high water mark. This stops the east channel.

The west channel is to be shut by a dam formed of crib work, filled with stone, and

well sheet pited; the top must be covered with four inch plank, on which eyes must be secured, to which the irons of the float boards are to be attached; an apron is to be made below the dam, and all the work done according to the specification and plan forming a part of this Report.

The ends of the dam are to be well secured with abutments of cut stone.

The place for the lock I cannot now permanently fix. I must examine further, if I am to decide this point. By the maps, the place most suitable is on the east side of the island, marked B on the map. I would deepen the water, that boats might pass freely from deep water above the dam to deep water below it, a distance of about the half of a mile. This can be no very serious affair.

The lock will be two hundred feet in the chamber, by fifty feet wide between the gates. It is unnecessary, in a lock like this, to go to all the expense that would be incurred if the lift were greater. I therefore propose to make the lock with cut stone work around the gates only, leaving the chamber walled only with rough stone, laid dry, which will form a very permanent and cheap work.

In the plans I have the honor to submit, and in the above Report, I have meant to lay before you the means of forming a permanent work, and one that will properly connect the waters of the St. Lawrence with the Basin of Chambly, that can be speedily made, and that will need few repairs.

I am, gentlemen, truly, your most obedient humble servant,

WM. R. HOPKINS,
Civil Engineer.

RAILROAD MEETING.—At a numerous and respectable meeting of the inhabitants of the town of Monroe, friendly to the construction of the contemplated New-York and Erie Railroad, convened pursuant to previous notice, at the house of De Witt McGarragh, on the 17th day of January, Joseph R. Andrews was appointed President, Lewis H. Roe, 1st Vice President, James Cromwell, 2d Vice President, and Matthew B. Sweeney, and Jas. Gray, Jr. Secretaries. On motion, the object of the meeting having been stated, it was

Resolved, That E. B. Carpenter, Hudson McFarlan, Genest Roe, Peter Ball, and John Seaman, together with the officers of the meeting, constitute a committee to prepare a memorial to the legislature, and to draft resolutions expressive of the sense of this meeting; who reported the following preamble and resolutions, which were unanimously adopted.

Whereas, the contemplated New-York and Erie Railroad is destined, by its construction, to make a speedy communication between the City of New-York and Lake Erie, and to enlarge the commercial business of that city, by bringing to its market a great portion of the products of the adjoining western States, and which will open a great thoroughfare through the southern tier of counties of this state, now secluded by their local situation from the benefits of a ready market, and not possessing the advantages given by nature or art to most of their sister counties, and whereas we highly approve of the system of Internal Improvement adopted and pursued by the State of New-York, for many years past, which has so much exalted the character of the State, and developed the enterprise and liberality of our citizens, and secured to the present as well as future

generations many important and lasting benefits,—therefore

Resolved, That we highly approve of the contemplated Railroad from Lake Erie to the City of New-York, and that we believe the inhabitants of the respective counties through which it is to pass have just and equitable claims on the liberality and patronage of the State for aid to carry the same into effect.

Resolved, That this meeting approve of the proceedings of the meeting held at Bath, Steuben County, on the 17th of December last, and that we will memorialize the Legislature agreeably to their recommendation.

Resolved, That the representatives in the Legislature from this county be requested to use their exertions to procure the passage of a law authorising subscriptions on the part of the State, of two millions of dollars of stock, or loan their credit to that amount.

Resolved, That it be recommended to the different towns in this county to hold meetings and circulate memorials to be presented to the Legislature, praying for aid agreeably to the recommendation of the Bath convention.

Resolved, That the following persons constitute a committee to circulate memorials for signatures in this town: Hudson McFarlan, E. B. Carpenter, John Seaman, Jas. Ball, Jas. Gray, Jr. Mills, Hughes, T. G. Wilkes, Joseph M. Shuit, Peter Turner, and Samuel Hughes.

Resolved, That the proceedings of this meeting be signed by the officers thereof, and published in the county papers, and Railroad Journal, in the city of New-York.

JOSEPH R. ANDREWS, President.
LEWIS H. ROE, 1st Vice President.
JAS. CROMWELL, 2d do.
MATTHEW B. SWEENEY, } Sec'y's.
JAS. GRAY, Jr.

The Legislature of Louisiana convened on the 5th. Charles Derbigny was elected President of the Senate, having received all the votes except one blank, Alcee Labrousse was unanimously re-elected Speaker of the House. On the 6th, Edward D. White was elected Governor of the State, having received 58 votes,—the whole number except three blanks. Gen. Dawson had declined being considered a candidate.

It appears from the Message of Governor Roman, that the receipts into the State Treasury during the past year, amounted \$582,254; expenditures \$500,867. The value of exports from Louisiana in 1834 amounted to the extraordinary sum of \$35,819,185; which is almost double the value of exports from the whole United States in 1760. The exports in 1835 the Governor estimates at about \$40,000,000, including 500,000 bales of cotton, 100,000 hhds of sugar, and 25,000 hhds of tobacco.

He warmly recommends the system of internal improvements throughout the State, and particularly the contemplated Rail Road from New Orleans to Natchez.

He also strongly recommends (says the New Orleans Bulletin,) that the warehouse system be adopted in New Orleans as in New York; for its advantages are many and certain.

The exports hence to Mexico are valued at nearly \$3,000,000 a year, and the imports at \$6,000,000.

The epidemical sickness of this city, (New Orleans) he attributes to the malaria from the swamp between this place and Lake Ponchartrain, and warmly urges the Assembly to adopt means for draining it.

He thinks that by removing the obstructions on the Alchatalya, the lands on the confines of that river will be increased one million dollars in value; and that Louisiana should not be so public spirited or squeamish as to hesitate longer to ask grants of lands from Congress, as well as other States.

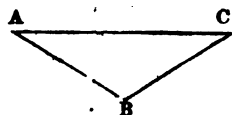
[From the Journal of the Franklin Institute.]

Report to the Board of Directors of the London and Birmingham Railway, on the Formation of a Railway by Undulatory Planes. By ROBERT STEPHENSON, Esq., Engineer. Dated 5th May, 1834.*

Since the receipt of the memorial to the directors, respecting the formation of railways by undulatory planes, I need scarcely say that I have been so closely occupied, that I found it impossible to reconsider, carefully, the opinions I had formed on the subject several months ago, founded upon some experiments in "The Gallery of Practical Science," with a model prepared by Mr. Badnall. These experiments were considered by several persons conclusive in favor of an undulatory surface for a line of railway.

I drew a different conclusion from them, and made some remarks and calculations at the time, which I considered fully confirmed it. Since that time, I have read the greater part of the controversy, which has been carried on in the "Mechanics' Magazine," and paid especial attention to the experiments made upon the Rainhill plane, with several of the locomotive engines belonging to the Liverpool and Manchester Railway Company, without perceiving any reasons for changing the view I originally took.

The following observations are extracted from those above alluded to, as far as appears necessary for explaining the outline of the arguments upon which I had based my views:



A C, a horizontal plane.

A B, and B C, two inclined planes completing one undulation.

A carriage, in moving over the inclined plane, may be conceived to be acted upon by three forces, viz.

First.—Gravity, varying directly as the sine of the angle of inclination.

Secondly.—Mechanical force, such as a steam-engine, or a spring.

Thirdly.—The uniform retarding force, arising from the friction of the moving parts.

Let n = sine of angle of inclination.

g = force of gravity.

m = mechanical force applied.

f = retarding force arising from friction.

Then the force resulting from the combined action of these three, will be represented by $ng + m - f - (m - f)$; it is evident that the motion of the body is influenced solely by the remaining force ng , and is precisely in the same condition as if friction were annihilated.

In this case, it is evident that the body descending the plane A B, would acquire sufficient momentum to carry it up to the similar plane B C; and were there a series of similar undulations, the body would move

forward without interruption, and the velocities in each succeeding undulation would be the same, and the expenditure of mechanical power would be the space passed over, multiplied into the retarding force = $s m$, or $s f$, s being the space passed over.

Instead of moving on an undulating surface, let the body be now placed on the horizontal plane A C; its motion in this condition can be influenced by two forces only, viz. the mechanical force m , and the retarding force f . If we suppose, therefore, $m = f$, it is obvious that no motion whatever can take place.

At this point of the comparison, a striking difference, and apparently not an unimportant one, exists between the undulatory and horizontal surfaces. In the former, gravity communicates a certain velocity, which is maintained throughout each succeeding undulation; whereas, in the latter, the forces m and f merely destroy each other; consequently the body remains stationary.

This explains the experiment which was frequently repeated, and in many cases went far to convince several persons of the advantage of having an undulatory surface. Very little reflection, however, is requisite to perceive that this advantage is merely apparent, and not real: for let us suppose that the body at A, on the horizontal plane, has the mean velocity given to it, which gravity imparts to the body moving down the first inclined plane of the undulatory surface; it will then move uniformly with this velocity from A to C, and arrive at the latter point at the same time that it would have done on the undulatory line; and however the length may be increased, the body will pass over the distances corresponding to each undulation in the same space of time, whether the surface be undulatory or horizontal.

Let p = power expended in communicating any given velocity to the body on the horizontal surface at A; then the whole power expended in moving the body from A to C, will be $p + sm$, or $p + sf$.

But when the body arrives at C, it retains its original velocity, and is capable of employing its power, or of moving itself beyond C; whereas, on the undulating surface, the body becomes quite stationary at C. In short, it is a well known law in mechanics, that the velocity which the body possesses, is exactly equal to the power expended in communicating it; we therefore have the absolute expenditure of power in moving the body from A to C = sm or sf , which is precisely the same result as on the undulating surface.

Hitherto we have the forces m and f equal, by which the friction, or retarding force, was merely neutralized; but in practice, m must exceed f , otherwise no motion could ensue on the level plane. When, therefore, m is greater than f , the body will be accelerated by the differences of those forces, viz. $m - f = d$; in this case the motion of the body on the undulatory surface is influenced by a force represented by $ng + d$.

If v and v'' represent the velocities generated by the forces ng and d , in the same

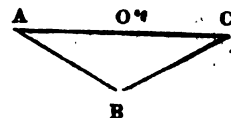
time, then $v + v''$ will represent the velocity which the joint forces will generate in an equal space of time. But the velocity given by the force ng , in descending, is lost in ascending; hence, the body will arrive at the summit of each undulation, with the velocity due to the action of the force d , which is $\sqrt{2ds}$.

Now, the velocity acquired by the action of the force d on the level plane, the body having moved over an equal space, is also $\sqrt{2ds}$; and this equality in velocity must hold, whatever be the nature of the surface over which the bodies move, undulatory or level.

If the body were actually propelled by the force d , more efficiently on the one surface than on the other, it must arrive at the point C, with different velocities. The readiest mode of showing that this is not the case, is to allow it to expend the momentum by moving along a horizontal plane, or one of a given inclination; in both cases, the momentum is precisely equal. This experiment I repeated several times, and felt perfectly convinced that the results were exactly determined.

It has been urged by some that the undulatory surface has an advantage from the friction being reduced, in consequence of the body being on an inclined surface. A moment's consideration will show that this never can apply in practice, from the smallness of the inclination which is admissible; the reduction in the friction from this cause would be inappreciable.

But even allowing it to operate, the undulating surface is increased in length by a quantity that exactly compensates for the reduction in the friction of the carriage.



Because the diminution of friction is proportioned to the diminution of weight, which is as A B, A O, but the spaces passed over are as A C: A B + B C, or as A O: A B, exactly the reverse of the former proportion; showing, that though the friction may be reduced on the inclined plane, the distance is increased precisely in a ratio to compensate it.

The above considerations lead me to conclude that, theoretically, there is neither advantage nor disadvantage in the use of an undulating surface for a line of railway; the question, therefore, resolves itself into one of practical application. This I have frequently and carefully considered, and, generally, with a strong bias in favor of Mr. Badnall's view, because I saw clearly that its introduction would at least reduce the expense of constructing public lines of railway; but I have invariably been compelled to conclude that its adoption would be attended with greater expense in the carriage, greater uncertainty in the operation, in many cases greater inconvenience, and in all greater risks of accidents, than in a horizontal line of railway, or one approaching to it as nearly as circumstances would permit.

Greater ultimate expense, I conceive,

* We have received from Mr. Stephenson, in addition to the manuscript now printed, one containing remarks and calculations on the best form for railway bars, &c., the publication of which we propose to commence in the next number.

would arise in part from the additional wear and tear both upon carriages and engines, from the varying velocities which must be continually taking place throughout the whole length of the line of road.

This objection is considered by many of no weight; I need only refer, however, to practical men, who have been in the habit of observing the destruction of machinery where varying velocities are admitted; indeed, I cannot refer to a better instance than Rainhill and Sutton inclined planes, where the objectionable nature of inclined planes is evident to all conversant with machinery, and from whence (it is probably not too much to say) a very large portion of the wear and tear of the locomotive engines on the Liverpool and Manchester Railway has sprung.

The engines on an undulating line must obviously, at the bottom of each undulation, attain a velocity considerably greater than what is required upon a horizontal line, where it may be nearly uniform.

Now, in locomotive engines, this single circumstance gives rise to three separate objections, neither of which is undeserving of attention, and which are distinct from that of wear and tear arising simply out of velocity.

First.—In the construction of these machines, it is a consideration of the very first importance, to proportion and adapt the relative speeds of the different parts to the velocity at which the engines are intended to travel; and though I am perfectly aware that these engines are worked at different rates of speed, I have seen sufficient to convince me that uniformity in the velocities is extremely desirable, and that they never perform so economically as when the intended velocity is adhered to within very narrow limits, which is quite impracticable on an undulating road.

Secondly.—When the velocity of these engines exceeds that for which they are calculated, the steam acts less forcibly on the pistons, and thus produces an absolute loss of power, or, in other words, an increased consumption of fuel.

Thirdly.—From the present construction of locomotive engines, every different speed of travelling is accompanied with a corresponding increase or diminution of the temperature of the fire, which occasions a continual working amongst the different parts of the boiler, from unequal expansion and contraction, which never fails in a short time to render the boiler more or less leaky.

Every experienced steam-engine builder has had instances brought under his observation, of the destruction of boilers by being exposed to great variations of temperature. In all railways, except such as are perfectly horizontal, this objection applies with more or less force. I therefore only mention it in this place, to show the tendency of the undulating railway would be to aggravate the evil arising from great inequalities in the temperature.

These are my principal reasons for concluding that the expense of carriage would be greater on an undulated line, and the same remarks appear to me to lead to the conclusion, that there would be greater uncertainty in the operation.

Inconvenience would, in my opinion, result from not having the power to halt at any given point on the line of railway. This may be done without inconvenience, on a line of road not possessing inclinations beyond the power of the engines; but where the inclinations of the planes exceed that power, it is clear that some expedient must be contrived to overcome the delay that must ensue. I have only heard of one, which I cannot suppose to have been advanced seriously. I allude to the proposal that an engine, when stopped by any chance on an inclination beyond its power, should be worked backwards and forwards until sufficient momentum be acquired for surmounting the next summit.

This is an operation not only of time, but in many cases would be imminently dangerous, and could not fail to be a continual source of annoyance.

When it is stated that the risk of accident would be increased, it must not be inferred that increase of speed is attended with greater frequency of accident, but rather that such mishaps are likely to be more extensive and serious when they do occur.

I now come to consider more immediately the chief object of the memorial which has been laid before the directors, viz. The expediency of making an experiment on the London and Birmingham Railway, extending over a distance of eight or ten miles, as suggested by Dr. Lardner and Dr. Dalton.

In recommending the directors to make such an experiment, those gentlemen have evidently been influenced by the statement in the memorial, that it would not cost over £500, and that the experiment, should it fail, would be productive of no detriment to the Railway Company.

I have thoroughly considered the expense of such an experiment, and also the probable inconvenience that would arise out of its failure, and supposing the latter result, I am satisfied it could not cost the Railway Company less than £8,000 or £10,000; and this sum may be made to appear without taking into the account many contingencies that would necessarily attend such a circumstance.

The ballasting and laying the rails alone costs from £800 to £1,000 per mile, and this charge must unquestionably be incurred in merely transforming the undulated surface to an uniform one. The embankments would require to be brought to a higher, and excavations to a lower, level; thus interfering with the whole of the bridges, over and under the railway.

In short, you could only prepare for the contingency of a failure, by erecting temporary bridges over the railway, throughout the ten miles, until the utility of the scheme had been determined.

These, and other considerations, connected with the detail of executing the railway, which it would be superfluous to enter into here, and which it would be impossible to render intelligible in a report like the present, fully convince me that it would be at least rash to advise an expensive experiment on the London and Birmingham Railway, which, in any event, could only save a very small sum in the original expenditure.

ture, with the possibility of your not succeeding to your expectations; thus producing a result fraught with mischief to the undertaking generally.

I feel it, however, due to Mr. Badnall, to state that I consider a trial upon some branch road might be made with advantage, as the adoption of his ideas would certainly be productive, in many cases, of considerable saving in the first cost, which, in some branch roads, is of paramount importance.

I must, however, again repeat, that no saving of power could be by any possibility effected.

ROBERT STEPHENSON.

GREAT BLAST AT CRAIGLEITH QUARRY.—

The long time in which preparations for a great explosion at this quarry have been going on, and the effects that were expected to result from the experiment, by a great saving of labor and expense, in at once dislodging a great mass of rock, and also lessening, if not altogether removing, the risk which attends the blowing up of small portions of rock from the flying fragments, rendered the experiment which took place on Saturday se'ennight, (18th Oct. 1834,) a subject of much interest both in a public and scientific point of view. It having been intimated by bills that the blast was to take place at three o'clock, long before that hour crowds of people were proceeding along the roads leading to the quarry, and by three o'clock every place which commanded a view of the spot was filled with spectators. At the time when the explosion took place, there was no fewer than ten thousand people on the grounds around the quarry; and curiosity was so much excited, that even on the Castle-hill, and also on the Corstorphine hill, a great many people were collected. At half-past two o'clock, the conductor, enclosed in a block-tin tube, 26 feet long, and half-inch diameter, was introduced into the bore. The depth of the bore was 60 feet, and 7½ inches diameter at top, and 6 at the bottom, and was charged with 500 lb. of Sir Henry Bridge's double-strong blasting powder. At half-past three the match was lighted, and in three minutes the explosion took place. The report was not so loud as from a small piece of ordnance; but the effect that was produced was highly satisfactory to all the scientific gentlemen present, and completely fulfilled the expectations that had been conceived by the projector. At the moment of explosion, the great mass of rock appeared to those at a short distance to be forced upwards, and then to rend in large and deep fissures. It is calculated that upwards of 20,000 tons of solid rock have been displaced by this experiment. The plan seems to be perfectly safe and practicable, and, we understand, was conducted and carried through by Mr. Millar, who, in 1824, after the great fire in the Parliament Close, suggested and carried into effect the blowing up of the gable of the high land which overlooked the Cow-gate. Among the scientific gentlemen who were present, we observed Mr. Jardine, Mr. Playfair, Professor Wallace, Professor Forbes, Mr. Stevenson, Mr. Buchanan, and Mr. Grainger. —[Edinburgh Observer.]

Without female society, it has been justly said, that the beginning of men's lives would be helpless, the middle without pleasure, and the end without comfort.

He who has found a friend in whom he can unreservedly confide, may consider himself as distinguishedly blessed; for a true friend is the greatest of all possible acquisitions.

☞ This number of the Journal has been delayed two days for the purpose of publishing the report of the survey of the New-York and Erie railroad.

☞ We again request subscribers, who desire to perfect their volumes, by supplying *lost numbers*, to forward a list, with their subscription for Volume 4th. Some of our surplus and loose numbers are growing short. "First come first served," with us, as with most others, especially when the payment is *in advance*. No charge is made for supplying a few lost numbers, if they can be furnished without breaking a set; those who wish them must not delay.

"Our favorite Atlantic city," in the subjoined article, is, we need hardly say, the busy bustling thriving city of New York.

Internal Commerce.—A convention composed of proprietors and agents of all the Tow Boats upon the Hudson River, of each line of boats upon the Erie Canal, of all the vessels and Steamboats upon Lake Erie, and of all the lines of boats upon the Ohio Canal, which collectively form the great chain of transportation from the city of New York to the Ohio River, has just closed its labors in this city, after an active session of nearly a week. During this session such explanations and concessions have been mutually made as will result in materially reducing the rates of transportation, particularly on property passing the Ohio Canal. On such property the arrangements are such as will meet the views of the Commissioners of the Ohio Canal, and, it is believed, secure the immense trade which must flow to and from the vast valley of the Ohio, to our favorite Atlantic city.

We view this convention as one in connexion with the progress of internal commerce, and its effects upon the Western Empire as of more consequence than any which has gone before it, for any similar purpose, since the commencement of the Erie Canal. Its doings may be taken as a sure presage that, for the future, in whatever measures the eastern members of our commonwealth may propose to promote the general prosperity, they will always be promptly met by the generous and enlightened liberality of the west.

We are fully informed that there has probably seldom been a convention of individuals whose separate interests have apparently been so various, and who have heretofore been so tenaciously jealous of each other, having passed a week in discussion, and finally separating in such perfect harmony, and unity of views. The convention embraced a mass of intelligence connected with the West, its prospects, and its present and future welfare, which, on no former occasion, has been assembled.—[Buffalo Whig.]

CANAL TOLLS.—The Canal Board met yesterday at the Comptroller's office, and agreed upon the rates of toll to be charged upon the New York canals for the year 1835. The rates generally have not been altered. On boards, plank, scantling, sawed timber, &c., there has been a reduction from 8 mills to 5 mills per 1000 feet per mile; and the rates on mahogany boards are fixed at 15 mills per 1000 feet per mile, instead of paying merchandise toll. Some other trifling alterations have been made. The rates as adopted will be published in a few days.—[Alb. Arg.]

The gentlemen concerned in the Railroad Line between this city and New York, deserve all praise and encouragement for the facility, safety and convenience with which passengers are transported in despite of the weather. The advantage of this mode of conveyance can be fully appreciated at this season of the year, when, instead of being obliged to ride all night in a mail-stage, as has heretofore been the case in the winter, the travellers to New York journey thither as quickly and easily as in summer.—[Nat. Gazette]

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

☞ RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad, now in operation. J35 tf

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

☞ Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 18-1 y

RAILWAY IRON.

☞ Ninety-five tons of 1 inch by 1 inch, Flat Bars in 18th of 1840 15
300 do. 1 1/2 do. do. 18 con's sunk
60 do. 1 1/2 do. do. holes end cut
800 do. 2 do. do. at an angle of
800 do. 2 1/2 do. do. 45 deg's with
soon expected. splicing plate,
nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars; and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mewr

MILL DAM FOUNDRY FOR SALE.

☞ The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 30 feet by 20, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 180 feet by 45, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathea, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 18 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 60 feet by 45, with a superior air Furnace and two Cupolas, Coxe oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Gears, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 35, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 300 feet long by 35, containing counting room, several store rooms, Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to

THOMAS ECKLEY, Treasr., &c., Boston, or to ROBERT RALSTON, Jr., Philadelphia.

Boston, Dec. 20, 1834.

RAILROAD CARS,

Messrs. D. & J. MITCHELL, Soligee Foundry, Hollidaysburgh, Huntingdon county, Pennsylvania, are now prepared to manufacture, at short notice, any number of Railroad Cars—in the most approved and economical manner. J34 24 t

☞ TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Duffee, May & Co. offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. E. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, January 20, 1835.

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maidenlane. J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in Principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy; also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1835.

In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLE, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germanstown, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

ml 1 y

German. and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT NO. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, FEBRUARY 7, 1835.

[VOLUME IV.—No. 5.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, FEBRUARY 7, 1835.

ATLANTIC AND NEW ORLEANS SEABOARD LINE COMPANY.—We had occasion, during the last summer, to refer to this new, contemplated, route to New-Orleans, (see vol. iii., No. 31, Aug. 9, of this Journal)—and, from the information then before us, were disposed to think favorably of it. Some time after, and during a long absence of the Editor in the country, a communication, signed "Civis," was received, in which doubts were expressed as to the feasibility of the route. This communication, which we now publish, (see page 66,) was mislaid, and only recently came to light. We also publish in this number, several other articles relating to the route, with one or two short extracts from the charter of the company, and ask attention to the subject, as it is one in which many of our citizens are much interested.

Books are, we understand, to be opened in this city for subscriptions to the stock, of which the customary notice, we presume, will be given.

NEW-YORK AND ERIE RAILROAD.—On the 4th instant, an election took place to fill vacancies in the Board of Directors, after which Mr. JAMES G. KING was elected President in the place of Mr. ELIAH LORD, who resigned the office. The following gentlemen now compose the Board of Directors, and they will, we are sure, give character, and ensure success, to the undertaking.

James G. King, John Duer, Gould Hoyt, James Beerman, S. B. Ruggles, Stephen Whitney, P.

G. Stuyvesant, George D. Wickham, Eleazar Lord, Peter Harmony, John G. Coster, Michael Burnham, Elihu Townsend, John Raibbone, jun., J. G. Pearson, Jeremiah H. Pierson, Joshua Whitney.

On the last page may be found an account of the proceedings of the Board at their last meeting.

AUBURN AND SYRACUSE RAILROAD.—The following gentlemen were, on the 29th Jun., chosen by the stockholders, directors of this company. They hold their office until the first Monday of June, 1836:

Nathaniel Garrow, Elijah Miller, Geo. B. Throop, John M. Sherwood, Stephen Van Anden, Richard Steele, John Seymour, Abijah Fitch, Edward E. Marvin, Asaph D. Leonard, Vivus W. Smith, Henry Raynor, and Allen Warden.—[Syracuse Constitutionalist.]

IMPORTANT TO MERCHANTS AND TRAVELLERS.—The Pittsburg Advocate of Thursday last, contains an advertisement, from which we learn that some enterprising gentlemen of that city have determined to establish a daily line of steamboats between Pittsburg and Louisville! Thirteen steamboats will be attached to the line, which will commence regular trips on the 23d of February. A boat will leave Pittsburg daily, at 10 o'clock A. M., Wheeling at 10, P. M., and Cincinnati at 5, P. M. touching, as far as is practicable, at intermediate places, at regular hours.

[From the Albany Argus.]

AMOUNT OF TAXABLE PROPERTY IN THE STATE, AND THE AMOUNT PAID FROM THE GENERAL FUND TO THE CANAL FUND.—We copy the following statement taken from a report made to the Senate by the Comptroller, on Saturday, in answer to a resolution of that body:

"The taxable value of the real and personal estates of the people of this State, as ascertained by the assessments for the year 1834, is as follows, viz:

Real estate,	\$345,463,230
Personal estate,	107,599,971

Total, \$453,063,201

"The statement marked B. exhibits the amount of capital stock of all the corporations in the State liable to taxation, and the real estate held by each; arranged under the heads of the several counties in which the corporations are situated.

"There may be corporations in the State liable to taxation, which are not included in this list,

although great pains have been taken for the last year to obtain returns from all existing corporations. One, and to get information in relation to those which had become extinct. To effect this object, a list was made out in 1833, of every corporation found in the session-laws from 1791 to 1833, a period of 42 years, and circulars were sent to such as had not made to this office the annual returns required by the 3d sec. p. 415, 1 R. S. The list made out contains nearly one thousand incorporations of every description. The number of those now in existence and liable to taxation, as given in the statement marked B., is two hundred and fifty-one. There are a great number of turnpike, manufacturing and other companies in operation in the State which are not embodied in the list reported, for the reason that their dividends are not such as to make them taxable; and a great number of the corporations originally granted have become extinct.

"The capital of all the corporations in the State liable to taxation, amounts

to	\$52,998,919 81
"The amount of stock held by the State, or literary or charitable institutions, amounts to the sum of	632,598 00

"Leaving a total amount of stock and real estate liable to taxation, in all the incorporated companies in the State, of

\$52,366,391 81
"The total amount of real estate held by all the corporations which are liable to taxation, is \$3,882,857 78, which sum is embraced in the total of taxable capital as stated above.

"The taxable property of the State may be classed as follows, viz:

Real estate owned by corporations,	\$3,882,857 78
Amount of stock for which corporations are taxed,	48,483,534 03
	\$52,366,391 81

Real estate other than that owned by corporations, 341,320,372 22

Personal estate other than that assessed to corporations,	59,116,486 97
	400,836,859 19

Total, as shown above, 453,063,201 00

"The amount of the contributions from the general fund to the Erie and Champlain canal fund, from 1816 to 1834, are as follows, viz:

Vendue duty,	\$9,193,201 61
Salt duty,	1,872,289 06
Avails of land sales, (Grand Isl. and, &c.)	63,543 00
Appropriations from Treasury,	48,957 00

Total, \$5,172,630 12

RAILROAD CONVENTION.—We annex the proceedings of a Railroad Convention held at White Pigeon, M. T. on the 6th of January, 1835, and hope to learn that their application to the War Department for a survey of the route proves successful.

At a meeting of the Railroad Convention, convened at the house of Dr. Rowley, in White Pigeon, on Tuesday, the 6th inst., for the purpose of devising means for uniting Lakes Erie and Michigan by a Railroad, Neil M'Gaffey, was appointed Chairman, and Joseph L. Jernegan, Secretary.

The following named gentlemen appeared and took their seats as Delegates:

From White Pigeon, Neal M'Gaffey, Isaac Adams, Robert Clark, Jr. Mr. Judson, David Glark, Charles Kellogg, and H. Loomis.

From Constantine, W. T. House, and E. P. Clarke.

From Mottville, H. L. Stewart, and Elias Taylor.

From Michigan City, Ia., William Teall, and David Sprague.

From St. Joseph county, Ia., G. W. Fowler.

From Goshen, Ia., Joseph L. Jernegan, James R. M'Cord, and John D. Defrees.

From Elkhart, Ia., George Crawford, William A. Nelson, and P. S. Kenyon.

From Perrysburgh, Ohio, Willard V. Way, and Abion N. Olney.

From Lagrange Co. Ia., C. C. Ward, E. Littlefield, and T. Gale.

From Toledo, M. T., Stephen B. Comstock, and Andrew Palmer.

From Bristol, Ia., L. M. Alverson.

The object of the Convention having been explained, it was, on motion,

Resolved, That the importance of a railroad from the navigable waters of Maumee river to the south end of Michigan lake, demands a vigorous effort on the part of those residing in the vicinity of the route.

Resolved, That a committee of five be appointed by the Chairman to draft a memorial to Congress expressive of the views of this Convention, and praying for the survey of the route contemplated by the last resolution.

Resolved, That we view with pleasure the efforts making in New-York to connect the city of New-York with Lake Erie by a Railroad, and that we consider it of great National importance, that a continued road should be made on the shore of Lake Erie, to connect with the contemplated road from the navigable waters of Maumee river to the southern extreme of Lake Michigan.

Resolved, That this Convention solicits the co-operation in this work, of the States of Ohio, Pennsylvania and New-York, and that we will use all suitable means to encourage its commencement and completion.

Resolved, That Philander Chase, Joseph L. Jernegan, and Neal M'Gaffey, be appointed a corresponding committee to communicate with the Secretary of War, and such other persons as may be able to afford assistance in the furtherance of the objects of this Convention.

Resolved, That the proceedings of this Convention be published in the Michigan Statesman, and in such other papers in the states of Ohio, Indiana and Illinois, as may be disposed to promote the objects of this Convention; and that a copy be forwarded to the delegate in Congress from M. T., and to those Representatives in Congress whose constituents are interested in the accomplishment of the work.

N. M'GAFFEY, Chairman.

JOB. L. JERNEGAN, Secretary.

Rates of Toll.

At a meeting of the Canal Board, at the Comptroller's office, in the city of Albany, on the 22d January, 1835, the following rates of toll were established, in lieu of the rates heretofore established by this Board.

No.	Provisions.	Cts. m. fr.
1.	On flour, salted beef and pork, butter and cheese, beer and cider, per 1000 pounds, per mile,	0 4 5
2.	On bran and ship stuffs in bulk, per 1000 pounds per mile,	0 4 5
<i>Iron, Minerals, Ores, &c.</i>		
3.	On salt manufactured in this state, per 1000 pounds per mile,	0 2 3
4.	On foreign salt, per 1000 pounds per mile,	3 0 0
5.	On gypsum, the product of this state, per 1000 pounds per mile,	0 2 5
6.	On brick, sand, lime, clay, earth, leached ashes, manure and iron ore, per 1000 pounds per mile,	0 2 5
7.	On pot and pearl ashes, kelp, mineral coal, charcoal, pig iron, broken castings and scrap iron, per 1000 pounds per mile,	0 4 5
8.	On stove and all other iron castings, going to or from tide water, per 1000 pounds per mile,	0 5 0
9.	On copperas and manganese, going towards tide water, per 1000 pounds per mile,	0 5 0
10.	On bar and pig lead, going towards tide water, per 1000 pounds per mile,	0 4 5
<i>Furs, Peltry, Skins, &c.</i>		
11.	On furs and peltry, except deer, buffalo and moose skins, per 1000 pounds per mile,	1 4 0
12.	On deer, buffalo and moose skins, per 1000 pounds per mile,	0 7 5
13.	On sheep skins and other raw hides of domestic animals of the United States, per 1000 pounds per mile,	0 4 5
14.	On imported raw hides of domestic and other animals, per 1000 pounds per mile,	0 9 0
<i>Furniture, &c.</i>		
15.	On household furniture, accompanied by, and actually belonging to, families emigrating, per 1000 pounds per mile,	0 4 5
16.	On carts, wagons, sleighs, ploughs and mechanics' tools, necessary for the owner's individual use, when accompanied by the owner, emigrating for the purpose of settlement, per 1000 pounds per mile,	0 4 5
<i>Stone, Slate, &c.</i>		
17.	On slate and tile for roofing, and stone ware, per 1000 pounds per mile,	0 5 0
18.	On all stone wrought, or unwrought, per 1000 pounds per mile,	0 2 5
<i>Lumber, Wood, &c.</i>		
19.	On timber, squared and round, per 100 cubic feet per mile, if carried in boats,	0 5 0
20.	On the same, if carried in rafts, per 100 cubic feet per mile,	1 5 0
21.	1st—On boards, plank, scantling, and sawed timber, reduced to inch measure, and all siding, lath, and other sawed stuff less than one inch thick, carried, in boats, (except such as is enumerated in regulations number 23 and 32,) per 1000 feet per mile,	0 5 0
22.	2d—On mahogany, (except veneering,) reduced to inch measure, per 1000 feet per mile,	1 5 0
23.	On the same, if transported in rafts, per 1000 feet per mile,	2 0 0
24.	On sawed lath of less than five feet in length, split lath, hoop poles, hand spikes, rowing oars and broom handles, per 1000 pounds per mile,	0 2 0

24.	On staves and heading, transported in boats, per 1000 pounds per mile,	0 2 0
25.	On the same, if transported in rafts, per 1000 pounds per mile,	0 5 0
26.	On shingles per M. per mile, carried in boats,	0 1 0
27.	On the same, if conveyed in rafts, per M. per mile,	0 4 0
28.	On split posts, and rails for fencing, per M. per mile, carried in boats,	2 0 0
29.	On the same, if conveyed in rafts, per M. per mile,	8 0 0
30.	On wood for fuel, (except such as may be used in the manufacture of salt, which shall be exempt from toll,) and tan bark, per cord per mile,	1 0 0
31.	On the same, if transported in rafts, per cord per mile,	2 0 0
32.	On sawed stuffs for window blinds, not exceeding one-fourth of an inch in thickness, per 1000 pounds per mile,	0 5 0

Agricultural Productions, &c.

33.	On cotton, per 1000 pounds per mile,	0 4 5
34.	On live cattle, sheep and hogs, per 1000 lbs. per mile,	0 5 0
35.	On horses, (and each horse when not weighed, to be computed at 900 pounds,) per 1000 pounds per mile,	0 5 0
36.	On rags, per 1000 pounds per mile,	8 4 5
37.	On hemp and tobacco, going towards tide water, per 1000 pounds per mile,	0 4 5
38.	On hemp, going from tide water, per 1000 pounds per mile,	0 4 5
39.	On wheat and all other agricultural productions of the U. States, not particularly specified, and not being merchandize, per 1000 pounds per mile,	0 4 5
40.	On merchandize,	0 9 0

Articles not enumerated.

41.	On all articles not enumerated or excepted, passing from tide water, per 1000 pounds per mile,	0 9 0
42.	On all articles not enumerated or excepted, passing towards tide water, per 1000 pounds per mile,	0 4 5

Boats and Passengers.

43.	On boats used chiefly for the transportation of persons and navigating the Erie Canal between Schoenectady and Utica, per mile,	11 0 0
44.	On boats used chiefly for the transportation of persons, and navigating the Erie Canal, west of Utica, per mile,	6 0 0
45.	On boats used chiefly for the transportation of persons, and navigating the Champlain or Champlain and Junction Canal, per mile,	6 0 0
46.	On boats used chiefly for the transportation of persons, and navigating the Oswego Canal, per mile,	6 0 0
47.	On boats used chiefly for the transportation of persons, and navigating the Cayuga and Seneca Canal, and the lateral canal to East Cayuga village, or either of them, per mile,	6 0 0
48.	On boats used chiefly for the transportation of persons navigating the Junction Canal, and not connected with regular lines of boats for the transportation of persons on the Erie or Champlain Canals, per mile,	50 0 0
49.	On boats used chiefly for the transportation of property, per mile,	2 0 0
50.	On each person over eight years of age, transported in a boat used chiefly for the transportation of persons, per mile,	0 2 0
51.	On each person over twelve years of age, transported in a boat used	

chiefly for the transportation of property, per mile, 0 2 0
Resolved, That articles of the manufacture of the United States, coming towards tide water, are to be charged as heretofore, at the rate fixed for non-enumerated articles coming towards tide water.

Resolved, That the foregoing rates of toll be, and they are hereby established; and that the same be hereafter charged and collected on the several canals of this State, in lieu of all rates of toll heretofore established upon any or either of the said canals, or any part thereof.

STEPHEN VAN RENSSLAER,
SAMUEL YOUNG,
WM. C. BOUCE,
JONAS EARLL, Junior,
MICHAEL HOFFMAN,
Canal Commissioners.

A. C. FLAGG,
JOHN A. DIX,
GREENE C. BRONSON,
A. KEYSER,
Commissioners of the Canal Fund.

[From the Asiatic Journal.]

THE OVERLAND JOURNEY FROM INDIA.—Dr. James Burnes, who was one of the passengers in the Hugh Lindsay steamer, from Bombay, in letters to his friends, extracts of which are given in a Scotch paper,* has furnished an account of the voyage and journey, from whence we extract some of the most material circumstances.

The steamer sailed on the 1st February, under the command of Capt. Wilson, with an agreeable party of passengers.† She carried thirteen days' supply of coal; her average sailing was not more than six knots an hour, varying from four and a half to eight, although the weather was fine. From Cape Fartash, which was described on the 9th, the steamer skirted the Arabian shore, along a gloomy and thinly peopled coast. On the 11th, she took in a supply of coals at Maculla, a paltry town of dirty hovels, overlooked by barren mountains of great height, and inhabited by 1,000 or 1,500 half naked savages, most of whom were armed with swords, daggers, and shields. On visiting the Sheikh or governor and his son, whom they found seated on a mat in the corner of a wretched apartment, during the interview, some negroes among the attendants were offered them for sale by persons in the room.

Owing to the rejoicings for the termination of the Ramazaan, the coals could not be got on board till the 13th, when the Hugh Lindsay weighed anchor, and on the 15th entered the Red Sea, the weather being unusually fine; but the next day her progress was checked by a strong N. W. gale off the desert island Jebel Zyghar, and Captain Wilson put back to Mocha. The decline of this celebrated city, owing chiefly to the imbecile and dissolute character of the Iman of Senna, was marked by the absence of ships from its harbor; an American trader and two Egyptian men of war were all that were seen in the roads. The city itself was in the possession of a body of wild Bedouin Arabs, who had seized and sacked it some days before. The streets were a spectacle of desolation, most of the inhabitants having fled to the desert, and nothing being exposed for sale in the bazaars. The rude Arab chief, however, who had established himself as governor, received our countrymen very civilly.

Early on the 18th, the steamer resumed her voyage, and continued to propel against a constant gale till the evening of the 22d, when off Jedda, though she could not enter

that harbor till next morning, in consequence of the dangerous coral reefs. The streets, markets, and numerous coffee houses of Jedda were found full of troops, —the head-quarters of Ahmet Pacha, the generalissimo of the army of the Hedjaz, destined for the subjugation of southern Arabia, being then within a few miles of it. The soldiers were armed and disciplined in the French fashion; but were far inferior in every respect to Indian sipahis. There were eight or nine Italian officers with the army; and, strange to say, a St. Simonian Frenchman, who had penetrated into that distant country, with the double purpose of searching for the mere, and disseminating his doctrines. In this lately bigotted city our travellers overtook the Rev. Joseph Wolff, who preached fearlessly with the Bible in his hand, at one of the chief entrances, to a crowd of at least 200, composed chiefly of armed soldiers, who offered him no indignity. The European visitors were most courteously received by Suleiman Aga, the Governor; they walked without molestation through the Medina gate to inspect the tomb of Eve, and the cantonment of the troops; and no objection was made (except by some idle children, who threw a few stones at them,) to their re-entering by the Mecca gate at sunset, so as to witness the departure of the pilgrims, which Dr. B. describes as a most interesting spectacle. That day's caravan (for one leaves Jedda every evening for Mecca) consisted of 200 or 300 camels, which carried the aged and infirm amongst the pilgrims, most of whom, however, strode boldly forward, barefooted and bareheaded. Amongst them were several Persian and Hindostan Mussulmans; and there were some, who, from their countenances, must have met at this spot from the confines of China and Tartary, and the west coast of Africa.

On the 25th the Hugh Lindsay proceeded on her voyage, and again encountered an almost continual tempest to Cosseir. The decks were constantly wet, and the paddle-boxes broken by the force of the sea, which was so heavy that her speed at one time was reduced to two or three miles an hour. Late on the evening of the 28th the land of Egypt was visible at a distance, and at four o'clock on the 1st of March, she anchored at Cosseir; from whence, after landing some passengers for Thebes, she again sailed on the 2d, and ran a distance of 260 miles over smooth water, in about thirty-nine hours. Early on the 3d she entered the Straits of Jubal, and dropped anchor on the morning of the 4th in Suez roads. The Hugh Lindsay had now completed her voyage; and though struggling for nearly 1000 miles amidst the dangers of the Red Sea, against a strong adverse gale and heavy waves, had run 3242 miles in 31½ days, including stoppages, which amounted to 6½. She is, however, described as a vessel unsuited for long passages; and, in addition to the extra weight of coals, was encumbered with two heavy engines of eighty-horse power to a tonnage of little more than 400.

Suez and Cosseir are miserable towns, composed chiefly of clay-built houses, and almost entirely dependent on the pilgrims who pass through them for Mecca. The Cavendish Bentinck, an English ship, having carried away 500 or 600 of these wanderers from the former, a few days before the steamer arrived, it looked particularly desolate. The streets of Cosseir, however, were full of well-dressed Mahomedans of all nations; and the number of vessels in its port showed it to be a place of considerable resort, though it can never be a populous

town, as it contains no water except what is sold in the bazaars, and which is brought from the banks of the Nile, 125 miles across the desert. At Suez, the water is so bitter as to be scarcely drinkable. On the 5th of March, the passengers disembarked from the steamer, and after taking a slight repast in a room which had been occupied by Bonaparte, about two o'clock commenced their journey across the Isthmus of Suez to Cairo, 75 miles, Capt. Wilson and two of the officers of the Hugh Lindsay having resolved to accompany them. The caravan consisted of twelve gentlemen mounted on dromedaries, attended by Arab guides, and followed by thirty or forty camels, carrying the water, baggage, tents, and requisite supplies. This journey was accomplished in four days, and was attended with few of the usual discomforts, as the party had furnished themselves with most of the comforts and even luxuries of life, in respect to provisions. One had brought London soups and Scotch salmon; another produced a ham and tongues; a third, French bouille, champagne, claret, &c. Fowls, mutton, and bread, were in profusion; and, in fact, there was abundance of every thing except water, which some of the party had neglected to bring in bottles from Bombay, and a quart of which was considered more valuable than wine before the journey was over. On the 8th, they met the poor Dey of Algiers, who, with his harem and attendants, was proceeding to Mecca; and by one o'clock they entered one of the stupendous Saracen gates of Cairo, having, in the course of a short half hour, made a transition from a silent wilderness into the heart of a mighty metropolis, swarming with human beings, and filled with interesting objects.

They remained at Cairo five days, inspecting the curiosities in the city and its neighborhood, and were presented to the Pasha, who, though the war in Yemen appeared to be his favorite topic, declared his intention of making a railroad across the Isthmus of Suez, for which purpose English engineers are already engaged in surveys. On the 13th, Dr. Burnes and some of the party embarked at Boulac, on the Nile, entered the Melmoudieh canal, and arrived at Alexandria, which on the 20th he left, with the Rev. Mr. Wolff, for Malta, where they arrived on the 4th April, and were shut up in the Lazaretto for twenty days.

Proposed Line of Communication between N. York and N. Orleans, via Savannah, &c.

To the Editor of the Railroad Journal:

SIR,—I enclose you a Report of a meeting held in Savannah, on the 15th inst., on the subject of the contemplated communication between this city and New-Orleans, via Isthmus of Florida. You may deem it worthy of re-publication in your valuable Journal.

Very truly, &c.

R. P.

Savannah, January 28, 1835.

ATLANTIC AND NEW-ORLEANS SEABOARD LINE COMPANY.—At a meeting of merchants and other citizens, favorable to the establishment of a line of communication between New-York and New-Orleans, by the way of Savannah, Florida, &c. held at the City Hotel on the evening of the 15th inst., Joseph Cumming, Esq. was called to the chair, and Wm. Robertson appointed secretary.

The Chairman having briefly explained the object of the meeting, it was addressed by Mr. R. King, who detailed the immense advantages to be derived should the project

* The Montrose Review.

† See p. 146, As. Intell., &c.

be carried into effect, supported by estimates of the cost, income, &c.; after which, the secretary having read the Charter of the Atlantic and New-Orleans Seaboard Line Company, granted by the Legislature of Georgia, the following resolutions offered by Mr. King, and advocated by the Chairman, and other gentlemen present, were unanimously passed.

Resolved, That this meeting considers the project of the Atlantic, New-Orleans, and Seaboard Line Company, as one of great public advantage and convenience, and that, under its charter, well sustained, a safe, practicable, and profitable route from New-Orleans and Mobile, thence to Savannah, and, by steam-packets, to New-York, in the space of eight or nine days, can be opened and used; and that the same be recommended to the citizens of this State, New-York, the Territory of Florida, Alabama, and Louisiana.

Resolved, That the Commissioners be recommended to assign One Hundred Thousand Dollars of the stock of said company to the city of Savannah; Seventy-five Thousand Dollars to the city of New-York; and Seventy-five Thousand Dollars to the cities of New-Orleans and Mobile.

Resolved, That in aid of the commencement of the Atlantic and New-Orleans, and Seaboard Line Company, the citizens of Savannah should come out with promptness and energy, and subscribe the stock of said company; and that E. F. Williams, G. W. Anderson, Peter Mitchell, B. Burroughs, M. H. McAllister, G. Shick, and Geo. Hall, be a committee to assist the commissioners under the charter, in having the said stock subscribed on the first day of the opening of books.

The foregoing proceedings were then ordered to be published in the gazettes of this city, and the meeting adjourned.

JOS. CUMMINGS, Chairman.

WM. ROBERTSON, Secretary.

Washington City, Aug. 12, 1834.

To the Editor of the Railroad Journal:

Sir,—In your Railroad Journal of the 9th instant, you speak of a plan in contemplation for improving the travelling route from Savannah, Georgia, to Mobile and New-Orleans. This plan proposes to employ steam-boats from Savannah, along the coast to St. John's, then up that river to

Mr. King's estimate of proposed route from New-York to New-Orleans, via Savannah, in eight or nine days:

Estimate of Cost.	
2 New-York steamboats	\$100,000
2 Savannah do.	50,000
2 New-Orleans do.	70,000
20 Stages and Horses,	5,000
150 Horses,	15,000
Opening roads,	10,000

Capital required, \$250,000

Supposed Weekly Expenses.	
2 New-York boats, each	\$1,250
2 Savannah do.	625
2 New-Orleans do.	1,250
12 Stages, drivers, and keeping 150 horses,	500
Extra expenses,	2,000
	\$8,750

Supposed Weekly Receipts.

Estimated on a travel of 3000 passengers annually to, and same number from, (in this estimate no allowance is made for way passengers, or carrying the Mail.)

Average 75 passengers on and 75 from—150, \$11,250

Deduct weekly expenses, 8,750

Clear gain per week, \$2,500

annual gain—\$130,000.

Black Creek, one of its branches. This latter, it is supposed, has sufficient depth of water for steam-boats for 28 or 30 miles. From the highest point navigable, a road is to be constructed in a line across the Isthmus to the Santafee river; the line then takes down this to the Suwanne, into which it empties—from hence the proposed route to the Gulf is not clearly designated. The Suwanne is no doubt navigable for common steamboats, the greater part of its length from the Santafee to the Gulf, but it becomes more difficult as the Gulf is approached; has no harbor at its mouth, and only three or three and a half feet of water on the bar fronting the estuary; this and for near one hundred miles towards Mobile, there is no harbor into which an ordinary sized coasting vessel could enter and find shelter from the frequent storms of the coast of the gulf. At St. Mark's only could a harbor be formed. This route then may be considered as impracticable.

The line proposed by that eminent engineer, General Barnard, for the canal, after it had reached the Suwanne, and approached within 40 or 60 miles of the Gulf, was to strike off westwardly to St. Mark's, and run nearly parallel with the coast, distance about 70 or 90 miles. If this line is selected for the new road, it will add so much to the land travelling as to make the whole distance not less than about 120 miles, instead of 41, as conjectured by your correspondent.

There are other difficulties opposing the scheme suggested in your paper, which do not appear to have been known to its author. The navigation from the Savannah to St. John's is far from being safe or easy. The entrance into the St. John's, from the Atlantic especially, is regarded as dangerous and uncertain, and no safe shelter for the vessels which enter it for many miles above its mouth.

The author of the above short remarks has been induced to present them to the public with a view to invite more particular inquiry into a subject in which it is deeply interested. A reference to the report made by General Barnard in 1829, and published by order of Congress, would afford much useful information in relation to it. He was employed many months in making the survey, and the accuracy of the results may be confidently relied on. It may be added, that if it was practicable to pass down the Sawanny into the Gulf, the difficulties of farther navigation would be almost insurmountable. Mobile is not less than 500 miles west of the mouth of the Sawanny, and there is no way to reach it but by direct navigation through the Gulf, the coast, at least for 200 miles, is so shallow that no vessel can approach within many miles of it in all that distance.

Very respectfully, &c.
CIVIS.

[For the American Railroad Journal.]

Steamboat and Stage Route along the Atlantic, and Gulf Coast, connecting the Principal Commercial Depots, from Charleston to New-Orleans.

From Charleston to the St. John's river, in Florida, there is an inland passage for steamboats drawing not more than 5 ft. water, and approaching the ports of Beaufort, S. C., and those of Savannah, Darien, and St. Mary's, in Georgia, at such convenient distances, that they may be made touching points on the route.

From Charleston to Beaufort,	45 miles.
Beaufort " Savannah,	30 do.
Savannah " Darien,	65 do.
Darien " St. Mary's,	60 do.
St. Mary's " the junction of inland passage with St. John's river,	30 do.

280

The St. John's river is navigable for steamboats of the largest class to Lake George, and to the forks of Black creek, one of its tributaries which approaches nearest to the waters of the Gulf of Mexico.

From the north of inland passage, on the St. John's to Jacksonville, the county seat for Duval,	20 miles.
From Jacksonville to the mouth of Black creek,	20 do.
From Black creek to its forks,	15 do.

55 miles.

From this point to a navigable point on the Santa Fee, a tributary of the Suwanne river, over a high dry ridge, susceptible of a good road, would not, on a straight line, exceed 50 miles.

By the present route (somewhat circuitous) travelled, it is 60 miles.

The Santa Fee is not at this time navigable, owing to decayed and falling timber which have obstructed occasionally the passage; General Barnard reported, however, that they were easily removed.

The distance from a navigable point to the Suwanne, 20 do.

From the mouth of the Santa Fee to the mouth of the Suwanne river, 20 do. 1

The Suwanne is obstructed near its mouth by banks of oyster shells, over which not more than 4, or 5 feet of water can be carried. From the mouth of Suwanne to the St. Marks, the coast is a low, flat, marshy shore; no beach, and no breakings of the sea. An outer reef of rocks, &c. protects this part of the coast from the heavings of the ocean, and renders this passage between perfectly safe for steamboats of the smallest class, or least draft of water; barges, and even common flats, have navigated this passage without injury.

From Suwanne to St. Marks, 70 do.

Up the river to the Devil's Elbow, four miles; from thence to St. Mark's town, four, 8 do.

From St. Marks to the mouth of the Apalachicola river, 55 do.

There is an inland passage through St. George's Sound for the greater part of this distance.

225 mls.

After describing the present route of travelling from the Appalachicola to Mobile, our informant proceeds thus—

Should it be deemed however more advisable to continue the steamboat route without these land interruptions, a sea steamboat might pass from the mouth of the Appalachicola to Mobile Bay, touching at Pensacola, and unite with the Orleans steamboats at their landing-place, on the rear of Mobile, and opposite Dauphine Island.

The same stages which meet at that

point from Mobile could convey the passengers in either direction. By this route there would be no continuous inland passage, though very fine bays, such as St. Joseph's, St. Andrew's, and Santa Rosa, would afford safe harbors of refuge in case of storms.

Distance from Appalachicola to Pensacola,	140 miles.
Thence to St. Joseph's Bay, 30 miles.	
St. Andrew's, 25 do.	
Santa Rosa, or Choralawhatchie Bay, 50 do.	
Pensacola, through the Santa Rosa Sound, 35.	
From Pensacola to Mobile Bay, 40	
Mobile Bay to point of junction with Orleans steam boats,	25

205 miles.

In the last distance the boats would have to pass through Pass Heron, a passage between Dauphin Island and the Main, which I do not think is at this time practicable for steam-boats drawing more than three feet water. It is susceptible, however, of improvement, and an appropriation to that effect by Congress was very advantageously expended the last year, but was inadequate to the accomplishment of the object contemplated. The report of the engineer was favorable, however, and there can be no doubt of an additional sum being granted, provided the object of opening the navigation of that pass should become so important, as it would, in connexion with the steam-boat route now in agitation.

WHOLE DISTANCE.

From Charleston to St. John's, (water,)	230 miles.
St. John's to forks of Black Creek, (water,)	55
From forks of Black Creek, over-land, to Santa Fee, (land,)	50
Santa Fee to mouth Suwanne river	40
Suwanne to St. Mark's, (sea coast,)	70
To St. Mark's	8
Appalachicola	55
Pensacola	140
Junction with Orleans steam boats	65
Total distance, land 50; water,	663
Distance from the point of junction with Orleans boats	200
Land	50

913 miles.

EXTRACTS FROM

An Act to incorporate the Atlantic and New-Orleans Seaboard Line Company.

Whereas, Joseph Cumming, S. B. Parkman, Geo. Hall, Robert Habersham, Ralph King, Wm. Duncan, and others, have, by their petition, represented that with a view to establish a shorter, more safe, and expeditious route from the Atlantic Seaboard to New-Orleans than the one around the cape of Florida, they have formed themselves into an Association, under the name and style of the Atlantic and New-Orleans Seaboard Line Company, and in order to insure and establish their said association in a permanent and effectual manner, so that the attainment of their object may be more facilitated, have prayed the Legislature to grant them an Act of Incorporation.

Be it therefore enacted by the Senate and House of Representatives of the State of

Georgia in General Assembly met, and it is hereby enacted by the authority of the same, That the said Joseph Cumming, S. B. Parkman, Ralph King, Wm. Duncan, and their associates, be, and they are hereby declared a body corporate, by the name and style of the Atlantic and New-Orleans Seaboard Line Company, and by the said name shall have perpetual succession of officers, and members, with power, by their said corporate name, to sue and to be sued, plead and be impleaded, and of using all necessary and lawful means for recovering or defending any property, debts, demands, which they may have or claim in behalf of said Company, to hold real and personal estate, and have and use a common seal, and the same, at pleasure, to alter or change, and with power to make, alter, change, and amend, such by-laws as may be necessary, and agreed upon by the said Company.

Sec. 2. Be it further enacted by the authority aforesaid, That the capital stock of said company shall be the sum of two hundred and fifty thousand dollars, to be divided into shares of five hundred dollars each, with liberty to increase the said capital stock to one million of dollars.

THE SUWANNE.—A new entrance has been discovered to this river. We have seen the gentleman who made the survey. The harbor is behind the Cedar Keys, about ten miles to the southward of the Western Pass. This passage is narrow, but it is not difficult to enter, and will admit vessels 12 or 14 feet draught. From this point there is a channel behind the island, eight or nine feet deep, sufficient for steamboats of any burthen. Opposite to the harbor, on the main land, there is a high bluff shore, affording an eligible site for a town. There is much good land in the immediate vicinity, and on the upper branches of the Suwanne, which extends nearly three hundred miles into the country. To the South, there is an inland channel extending along the coast to the mouth of the Amaxura, a river which has much good land on its shores, but no harbor at its mouth. This will add to the value of the discovery. It was unfortunate that the engineer who formerly made the survey was not attended by a competent pilot. His failure to make any useful discovery at this point, we do not consider detracts any thing from his merits as an engineer.—[Tallahassee Floridian.]

[From the London Mechanics' Magazine.]

The Claims of Mathematical Science.

SIR,—I much regret that, in honoring your pages and myself with some remarks on my recent article on mathematics and the mathematicians, Mr. Exley did not extend his observations to a greater length, for he is well entitled, because he is well qualified, both as a mathematician and a philosopher, both as a man of universal information, of varied learning, and of powerful ratiocination, to pronounce an opinion on the subject in discussion, deserving the most respectful attention. I am the more bound not to withhold a proper tribute to his merits, because I have already taken, and may have further occasion to take, exception in some degree to his theory of physics, and in the present paper intend to offer some strictures in opposition to his remarks. Not that I would deprecate, or admit the necessity of deprecating offence: for so long as ob-

servations are offered in the love of truth, and uncontaminated with that unseemly and captious spirit which controversialists, (even among your correspondents,) are too apt to evince, I am fully assured they will be received with "that stronger attachment to truth, than to any erroneous system," which he professes to entertain.

I fear, from his too short but pithy remarks, he has imbibed the impression, that I have labored to decry mathematical science, though my observations, he will observe, are on its comparative value and importance. Nay, it is quite in accordance with my views, that even "the mere mathematician is not to be set aside;" for, almost at the very outset, I stated that this class of men "are, doubtless, valuable members of the body scientific, but that some among them (the least generally informed) are sadly inclined to over-estimate the honor of their station, and the comparative value and importance of their labors." Apart, therefore, from and besides its obvious misuses, there is surely sufficient ground for animadversion in the fact, that the excessive reverence for this science, (be it usurped or freely bestowed,) which so much prevails, facilitates with a baneful influence on the best interests of philosophy, a too favorable reception for every thing, however crude, which is presented to us clothed in its forms. It certainly is within the verge of useful discussion to consider, whether the primitive and long acknowledged claims of this science to just respect have not in our day bribed, and even forced our reason, by its inordinate but imposing pretensions, to a false, because extravagant, estimate of its value and importance. It is true, as Mr. Exley says, "that no one will plead for the misuse or misapplication of the science;" but then there are many who will debate what is or is not deserving of that reproach, and, in the general prostration of the mind to mathematical genius, the danger is that we may esteem as legitimate what may prove to be of spurious birth.

In the rapid march of knowledge—the knowledge of nature,—the general mind has been strengthened and freed, in some measure, from this prejudice; but the time was when it was thought no misapplication of mathematical science to apply it to human physiology—when even the fanciful hypothesis of celestial vortices was thought to be illustrated and particularized in man's bodily frame; and the time may be, when applications now accepted may be thought to be a misuse.

When the mathematics was the only science of which mankind had to boast, it was naturally regarded with unbounded veneration. When the vain philosophy of the schools was discarded, it presented fresh claims for admiration and regard. The feeling has descended to our times, though the circumstances which justified it have passed away. Philosophy has entered, and is daily entering, on other domains than those of quantity; and that science is now but auxiliary, and

only occasionally, to more enlarged, and, let me add, more highly intellectual pursuits. Yet an antiquated and almost exclusive admiration still clings, though with a faltering hold, to the public mind, equalled only by one other prejudice—the reverential respect which is yet awarded to classical learning: these have been respectively fostered by the two Universities, once truly the lights of a by-gone age, but which are now visible only in the pervading darkness of their own precincts.

High mathematical knowledge is not to be turned to account in the ordinary walks of life. Besides, even where the sphere of its exercise is not wanting, other higher and rarer endowments of the mind—those which constitute the philosopher—are requisite to enable its possessor to bring it discreetly and powerfully into operation. Is it not infatuation, then, to allow the mere power over an instrument of knowledge to usurp the place in our estimation which should be assigned to its adroit and skilful use in its wise and efficient applications to appropriate and useful objects? And is it any thing better than infatuation, when we hear it said of any one that he is a great mathematician, if he be nothing better than this, to look up to him as being qualified, in virtue thereof, to take the lead in the ways of knowledge, and to ascribe to him pre-eminent intellectual powers? Some mathematicians will not countenance this delusion. It was said of one of the celebrated French analysts, that he expressed his surprise at finding the study of chemistry to be not more difficult than that of the mathematics; and a distinguished living mathematician is accustomed to say of any thing of little difficulty, that "it is as easy as algebra:" an expression which will find a readier acquiescence; but still it shows, that in this gentleman's opinion, this kind of study is not very arduous.

I have just adverted to the two branches of learning which separately distinguishes each University, and which, if not pursued to the entire exclusion of other studies, characterises and gives celebrity to those places respectively, and to which honors more particularly appertain.

Mathematical knowledge and classical literature, it is readily admitted, are of great value, and it would manifest unusual stolidity to deny it.* It is even proper when peculiar aptitude ensures success, that for the purpose of attaining high excellence some should devote their attention almost exclusively to their study; but in regard to persons in general, among whom it would be folly to expect that Pairs and Eulers may abound, and

* Why should Mr. Frend continue to impute such nonsense to me, by stating my explanations on this point to be unsatisfactory? Is it impossible, then, to a mathematician to take any other than extreme views of a subject, unmodified by influential considerations? or to entertain any other than *ultra* and abstract opinions? To such a course his mind is certainly biased by his studies; and does not Mr. Frend himself furnish a case in point? To persons of this cast, any thing like discrimination carries the appearance of inconsistency or contradiction.

not desirable that they should, it is contended that too much useful time, yea, too many of the world's interests, have been sacrificed to the pursuit of these attainments, which unavailing and unproductive, probably, in their end, have been stimulated only by a false opinion of their all-engrossing importance. The fault consists in allowing brilliant instances of particular and perhaps professional attainments, to seduce our judgment into a magnified estimate of their value, or into a diminished opinion of general acquirements being essential to a liberal education, but which general knowledge, after all, may in many cases be highly conducive to success in the more favored pursuit, and must in most cases be absolutely necessary, in order to render that pursuit, in its application, beneficial to society. Ardent youth is naturally impelled to tread, though with humble steps, the path which men of distinguished talents have irradiated with the halo of their glory. Fired with enthusiasm, all his energies are engaged to follow up the chosen track; he becomes insensible to every thing besides; he is deaf to the voice of wisdom; he responds not to her calls to explore the other avenues of knowledge, but contemptuously regarding them as by-paths, insignificant and obscure, he pushes on, till at last he falters, and finally he falls short of the high object of his aims; meantime he has lost the goodly prospects which awaited him on every hand, he has enjoyed only a few contracted views, he has had some partial glimpses, and which, to his purblind vision, have appeared to be all that was worth a thought in nature's wide expanse, showing that those illustrious men who, not improperly, have been called the lights of the world, may, under some circumstances, truly prove to be lights, also, which "lead to bewilder, and dazzle to blind." Admit that the aspirants to honor and distinction have succeeded to the very stretch of their ambition, and what do we have as the most favorable result, but men of one idea, men of an exclusive theme, men admirably suited to become the professors of their peculiar learning, but who, in the ordinary affairs of life—yea, in the ordinary walks of knowledge,—manifest a simplicity, not to say an imbecility, which makes even the illiterate smile. Their vocation may be honorable, and the sphere of their duties useful; but still it is the sphere of a class of individuals, and for that reason they ought not to be considered as being the exemplars of the course of study befitting the community of the learned. Besides, though well qualified to be instructors, would they be less, or rather, would they not be much better adapted for that office, if they had taken a more varied and extended survey of things? Would they not enlighten, and more intensely interest us, with illustrations and analogies gathered together out of all the territories of knowledge? Would not their observations be more marked with wisdom, their positions advanced with greater discrimination, and their

principles receive that salutary modifying and moderating correction, which enlarged and liberal views fail not to enforce? And, as members of society, would they not be less exacting and less monopolizing of claims to paramount consequence for themselves and their pursuits? Would they not be more moderate, more accommodating, and more distinguished for amenity in general intercourse, and in the transactions of general affairs? In the multifarious concerns of busy life they are manifestly incapable of taking a judicious part. The ruling spirit of their theme mars all their perceptions, sways all their opinions, gives a tinge to all their thoughts, and particularly spoils the faculty of taking a correct estimate of things, for they always refer to their own pursuit as the standard by which they judge of the value of others. The observations contained in this paragraph have been suggested, and may have been illustrated, by some passing events of the day, which it would be indecorous to specify, but the parallel of which most persons will be able to furnish for themselves. I have also to apologise to Mr. Exley for introducing them in this correspondence, for nothing relating thereto, or to him,* has called them forth. They are also becoming too general, for they apply to other subjects besides the mathematics; let us, therefore, return to that which is more immediately before us.

Mathematical knowledge was the first acquirement of man, as it is of men. This is, as Mr. Exley properly remarks, the order of nature; but it is significant also of the simple and elementary nature of the procedure of the understanding by which it is disciplined to its attainment, and it was for the purpose of showing this that the quotation from Blakey's logic was introduced. That it is not more general—that so many "neglect or reject their birthright," as Mr. Exley considers it to be—must not be attributed then to the strong intellect possessed only by a few, which is requisite for its acquirement, but to the repulsive manner, probably, in addition to its not being in itself very attractive, in which it is first presented to our notice. The point which I wished to establish, and to which the testimony of Mr. Exley is the more valuable, because he is peculiarly competent to give it, is the fact, that the mathematics is quite within the reach of ordinary talent. Though I admit, with Mr. Exley, "that mathematics is the first science in the order of nature," it does not follow that I ought also to admit that it is pre-eminent in honor and utility, which it was the drift of my observations

* I remember, however, that a paper from Mr. Exley, read before the Royal Society, met with very cavalier treatment, in one quarter, merely, it would seem, because it did not chime in with particular individual pursuits; and we all know what intestine broils existed in that learned body, for want of, not to say mutual assistance, but even mutual toleration, among the respective partisans of the several branches of science, and which, as having occurred many years since, may now be properly adverted to as examples for warning and instruction. Let us hope that the British Association for the Promotion of Science will introduce a new era of harmony and co-operation.

to disprove; for mere priority confers no particular value, else would common arithmetic have pre-eminence over the mathematics itself, to which it is the first or elementary step.

Mr. Exley asks, "Why should mathematics be set in opposition to practice? Had Priestly, Franklin, and all practical men, the inventors of steam-engines, and others, been great mathematicians, could this have made them less practical, or less successful in their practice? Who was more practical than Newton? His optics present a model for all practical men." I would say, in reply, that, in all probability, if these men had been great mathematicians they would not have been what they were—the benefactors of mankind; and in proof of this, I refer to what is indisputable, that the great mathematicians have not been practical men, and that the most eminent and successful men in practice have not been mathematicians. It is a curious fact in psychology, which I have in my previous paper endeavored to explain, that these separate pursuits do not proceed together with an even flow, but that one occupies the mind almost to the entire exclusion of the other. Of course there are exceptions, else would the proposition be not the enunciation of a general fact, but a mere truism. Newton was an illustrious exception, and I had myself referred to him as such. He was more than possessed of practical views; he was an operating experimentalist, and a very ingenious one too, and a clever operative mechanic to boot. May I be permitted to say, that these remarks have been occasioned by one who is also an exception, and therefore it is that those pursuits do not appear to him to be discordant. It is true, as he intimates, that they are not "to be set in opposition," if by that he means irreconcilable opposition to each other, but rather in juxtaposition, by the way of foils and antithesis; but though there is no necessity in the nature of things, there is great probability in the reason of things, that great attainments on either hand should mutually disqualify the mind for the opposite pursuit, and every probability in the course of things that they should incapacitate it—the one for the reception of the other. This view of the subject may appear to some to be better corroborated, by using the converse expression of the fact before stated, that those who have made equal attainments in both pursuits have commonly not been eminent in either. It will be admitted, however, that there have existed an illustrious few, to whom opportunities have not been denied for the exercise of abilities equally rare. The late Dr. Thomas Young was eminently distinguished for practical views; they pervaded and characterised all his studies, and gave a peculiar tone to those which were the most abstract; though, like the gentleman on whose remarks I am now commenting, uncontrollable circumstances may have confined his aims, more than others, to the closet rather than

to the laboratory. If, however, these pursuits, so distinct in themselves, are more commonly pursued apart—a course, be it remembered, which is not recommended—it is surely very properly open to discussion, without setting them injuriously "in opposition to each other," whether the one or the other is the more arduous, the more useful, the more honorable, or the more intellectual. Without pretending to decide in a case where personal predilections will turn the scale, it is enough for me to put in at least an equal claim to these distinctions in favor of practical pursuits, as including those which are observational, inductive, and experimental; or to bar the speculative one, at any rate, from carrying off all the honors—a triumph which it has been too much the custom to concede to it. I have advanced these claims to estimation not particularly on the ground of utility, which is surely undeniable; for geometry of the highest order, and the science of quantity generally, and as applied to the motions of the heavenly bodies in particular, flourished for ages on the Ganges, without any beneficial influence on the interests of mankind, and was imported into, or revived in Greece, without superseding, or even correcting, the Stagirite's logic and philosophy; but I have advanced them more especially on the bolder and less usual plea, of at least equal if not superior intellectual powers, and as much patient and laborious perseverance being required in those pursuits which trace the connection of things, as in that which establishes the connection of ideas—in those pursuits which unravel to the core, as in that where we have the naked essence already formed to our hand—in those pursuits which take the subject matter to disembarass it of its extraneous envelopment of circumstances, as in that where we can conceive of it at will abstractedly, and work with it as such wherewithal—in those pursuits, I say, where, having arrived by an extensive analysis at the elements or principles which are the objects of our research, we have to embrace, in their natural order and degree, the whole circle of combining influences, however diverse in their nature, ere we can erect a philosophic system, or advance a true explanation of phenomena or events, as in that where the materials of a simple though imposing superstructure being called into existence at our bidding, and impressed with qualities at our pleasure, are of one and the same nature, of restricted and homogeneous influence, devoid of interfering and collateral action, and only require for their regular collocation an unembarrassed unilateral proceeding. Besides the reasons now incidentally alluded to, as subsisting in the inherent differences between the separate subjects, I may adduce in proof of my position the indisputable fact, that the speculative science advanced by extensive strides, and was brought to a comparative perfection at a very early period from its foundation; whereas the practical sciences approached to maturity only

by slow degrees, and are yet in progress, showing that the difficulty in one case is of a character to be easily and quickly surmounted, and in the other that it is more formidably intrenched. Again, those rapid advances were made comparatively by a few individuals, and though it seems paradoxical, it is not the less true, it was precisely because the laborers were few, that those advances were rapid, extensive, and broadly seen; for if the nature of a work be so toilsome and different as to require a great number to engage in it, the steps of its progress, though innumerable, must necessarily be minute and scarcely perceptible. The speculative science, therefore, must come more naturally and easily within the compass of our faculties, since a few has sufficed to cope with it, and reduce it to order. The paucity of laborers sufficient to produce great effects, argues also that this science does not demand much more than ordinary talents, since the chance of finding those which are extraordinary is in such case greatly lessened. I cannot, however, go so far as to say with Mr. Exley, "we need not wonder, then, that all men are born mathematicians, though many neglect or reject their birthright." This would be to humble their pretensions, more than any one, besides a mathematician, dares to do.

In my next communication I intend to notice those observations of Mr. Exley which refer to his own theory of physics, and to take a slight review of it.

I am, sir, yours, &c.

BENJAMIN CHEVERTON.

October 20, 1834.

P. S.—Mr. Frend has very unnecessarily occupied your pages in quoting various testimonials in favor of Euler and the Bernoullis, for, unquestionably, they were illustrious mathematicians, and I stated as much. As to the *tractory* curves, which he thinks are improperly named, I can only say they were so called by Euler himself, though they defied even his skill to render them *tractable*. The witicism that Mr. Frend sounds on this poor equivocal, is about as smart as his invitation to me to give the equations of a few of these "*strange curves*," in which attempt even Euler failed. He further allows himself to say, that certain highly useful *experimental* researches, which he enumerates, "are of course, according to the Chevertonian philosophy, mere matters of moonshine." I would respectfully inquire of Mr. Frend, why he thinks it necessary to resort to misrepresentation, and why the calm face of philosophic discussion should be disfigured with the ebullitions of temper? Those who honored my paper with a perusal, will not be induced by any one to believe that its purport was not precisely to establish the superiority of practical and experimental pursuits over those which are speculative. Mr. Frend has discovered an omission in my enumeration of Kepler's laws, which he contends were three. He is perfectly at liberty to consider it to be a law of planetary motion, that the orbits of the planets are ellipses,

though, according to my notions of phraseology, it ought rather to be called a fact in the planetary system. It is not unusual to speak in the dual number of these laws; but it is even more common, perhaps, to use the singular number, and say, Kepler's law. As a foreigner, sensitively jealous of the fair fame of foreigners, it may be allowed to him to be a little captious.

**DR LARDNER'S,
Second Lecture on Steam.**

Delivered before the Liverpool Mechanics' Institution.

The celebrated Leslie has invented a method of producing ice, by the employment of sulphuric acid. This acid has such a strong affinity for water, that if it is presented in an atmosphere filled with vapor, it will immediately arise upon the vapor and incorporate it with itself. He places water in a watch glass under the air pump, with sulphuric acid near it: the air being withdrawn from the pump, the sulphuric acid seizes upon the vapor as it rises from the water, and the water, parting with all its heat to maintain the vapor, is converted into ice. In performing this experiment, it is necessary that the vessel containing the sulphuric acid should not be in contact with the water, otherwise the degree of heat which accompanies the combination of the vapor and the sulphuric acid would prevent congelation taking place.

A very pretty experiment, to prove that the atmospheric pressure is a great agent in preventing water from boiling, can be performed with a flask half filled with boiling water, and closed at the neck. If it is in that state plunged into cold water, it will boil: but the ebullition will cease when plunged in boiling water. This is because the cold water condenses the steam in the upper part of the flask, and, by removing the pressure, allows the water to boil; whilst the hot water keeps up the temperature of the steam, which presses on the surface of the water so as to prevent its boiling.

From these investigations it may be concluded, that a liquid or gaseous state is not essential to the nature of any substance, but that its state is entirely dependent on the supply of heat which that substance has access to. We know that water can be passed through these three states, by the abstraction or the application of heat.—Fluid mercury may be evaporated, and the fact ascertained by passing the vapor through a cold tube, and it will again assume a liquid state: it may also be made solid, so as to take a shape like a metal. The most refractory substances we know of are capable of being converted into liquids by heat. All the metals we know of may be brought into a state of fusion by a proper supply of heat: indeed, all substances, by proper treatment, may be seen in the solid, fluid, and aeriform state. By turning the rays of the sun, through a lens, upon gold and platinum, we can decompose them, and convert them into gas.—There is only one solid which has not yielded to fusion, and that is carbon, or the diamond; but we can only conceive, that we cannot reduce it, because we cannot command a sufficient quantity of heat to melt it and maintain it in a liquid state. Of all liquids there is only one which has been congealed by the abstraction of heat, and that is alcohol, or spirits of wine.

We can only argue by analogy, that the bodies which exist in the gaseous state can be reduced to liquids or solids; which leads us to suppose, that the substances known as atmospheric air, oxygen, hydrogen, &c. are, in fact, nothing but the steam of various substances which cannot exist in the liquid state upon the surface of our globe without being deprived of a large portion of heat. This analogy has been confirmed by recent experiments and discoveries, particularly by those of our distinguished countryman Faraday. Neither steam nor any gas can be reduced to a liquid by compression alone, however high the degree of compression applied to it, notwithstanding the assertions of superficial writers, and even of some who are otherwise

well informed, on the subject. But if, by the compression we could squeeze out the heat from the gaseous bodies, we could then liquefy them. Dr. Faraday has substantiated this by actually converting several gases into liquid. For instance: he found, that when carbonic acid gas was submitted to a pressure of 1000 lbs. on the square inch, it became a liquid. It must, however be remarked, that as the pressure is increased the temperature is raised; and it is not until the gas is cooled that liquid is produced. These facts, united with the other analogy afford such a high degree of probability, that, to a reflecting mind, there can be no doubt that every substance in parting with its heat to a certain extent, becomes a solid: and it is possible to conceive, that if, by any circumstances, the temperature of our globe were raised sufficiently, the water of the ocean would no longer be able to exist in a liquid form, but would assume the state of vapor, and mix with the atmospheric air. By the same cause, many of the solids would be converted into liquids, and fill the body of the ocean, so that we should have an atmosphere of steam, and an ocean of metal.—a gold and a silver sea. Then, again, by the process of evaporation, which causes liquids to pass into vapors, we should see the fable of Jupiter descending in a golden shower illustrated in golden and silvery showers. To carry the analogy still further; we know that water cannot exist in a liquid state at the poles. A slight decrease in the temperature of the globe, or a change of distance of the sun, would cause all the water of the earth to become solid: a further decrease would freeze the various gases, so that the air would drop down, and form an ocean of water: and a still further reduction of temperature would convert it into a solid body. These circumstances suggest to a reflecting mind the beautiful adaptation of the different objects on the globe to each other, and to the distance of the earth from the sun. Otherwise, those substances which ought to be liquid, for the sustenance of animals, would subsist in the solid state. It is not at all improbable, that the different planets have different substances in them, suitable to their distances from the sun: for there is no doubt that the temperature is produced by the sun, and depends on the sun's distance from the planets, and its intensity is diminished in proportion to its distance. In the planet Jupiter, the heat is twenty-five times less than it is with us; and water, on such a globe, could not exist in a liquid state, unless heat was supplied from other causes than the sun.

When we consider the prodigious mechanical power which has been obtained, by the mere ability, on our part, to convert a liquor or water into steam, and reconvert that steam into water; when we consider the enormous amount of human civilization which has been produced by the due application of this simple physical effect; when we consider, that it is probable that the relations of the human race may be altered and modified by this application, and the very distances of the different parts of the world be changed by a speedy intercourse, and the prices of the objects of consumption be ultimately affected by it: when all these effects are attained by the mere fact of our availing ourselves of the simple physical effect of converting water into vapour and back again, we naturally say, where there is so large a field, and so many different substances from which the effect may be produced, should we not expect, from the large advances which are making in the generalization of these principles, that this effect may be produced from other substances. Water possesses several properties which render it the most hopeless and unfit for such an experiment. In order to convert it into vapour we, of course, apply heat. The least promising liquid is that which requires the largest application of heat; and, of all liquors, water consumes the largest quantity of heat, requiring 1,000 dege. to raise it from a boiling state to a state of vapour: therefore, *a priori*, a philosopher would say, try spirits of wine or a thousand other things, but do not try water, for this special reason. It may be said, that the cost and difficulty of producing any species of vapour does not depend upon the fuel necessary to produce it, but on the cost of the liquid itself. Supposing, then, we could get fuel for nothing, still water is the most unfit and unpromising agent.—

For instance: in the transport at sea, the source of heat is derived from coals, which are bulky, and are transported in the vessel in order to produce steam: the water at sea costs nothing; and, suppose the fuel costs nothing, still they must be carried, and they impose a limit to the application of the steam engine to the purposes of navigation. A vessel impelled by steam power of 200 horse, consumes one ton of coals per hour, or twenty five tons per day: therefore, to provide for a voyage of twelve days, it would have to carry with it twelve times twenty-five tons of coals.—Thus, therefore, there is a limit to the application of steam navigation. It is generally understood, that a vessel cannot carry more fuel than is necessary for the purpose of propelling it ten or eleven days; consequently, by the present steam impelling power, such a voyage as from Liverpool to New York could not be made for any practical and advantageous purposes.

In considering the prospects of improvement in these respects, we naturally look towards those liquids which are most readily turned into a gaseous form. Ether and alcohol are easily converted into vapor, but in the way in which the steam-power has been applied these liquids are rather expensive. If it was used in a high-pressure engine, the vapor would escape into the air and be lost; whilst, in a condensing engine, although not lost, it would be mixed with so much water that its separation would be attended with considerable expense. There is only one other way in which it is possible to use alcohol, namely, by condensation, in contact with a cold surface. If we introduce the vapor of spirits of wine into a thin shell, formed by two bodies placed one upon another, after working the engine, it will spread over the cold surface of the hollow shell, the steam will be reconverted into a liquid state, and trickle out at the bottom, so as to be warmed over again, and this might be carried on from time to time.

But this great step must be followed by another improvement in the steam-engine, especially for the purposes of transport both by land and by water, which will doubtless be cultivated in our own time. It is the application of the gases, and especially of carbonic acid gas, in a liquid form. If we could obtain carbonic acid in sufficient quantity, and on sufficiently moderate terms, there is no reason why it should not be employed to supersede steam at the present time. This gas takes the liquid form at the common temperature, under a pressure of 1,000 lbs., and in that state exerts a prodigious power, and from its small bulk, would effect a saving of tonnage. The difficulty to its adoption lies in the price of the liquid, the providing of proper air-tight valves and pistons, and in guarding against the corrosion which the carbonic acid would cause in the materials themselves. But all these are matters of detail, and are at present but temporarily difficult, and we may, therefore, look forward to the superseding of coals altogether in the steam engine, by the use of the liquid carbonic acid, as nothing would be necessary except to send it into the receiver, and let the piston of the engine work as with steam; possibly it might be found expedient to apply heat, but a trifling degree only could be applied, as the power of the gas is so great that it has no bounds. Thus we should get rid of the magnitude of the marine boiler, and a thousand other inconveniences which attend it. We may, therefore, look forward to the time when we may send our captains to sea with the wind that is to blow them in their waistcoat pocket; and it is not impossible, that we may get rid of those ugly smoky chimnies, which are at once so unspectacular and unpicturesque, and against which our sailors so bitterly complain, because they deface the surface of our beautiful sea.

A railroad was about to be constructed between Havana and the town of Guines, and a loan of two millions authorized in England, to carry the plan into effect.

Bridge across the Hudson.—At a highly respectable meeting held at Albany on Wednesday, Feb. 4th, a committee of 30 was appointed to draw up a petition to the Legislature on the subject of a bridge across the Hudson.



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D. K. MINOR, Editor.]

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NEW-YORK, FEBRUARY 14, 1853.

POSTAGE—MISSING NUMBERS.—It affords us pleasure to supply deficient numbers of the Journal; although great care is taken to put them up so that they will go safe, (and we cannot, of course, guarantee all losses in the post-office,) we cannot, we again repeat, pay postage on letters asking us to supply deficiencies.

Postage must be paid, or the numbers will not be sent.

We owe an apology to Mr. Cushman for the delay in publishing his communication on undulating railways. It should have appeared several weeks since, but it was accidentally omitted—which omission, however, will not, we trust, cause him to omit us as we have, unintentionally, his communication.

We are indebted to an unknown friend for the report of the canal commissioners in relation to the survey of the Black river canal. We shall look at and give some notice of it soon, together with some others before received.

We have also received a copy of the proceedings of a meeting of citizens held at JESSUP'S HOTEL, in this city, on the evening of the 7th inst., favorable to the Genesee and Allegany canal; a part of which will be given in our next number.

LA PORT, INDIANA, AND MICHIGAN CITY RAILROAD.—It is expected, we understand, that a charter will be granted by the Le-

gisature of Indiana, for a railroad from La Port to Michigan City—on Lake Michigan.

The following statement will, we hope, induce others, or "Unus," to give a similar account of cost of transportation on other roads and canals.

To the Editor of the Railroad Journal :

SIR,—Your correspondent from Michigan calls for the charges of conveyance on various railroads, that he and others may judge of the comparative cost of the transportation of heavy articles, long distances on canals and railroads. I will state, in advance, that where speed is not taken into account, that it is my belief that canals are vastly preferable to railroads, for the transportation of all commodities, of whatever name or nature.

Canals cannot, however, be constructed in every place, and therefore I am decidedly in favor of railroads, judiciously located. I believe the charges on the Baltimore and Ohio Railroad will exhibit nearly the minimum prices in comparison with all other roads, and therefore is the most favorable view that ought at present to be taken.

The price for which conveyance is effected on that road, is, for all commodities transported westwardly, six cents per ton per mile; and for the same transported eastwardly, four cents per ton per mile; reckoning the ton at 2,240 lbs. For light, bulky articles, they frequently charge by the cubic foot, counting a certain number of cubic feet to a ton.

The charges on wool, feathers, or furniture, boxed, amounts to a sum much greater than 6 cents per ton per mile. They moreover frequently let their cars to individuals, to be by them laden with light articles; and after the car is so laden, it is rated at two and a half tons. In most cases, they also charge 30 cents per ton for loading and unloading.

The following exhibit may serve to show what it would cost the owner of property to transport country produce eastwardly 363 miles on a railroad, at Baltimore and Ohio Railroad charges, viz.—

At 4 cts. pr. mile.	—charges 30 cts.	Total.
2,240 lbs. \$14.52		\$14.82
2,000 lbs. 12.96	" 27 "	13.23
*216 " 1.40	" 3 "	1.43
100 " 64	" 3 "	.67
†60 " 39	" 2 "	.41

Therefore, the charges on one bushel of wheat would be 41 cents; on one barrel of flour, \$1 43.

For passengers, the charge is three cents per mile invariably, and sometimes a charge of 12½ cents on each trunk accompanying any passenger 60 miles. As to our Erie Canal, I cannot speak so definitely as to the exact cost of transportation, and would wish therefore that some person may make a table of average prices, including toll, transportation, and charges, and communicate the same to you for insertion.

I however believe that a sum less than two thirds the amount charged on railroads would cover all expenses. It must be borne in mind, too, at the same time that the Erie Canal is paying annually a good interest, and speedily liquidating the debt contracted for its construction; while the Baltimore and Ohio Railroad Company have been scarcely able to pay a dividend of 4 per cent. per annum.†

This last difference is the most astonishing of the whole calculation. However, in favor of the railroad, it may be said that it has not yet been brought to its intended extension and termination, and that it is only in its infancy—yes, barely in embryo.

The tolls received on account of the Erie and Champlain Canals were \$1,313,155 84. The expenses of same for lock tenders, weighmasters, and assistants, repairs, costs of suits, &c. &c., \$458,536 62. Which, deducted from the amount received, will leave \$854,629 22: a sum more than equal to the interest of \$12,208,987, at 7 per cent. per annum.

Should your subscriber in Michigan want more information, and will state his wants in a series of questions, I hope myself, or some one more able, may inform him.

UNUS.

* The weight of one barrel of flour.

† The weight of one bushel of wheat.

‡ This is not, as the writer admits, a fair comparison. The Baltimore and Ohio Railroad being only one-fourth completed, whilst the canal has been for near 10 years in successful operation, besides its numerous lateral branches and the immense inland seas with which it is connected.—[Ed. R. J.]

UNDULATING RAILWAYS.—This subject seems to attract the attention of engineers in this country as well as in England. It is in our opinion a subject of importance, and we hope to see thoroughly tested.

To the Editor of the Railroad Journal, &c.

SIR,—In a former communication upon the subject of "Undulating Railways," (see Railroad Journal, vol. iii., p. 130,) were offered some strictures confined entirely to the experiments made by Mr. Badnall, upon the Liverpool and Manchester railway, intended to evince that the inferences drawn from those experiments were erroneous and absurd. In that paper, too, was hinted the probability that this projector was deceived by preconceived theoretical notions, believing that his delusion arose in drawing general conclusions from instances which were practically unsusceptible of any useful application in railway economy.

The subject is renewed with reluctance; but, professionally, as credenda of the engineer, as well as in view of a due estimation of the system in other respects, it may be proper. In so doing, it is now proposed to take a wider survey of its merits—a survey embracing the feasibility of the general principle of "undulating railways," upon the plan of Mr. Badnall; for every engineer understands that, to a greater or less extent, undula-

tions exist upon almost every railway, and are indispensable, while the present terrene distribution of hill and valley endures; that, in this way, to surmount acclivities and obstacles, that by canals would be quite infeasible, is, indeed, one of their chief characteristics—one which, in a majority of instances, insures the system of railways' pre-eminence.

Before proceeding to the merits of the question, it will be proper to premise dynamical theorems, by means of which general comparisons of results may be instituted. The two which follow, dependent upon the laws of forces, will suffice for this purpose.

$$s = \phi t + \frac{1}{2} g t^2 \cdot \frac{\mp q + \mu - m}{g} \quad (1.)$$

$$v = \phi + g t \cdot \frac{\mp q + \mu - m}{g} \quad (2.)$$

In which ϕ = velocity of projection; v = velocity at the end of any time; t , during which the space, s , has been passed over; q = sine of inclination of plane, whereon any body, as a car, moves; μ = any constant motive force; m = that portion of resistance from friction which is constant—the two latter quantities being each compared with gravity taken as unity; g = the velocity acquired by a body at the earth's surface, urged by the force of gravity, at the end of the first second; and the compound expression $\mp q + \mu - m$ = resultant of all constant forces which influence its motion.

Without the application of a motive force, it is, then, impossible to attain any useful result, even if it were possible to concatenate a series of counter-planes, each consecutive pair, at least, having a common altitude. Yet this would be the skeleton of the "undulating railway."

In gravity, consequently, a motive force, at least equivalent to friction, must be advanced before it would be even possible to elevate the body up the plane CD to D. If this be done, the performance would be infinitely in favor of the inclined profile, because, the motive force being a bare countervail to friction, no performance could result upon the level: that is, it would be thus, if precisely at the point D a declivity commenced, having a correspondent counter-plane, and so on between the termini of the road.

But this is out of the question. Such a structure is entirely visionary. Occasionally in selecting the site for a railway, a conformation of country presents itself where a pair of counter-planes could be constructed; but from the invincible nature of things, the intermedial parts must have different positions; and power, unless adapted to meet and overcome the resistances they offer, would be entirely ineffectual.

Secondly, then, it appears, no useful result can flow from the employment of a force barely equivalent to resistance from friction. Consequently, a power greater than that indicated must be employed;

and by the same reasoning, it appears that such increment of power must, at a minimum, be adequate to traverse all other portions of a line of railway.

It is frequently necessary to submit to resistances requiring a motive force of .015. Engines, whose powers do not equal or transcend this force, would have little efficiency upon any general lines of railway that are or may be constructed; the geological features of the globe offering insurmountable impediments to a materially different result.

Thus constrained to employ a motive force equal or near this value, it is highly pertinent to the inquiry to discover what modification results therefrom: the subjoined will be among the most material.

1. It has been shown that, when the motive force is barely equivalent to friction, the disparity between the performance upon the level and upon the inclinations is limitless: reciprocally, when the motive force becomes infinite, the performance upon either would be equal. It follows thence, that, between these extremes, as the motive force is enhanced, the performances approach equality. An approach, at least, towards equality of performance, ought, then, to obtain in consequence of the value of μ , necessarily, standing comparatively high.

2. The resistance or assistance from gravity being directly as q , since a deviation from the assigned limit ought, for reasons already advanced, to be made in diminution of that value, this would obviously further tend to approximate the performances at points where that limit is unattainable.

These considerations alone place the impropriety of general conclusions, from a particular case, in a light to be justly appreciated.

Still there is another consideration, of the highest import to a fair estimation of the principle, as yet untouched.

It has all along been implied that the body at B is at rest; in that case, too, it would cease to move when it should have arrived at D. But this, again, is clearly inadmissible. Alternations of rest and motion in the midst of an unobstructed way are subversive of the very system. Admitting the invincible necessity, practically, of arriving and starting at these points with considerable projectile velocity, it is evident that its effects are substantially the same with the first mentioned—that, as it increases, it favors the level. This, then, is another weighty reason for the disparity of the ratio of performances to vanish.

With these preliminaries we proceed to a comparison of instances. Suppose there were two planes disposed, as in the diagram, whose common sine was .01, and their lengths 1000 feet; and, further, suppose the motive force, μ , just sufficient to preserve the dynamical equilibrium up the planes—i. e., rating friction at $\frac{1}{10}$, or .0044, to .0144. If, moreover, the projectile velocity at the head of the planes be estimated at the moderate speed, for locomotive power, of 20 feet the second, (nearly 13 miles the hour,) we

Take now the profile A, B, C, D, E, &c., having an undulation B, C, D, and because, with locomotive power, grades steeper than 50 feet to the mile, or thereabouts, are inadmissible, the utmost practical limit for g may be placed at .01,* which make the common sine of inclination of the planes BC, CD. Take further the lengths of the planes equal: their altitudes will then be equal, and BD in the same horizontal plane.

In the first instance, supposing we have no force but that of gravity, the following effects would result to a body placed at the summit of the plane CB.

The sine of inclination being greater than the known value of friction, the body will roll down BC; but in consequence of the constant retardative influence of friction, its momentum at C will not equal that due gravitation—it will not therefore suffice to elevate it up the plane CD. Further, because friction continues its influence up CD, the distance it would otherwise ascend upon that plane will be still farther diminished.

* Thus: the gross load of a train being supposed 40 tons, and its engine 6 tons, and 3-5ths of the weight of the engine upon the drivers—then 3-5ths of 6 = 3 6/10 tons, or 8,064 lbs., will be the absolute weight inaisant upon them. Further, taking the mean adhesion at the liberal estimate of 1-10th, there results, for the absolute value of the adhesion of the peripheries, 806 4-10 lbs. Its force of traction cannot exceed this amount.

Now 40 tons = 89,600 lbs.; consequently, the force of traction due gravity alone, upon a grade whose inclination is .01, is 896 lbs.—about 1-9 greater than the adhesion, without estimating resistance from friction. The above is then quite as great as would be admissible.

shall have sound practical values for ϕ , q , m , μ ; and by the theorems, we at once obtain the comparative performances of two similar trains upon the inclinations, and upon the level: thus—

Upon the inclinations:

Time of descent down B C is, (by theorem 1,) 82.75 seconds.

Terminal velocity is, (by theorem 2,) 41.67 feet per second.

Time of traversing both planes is, 65.50 seconds.

Which gives a mean velocity of 30.54 feet the second.

Terminal velocity, (same as projectile,) 20 feet the second.

Upon the level:

Time same as upon inclinations, 65.5 seconds.

Distance traversed in that time is, (theorem 1, making $q = 0$), 2,000 feet.

The mean velocity is then the same, 30.54 feet the second.

The terminal velocity is, (theorem 2, making $q = 0$), 29.75 ft. the second.

On comparison of the mean velocities for both systems, can the conclusion be resisted, that—even when only that portion of resistance which is constant is accounted—there is no gain by the system of counter-planes? and that, when the final velocities are considered, there is a decisive loss by that plan, seeing that they stand as 29.75 : 20, nearly $\frac{3}{4}$ in favor of the level? Were the velocities to become uniform, after the horizontal velocity of 26 $\frac{1}{2}$ miles the hour had been attained, the effect of the latter would be thus: at the instant of absolute time this took place, (65 $\frac{1}{2}$ seconds after passing D,) with the engine which had run upon the inclinations, its fellow, which had run upon the level throughout, would be 487 feet in advance; and so on for every similar subsequent portion of the railroad.

Should the conditions prescribed, obtain in practice, we may assert, in general, the inferiority of the "undulating system" of railways.

Reasons for assigning .01, as about the limit for inclinations, upon that plan, have already been given. In respect to length of plane, safety alone, (to apply the convey, or abate the motive force, is bane to the principle, because acceleration, its sole basis, is thereby checked,) indicates the length assigned above, as near the practical limit wherever the two plans may come in competition: for, in consequence of acceleration, the terminal velocities would be greater than are consistent with safety. On longer planes, by reason of lateral friction, the resistance of the atmosphere, velocity becoming uniform, &c., aside from danger, the effects of acceleration disappear: hence, the case chosen will be near actual limits for all restraints, while, for that reason, it is the most favorable to the "undulating system." The cases falling within these limits, will, of course, be still more opposed to the inclined road.

In what precedes, that portion of resistance which is constant has alone been regarded. There are, however, other

sources very material to a due estimation of the system—as, the atmosphere—the retardation from centrifugal force on curvatures—and the casual infringement of the flanges of wheels against the rails. Upon long planes the latter operates; indeed, upon all inclined planes, it operates, beyond what obtains on levels, very sensibly in opposing the basis of the system—acceleration.

The exponent of the law of increase of resistance from the atmosphere, at varying velocities, being greater than unity, in all accelerated motions its mean effect will stand far higher upon the inclinations than upon the horizontal way; and therefore against inclinations. The latter remark applies as forcibly to resistances from curvatures.

We should err, then, most egregiously, if neglecting all those highly material resistances, results as favorable to inclinations as our theorems give were anticipated in actual experiment. Of this, look where we may, there will not be found any more striking or decisive confirmation than the experiments conducted by Mr. Badnall upon the Liverpool road. They indicate an inferiority by the counter-plane system, varying from $\frac{1}{4}$ to nearly $\frac{1}{2}$. [Vide Railr. J., vol. iii. p. 130, col. 3.] Reasoning a priori from the known laws of mechanics, leads thus to results perfectly coincident with experiment: the larger diminution of effect in these experiments being satisfactorily accounted for in the exclusion, from our theorems, of the material resistances just recited.

All delusion, it would seem, then, in regard to the demerits of the "undulating railway," consists in the hallucination of inferring general practical results from a particular case, which can only exist in theory. It is a little singular that a gentleman, of the intellectual acumen the reassurer of the old fallacy of undulation has evinced, in many communications to the public upon the subject, should, despite his own experiments, commit so obvious and unphilosophical an oversight.

In our computations, it may be objected no allowance has been made for diminution of friction upon inclinations. True; but even in theory, the difference is entirely insignificant; for, within the limits assigned to the inclinations, the ratio of cosine to radius is almost precisely a ratio of equality—and it is in that ratio that it can alone be lessened. In a practical view, we opine, that even this immaterial quantity disappears, in consequence of the bearing surface being diminished by the larger weight being thrown upon one pair of wheels.

Perhaps exceptions may also be taken to the supposition that the planes are of equal altitudes. The obvious rejoinder is, the inclinations are inferior in the case of a common altitude, which is that most favorable to the plan; therefore, a fortiori, &c.

The expectation of realizing economy of power, with its pecuniary implications, and public and private benefits, appears, upon overlooking the whole grounds we have taken, to be entirely groundless.

There are, however, still other objections yet unenumerated. Besides inferiority in point of power and danger from high speeds, it would be highly destructive to machinery; all intermissive irregular motions are unfavorable to its duration, safety, and economy: especially does this remark apply to the delicate, nicely adjusted machinery of railways.

The road way would depreciate more rapidly in consequence of the larger weight being thrown upon a single pair of wheels.

Concussions between the advance and rear of a train of cars, when passing the apex of the planes, could not be obviated, even though it were rounded to the arc of a circle, or though the entire inclinations were arcs of the circle, or any other curve. Both danger and damage would thence ensue.

The system and locomotive power mutually antagonize; at the high speeds inexorably required by the plan, the elasticity of steam would be largely reduced—a circumstance adverse to acceleration, &c.

The only entity, in the shape of an advantage, the system presents, in contravention of a series of disadvantages—either of which would go far towards countervailing any benefit of this kind—it appears, consists in economy of embankment; and, possibly, at some points, of excavation at those points where the plans come in competition; there is little danger of the skillful, scientific engineer, being deluded by a purblind economy in this respect, where adequate advantages are not clearly secured.

W. M. CUSHMAN, C. E.
Albany, December 22d, 1834.

NEW-YORK [AND ERIE] RAILROAD.
Board of Assistant Aldermen,
February 4, 1835.

Report of the Special Committee of both Boards, in respect to the New-York and Erie Railroad; adopted, and double the usual number of the report ordered to be printed, together with one hundred of the map which accompanied it. Presented by Wm. S. Johnson.

R. FISHER, Clerk.

Resolution relative to the measures proper to be adopted by the city of New-York to promote the construction of the New-York and Erie Railroad.

Whereas, the immense augmentation which has been experienced in the extent, wealth, and prosperity of the city of New-York, since the completion of the canals of this state, signally demonstrates the value and necessity of artificial channels of commercial communication, connecting the metropolis with the populous and fertile regions of the interior.

And whereas, several works leading into the State of Ohio, from ports on the Atlantic sea-board, south of this city, are now constructing, and are rapidly advancing to completion, under the direction of various companies, incorporated and powerfully patronised by the State of Pennsylvania, Maryland, and Virginia, seeking to divert from the city of New-York the extensive and lucrative commerce which it has heretofore enjoyed with the rich and rapidly increasing States and Territories north of the

Ohio river, and relying for success upon the greater severity of climate experienced in the more northerly latitude of the State of New-York, whereby the navigation of its canals is suspended during a large portion of the year: And whereas, it has become vitally important to the commerce of this metropolis, to obviate the difficulties and disadvantages to which it is thus subjected, which object can only be obtained by constructing additional channels of trade and intercourse, by means of railroads leading directly from the city to the western waters, and available for commercial purposes at all seasons of the year:—

And whereas, the Legislature of this State at their last session directed the route of a railroad to be surveyed under the direction of the Executive, through the southern counties of the State, from the Hudson river to Lake Erie, for the purpose of ascertaining whether the public interest would be promoted by a subscription on the part of the state to a portion of the capital stock of the New-York and Erie Railroad Company, which was incorporated in the year 1832, for the purpose of constructing such road, whereby the Commonwealth at large might participate in the burthens and benefits of that undertaking, or in what other mode the general objects sought to be accomplished by that act of incorporation, might properly be encouraged by the public authorities:—

And whereas, it is now satisfactorily ascertained, by means of that survey, that, in case the State shall co-operate and participate in the enterprise, the whole of the road in question can be completed within four years, from the 1st day of May, 1835, and a communication thereby provided, by which passengers and merchandise may be regularly transported, at all seasons of the year, in less than forty hours, from the city of New-York to the southern shore of Lake Erie, communicating also by means of the Allegany river, directly with the valley of the Ohio:—

And whereas, the inhabitants of this city are deeply interested in the prosecution and speedy accomplishment of this most important undertaking, tending, as it plainly must, to attract and secure forever to this emporium the vast and expanding trade of the most fertile, valuable, and populous portion of the continent, thereby augmenting its commerce, prosperity, and wealth, to an incalculable extent:—

Therefore, resolved, (if the Board of Aldermen concur herewith,) that it be referred to a joint committee of three members of each board, to report resolutions signifying the sense which the Common Council entertain of the necessity, importance, and value of the proposed work, and to inquire and report what measures, if any, the city may properly adopt to promote and secure its speedy execution.

The Special Committee from the Board of Aldermen and Assistant Aldermen of the city of New-York, to whom was referred the resolution of Assistant Alderman Johnson, touching the necessity, importance, and value, of the proposed railroad through the southern counties of this State, from the Hudson River to Lake Erie, respectfully beg leave hereby to report,

That, for the purpose of being more fully informed of the details of the subject thus referred to their consideration, they have summoned before them several of the directors of the New-York and Erie Railroad Company, incorporated in the year 1832, for the purpose of constructing the proposed road; and have also been attended, at their

request, by Benjamin Wright, Esq., and his assistant engineers, under whose care the route of the road has been recently surveyed. From these individuals the Committee received very full and satisfactory explanations; and, nevertheless, the Committee, being conscious of the momentous importance of the subject under examination, felt it also to be their duty to satisfy themselves, as far as was practicable, from auxiliary sources of information, of the accuracy of the details which were elicited on this interesting examination. It fortunately happened that one of the Committee,* by having been engaged for a considerable time in a work of public improvement, intersected by the route of the proposed road, had become considerably familiar with the topography, and also with the trade and resources of that portion of the country, and was thereby enabled greatly to facilitate the examinations of the Committee.

The Committee, moreover, deemed it proper that they should make no statements affecting a subject so deeply interesting to the community at large, without a full and sufficient scrutiny, and they have therefore pursued their examination with a minuteness of inquiry which has brought them into acquaintance with many interesting details, which they may deem it expedient hereafter to make the subject of a supplemental report.

In the mean time they beg leave to present to the Common Council the present summary statement of the facts which have been ascertained by their examination.

In the first place, then, they report, that after full inspection of the maps and plans returned by Judge Wright, and copious explanations from himself and his assistants, they are entirely satisfied that it is practicable to construct the proposed road, and that it will afford the means of transporting passengers, merchandise and the public mails, at all seasons of the year, in less than 48 hours from the city of New-York to Lake Erie.

The road after leaving Rockland and Orange counties, will follow successively the large vallies of the Delaware, the Susquehanna and the Allegany, and thereby obtain the easy grades of declivity naturally pursued by those streams. The surface of much of the country adjacent to the line is undulating, but the apparent difficulties which are thereby presented, are avoided by the following the water courses.

In the language of Judge Wright, the road "goes *around* instead of *over* the hills." The whole line of the route is 483 miles, capable, however, of being shortened to 460 miles; but it is not comparatively more circuitous than the canals of Pennsylvania. The ascents on much the greatest portion of the route are generally from 5 to 30 feet per mile, and do not exceed 60 feet per mile, except in five or six instances, where the line crosses the natural boundaries of the large vallies. No stationary engine or inclined plane will be necessary on any part of the road, except in one instance, about four miles from Lake Erie, and even that may be dispensed with by altering the grade for eight miles, at a moderate expense. Locomotive engines, drawing passenger cars, may be propelled over every portion of the road (except the inclined plane) with economy and advantage; and at the points where the rate of acclivity exceeds sixty feet to the mile, the passage

* John Bolton, Esq., late President of the Delaware and Hudson Canal Company.

of burthen cars heavily loaded may be easily and cheaply expedited, either by auxiliary locomotive engines, or an addition of animal power. It is quite certain that passengers may be carried over the road with great celerity and profit, and from the testimony taken before the Committee, and the personal information of one or more of its members, they are entirely satisfied that the road will also serve to transport to tide water the lumber, provisions, live stock, fuel, and agricultural products of the region of country adjacent to the route and its contemplated branches, and carry back merchandize in return, more cheaply and advantageously than can be effected by any other channel of communication.

The road will be intersected by several lateral branches and canals, which will greatly increase its revenue and its importance. In the western part of Orange county, it intersects the Delaware and Hudson Canal: in Broome county, the Chenango Canal: in Tioga county, the Chemung Canal: in Delaware county, it will be connected with a branch leading up to Delhi: in Otsego county, by a very important and valuable branch leading up the valley of the Unadilla to Utica, for which a charter is obtained and the stock already subscribed; a branch will lead through the valley of the Onondaga River, in the county of Cortland, to the Salt Works at Syracuse: at Owego, the railroad, now finished to Ithaca, will immediately connect the main line with the fertile country adjacent to the Cayuga and Seneca Lakes: by the line of steamboat navigation now in preparation on the Susquehanna at Owego, it will be united to the valley of Wyoming and the coal regions of Pennsylvania: the contemplated railroad from Rochester to Danville, if extended a few miles, will intersect the main line in Steuben county: in Allegany county, it will intersect the contemplated route of the Rochester and Olean canal: and it will become connected in Cataraugus county with the Allegany River, and thereby open a direct communication between the city of New-York and the large and populous communities and cities in the valley of the Ohio. The map of the proposed route annexed to this report, fully exhibits these several localities, and is well worthy the attention of the Common Council.

2. The Committee are of opinion that this work will afford immense public benefits to the inhabitants of this metropolis.

The rapid, constant, and regular communication it will insure at all seasons of the year, with the extensive and fertile grazing districts in the counties of Orange and Delaware, and the valley of the Susquehanna, will cheapen the price of subsistence, by affording abundant and uninterrupted supplies of provisions for the public markets; the excellent and valuable timber furnished by the counties of Steuben, Allegany, and Cataraugus, by reducing the cost of building, will accelerate the growth of the city, and at the same time facilitate the operations of ship building; the rapid and regular passage it will secure to the public mails, will insure the speedy transmission of commercial intelligence; it will provide for the public defence, by affording the means of military communication with unparalleled speed between the Atlantic and Western frontiers; while the comfort and health of our citizens will be promoted by obtaining cheap and frequent access to the healthful regions of the interior.

3. The speedy completion of the work has now become an object of transcendent importance to the merchants, traders, and

land owners of this city, in order to preserve and extend its great and lucrative trade with the West.

The important and alarming truth can no longer escape the attention of our municipal authorities, that the intercourse between this city and the great West, to which it owes so large a share of its present prosperity and power, is totally suspended during five months of the year. Availing themselves of that circumstance, the public spirited citizens of Pennsylvania have constructed, and have now recently completed, a line of canals and railroads from Philadelphia to Pittsburgh, which are available for the purposes of trade and intercourse during at least two months of the year, in which the navigation of the New-York canals is suspended by the greater severity of their more northern latitude. The Erie canal is not usually navigable until the 20th of April, and rarely remains open after the 20th of November. The canals of Pennsylvania, favored by a more southern climate, are generally navigable about the 10th of March, and remain so until the 25th of December. The merchants of Philadelphia are thereby enabled to monopolize the western trade during portions of the spring and autumn peculiarly valuable for commercial purposes. Even after the navigation is opened on the Erie canal, the intercourse between New-York and the West is obstructed for a considerable time by the ice accumulated during the months of March and April, in the harbor of Buffalo, while the navigation of the Ohio river being open at Pittsburgh during that important season of the year, the produce of the West finds its way to Philadelphia, and its proceeds are invested in merchandize, and transported into the remotest portions of the interior, before vessels are able to navigate the eastern end of Lake Erie. The intelligent and enterprising merchants of Philadelphia, supported by the spirited efforts of their Board of Trade, are striving to follow up this advantage, by promoting, with great zeal, the construction of lateral canals and railroads by the state of Ohio, and by private companies, extending northwesterly from the Pennsylvania line to the Ohio Canal, for the purpose of effecting a communication between Pittsburgh and the harbor of Cleveland, on Lake Erie; and that too for the avowed object of diverting from the city of New-York the lucrative commerce which it would otherwise enjoy with the northern parts of Ohio, Indiana, Illinois, and Michigan.

There is no mode of successful competition with these efforts of our public-spirited rivals, except by opening a winter communication between this city and the harbors on the wider part of Lake Erie.

The proposed road will accomplish that object by affording the means of transmitting merchandize at all seasons of the year within forty-eight hours from the warehouses of New-York to the harbors of Dunkirk, Portland, or Erie, while its connexion with the cheap descending navigation of the Allegany River, (which is generally available in the latter part of February, and early in March, and is capable, with small expense, of being rendered navigable for steamboats at all seasons of the year,) will enable the merchants of our city to furnish the cities of Pittsburgh, Cincinnati, and the other trading towns in the valley of the Ohio, with their spring supplies, before the opening of navigation on the Pennsylvania Canal. The speedy completion of this road will moreover encourage and hasten its speedy continuation by great

western and southern branches, leading from Lake Erie to various points on the western and south-western waters, whereby passengers, merchandize, and the mail, may be transmitted in six days from New-York to St. Louis: and thus this great central channel of intercourse, lying wholly within the limits of our own state, and subject to its sole jurisdiction, will become the main trunk of a connected system, or series of internal communications, extending from the port of New-York, throughout the populous regions in the vast and fertile valley of the Mississippi.

The statistical particulars of these great lines of western communication, and the important influence they will exert in directing the trade of those vast inland regions into Lake Erie, and thence to the city of New-York, will be found in an interesting letter furnished to the committee by one of the directors of the company, which is annexed to this report, and is recommended to the attention of the Common Council as a document of much importance.

4. The preservation of the trade of these great inland districts, by connecting them closely with this city by means of cheap and rapid channels of communication, has become an object of the deepest solicitude to the landholders of New-York, and every person interested in its permanent prosperity.

The past growth, and in truth the very existence of this metropolis, are wholly owing to the facilities of communication it possesses with the agricultural population of the interior. The Erie Canal opened a channel of intercourse during seven months of the year, between the port of New-York and inland districts containing little more than a million of inhabitants, and yet within ten years from its completion, the assessed value of the landed property of the city was augmented from 52 to 114 millions of dollars. The completion of the proposed road will bring into constant connexion with the city of New-York an increased amount of territory, already containing three, and destined, within six years, to number more than six millions of inhabitants; while the impulse imparted to the agricultural prosperity of those inland communities, by the facilities afforded to them for cheap and expeditious communication with their trading emporium, will augment to a corresponding extent their capabilities of pursuing a profitable commerce with the sea-board.

It has been frequently, and by no means extravagantly, stated, that the construction of the Erie Canal, by diminishing the time and labor expended in transportation, has saved annually to the citizens of this state not less than \$5,000,000, and added at least \$150,000,000, to their aggregate wealth. This immense and rapid augmentation of value will afford a criterion, although imperfect, by which to estimate some portion of the pecuniary benefits to be derived by the public, from the opening of a communication not less cheap, more regular, and far more expeditious than the canal between this metropolis and a district of fertile territory, embracing an area more than eight times as large as the state of New-York, west of Utica. To calculate with any accuracy the value of the vast and illimitable trade which, within twenty years, will be concentrated upon the waters of Lake Erie, destined before the present generation shall pass away, to number more than a thousand vessels, and to bear on its surface the wealth of at least twenty millions of the American people, or to com-

pute the prodigious rise in value which the landed property on the Island of New-York will experience, when the immense and expanding commerce of these great inland communities shall be concentrated within its limits, will not be attempted; but it will be confidently claimed that the increase in the value of the real estate in this city within the first ten years after completing the proposed road, will repay more than tenfold the whole cost of its construction, and that the augmentation in the population and wealth of the immense and fertile regions which will be brought by its completion within four days' travel of the sea-board, will defy all attempts at sober calculation.

5. In what mode, then, can this great enterprise, promising public advantages thus enormous, be most effectually and speedily accomplished?

In the year 1832, the standing committee on internal improvements in the Legislature of this state, after full examination of this and other projects of inland communication, reported that it would not be politic for the state, as such, to construct railroads; and for the obvious reason, that the owners of the road must manage the transportation, and the state could not become common carriers. But the committee recommended the incorporation of companies, whenever individuals should see fit to risk their property in constructing railroads, reserving, however, the right, which is reserved in all other acts of incorporation, to repeal or modify the charters. The committee also recommended that the state should subscribe to portions of stock in this and all the other great leading routes, whereby the public at large might participate, to a certain extent, in their pecuniary profits, (if any,) and at the same time secure the economical management resulting from the vigilant attention of individual proprietors.

The annual message of the Governor to the Legislature at the opening of the session in that year, after stating that the construction of railroads in various parts of the state would "become eminently promotive of the public good," but that "many generations must pass away before the numerous improvements worthy of the state could be undertaken by the public means alone," recommended that companies of individual proprietors be incorporated with power to construct them, reserving, however, to the Legislature, the right secured in all the recent acts of incorporation, to take possession of the roads as public property, on equitable terms.

The Legislature, accordingly, in the year 1832, chartered a company for the purpose of making the proposed road, (subject to the reservations recommended by the Governor,) with leave to issue capital stock to the amount of \$10,000,000, requiring them to expend \$200,000 before April, 1837; to finish one quarter of the work before April, 1842; one half before April, 1847; and the whole before April, 1852; and authorising them to receive donations of lands to aid in the construction of the work. By an amendment, obtained in 1833, the company were empowered to organize themselves, on receiving subscriptions of stock for one million of dollars. That amount was duly subscribed, and is now holden principally by merchants, land-holders, and other inhabitants of this city, deeply interested in its permanent prosperity, and anxious to complete the proposed work with all practicable despatch.

In order to ascertain how far the public interest would be promoted by a subscription to the stock on the part of the State,

the Legislature in May, 1824, authorized the route to be surveyed at the public expense. In the mean time the Directors of the Company have been actively employed in making the inquiries and investigations necessary to the prosecution of their object, adopting measures calculated to secure the confidence of capitalists, and obtaining donations towards their work from large proprietors on the route; and they have met with such success and such encouraging assurances, that they are confident of being enabled to commence the road during the ensuing season, and they believe that in case the legislature should authorise a subscription by the State, for a portion of the stock, or a loan of its credit to the company, they can complete a single track of their road over the whole route within five years.

The expense of the whole work, as estimated by Judge Wright, including the graduation for a double track throughout on solid earth embankments, and laying down a single track ready for use from the Hudson River to Lake Erie, will not exceed \$4,762,000. The graduation of more than one half of the line does not exceed \$4,000 per mile. The whole route is embraced in six large divisions, to wit:

The *First, or Hudson River Division*, extending 73½ miles from a point on the Hudson River, near the southern extremity of Rockland county, (distant 24 miles north of the City Hall of New-York,) to a point in the Deer-park Gap of the Shawangunk mountain near the west line of Orange County, dividing the waters of the Hudson from those of the Delaware:

The *Second, or Delaware Division*, extending 115 miles from the point last mentioned, through the valley of the Delaware and its tributaries, to a point near Bettsburgh, in Chenango County, dividing the waters of the Delaware from those of the Susquehanna:

The *Third, or Susquehanna Division*, extending from the point last mentioned 163½ miles along the valley of the Susquehanna and its branches, to a point near the west line of Steuben county, dividing the waters of the Susquehanna from those of the Genesee:

The *Fourth, or Genesee Division*, extending from the point last mentioned 37 miles, across the valley of the Genesee, to a point near the east line of Cattaraugus county, dividing the waters of the Genesee from those of the Alleghany:

The *Fifth, or Alleghany Division*, extending from the point last mentioned, 83 miles along the valley of the Alleghany and its tributaries, (situated at the northern extremity of the great valley of the Ohio,) to the head of the inclined plane, near Lake Erie:

The *Sixth, or Lake Erie Division*, comprehending the short and rapid descent to the shore of the lake, including the inclined plane and two branches of the road, one to the harbor of Dunkirk, 8½ miles, and one to Portland, 9 miles.

6. The execution of this most valuable and necessary work being thus shown to be free from physical difficulties, and capable of being completed at a moderate expense, the question then arises, of much importance to the public, and one which the Committee deemed it their duty fully to examine, whether the Company now incorporated possess sufficient means and resources to complete the road with the energy and despatch which the public interest requires. The Committee, in prosecuting this inquiry, have personally examined the officers, directors, and books of the

Company, and from that personal inspection they have become entirely satisfied, that the stock of the company is held by individuals greatly interested in the permanent prosperity of the city, deeply conscious of the importance of the proposed road in advancing the general, as well as their individual prosperity, and fully determined to spare no effort to insure its speedy completion. The concerns of the Company are now managed by 17 directors, 14 of whom, to wit: James G. King, the President, Eleazer Lord, the Vice President, Peter G. Stuyvesant, John G. Coster, John Rathbone, jun., Gould Hoyt, Samuel B. Ruggles, J. Green Pearson, Elihu Townsend, Peter Harmony, Stephen Whitney, James Boorman, John Duer, and Michael Burnham, reside in this city, and are well known to their fellow citizens; and the remaining three, to wit: Jeremiah Pierson, George D. Wickham, and Joshua Whitney, reside in the counties along the route, and equally command the confidence of the inhabitants of that part of the State.

The committee have also satisfied themselves, by personal inspection, that the first instalment required on the million of dollars, heretofore subscribed to the stock, has been regularly paid in cash, and that it is now duly deposited upon interest, with the New-York Life Insurance and Trust Company, subject to the joint order of the President and Vice-President of the New-York and Erie Railroad Company.

It was not necessary, nor would it have been at all prudent or expedient, for the Directors to have proceeded in the actual construction of the road, until the route should have been surveyed; and it was also deemed highly desirable that the survey should be finished, which had been ordered by the State, in order more perfectly to secure and confirm the confidence of the large capitalists, whose co-operation was absolutely necessary in the prosecution of so great an enterprise.

The very favorable results ascertained by Judge Wright, and by his report to the Secretary of State, presented about the first of this month, a copy of which is herewith subjoined, have entirely confirmed the belief previously entertained, that the work is perfectly feasible; and that it will be profitable not only to the community, but to the stockholders, who may embark their funds in its construction. The committee are assured that the Directors intend forthwith to open books for private subscriptions, for the additional amount of two millions, and that they entertain the most perfect confidence, that by means of the subscriptions already obtained, and the assurances of valuable donations of lands along the route, tendered to them by the inhabitants (all but unanimously) along the whole route, and of their zealous and hearty co-operation, recently and repeatedly, and at all times expressed in their town and county conventions, the Company will be enabled to commence the actual execution of the work during the ensuing season, and nearly two years before the time allowed for that purpose in the charter; and that in case the State shall loan its credit, or subscribe for the stock to an amount not exceeding one third of the cost of the road, the Company can complete the whole from the Hudson River to Lake Erie, within five years. And the committee are further satisfied, that even if the State shall decline to extend any aid to the Company, and they shall be left to their own unaided resources, they can within two years complete the second or Delaware division of

the road, and thereby divert to this city, through the Delaware and Hudson Canal, a large portion of the exports now passing out of this State, down the Susquehanna River:—and it is moreover confidently believed, that the productiveness of that division, by demonstrating the value of the whole work, will sustain the credit of the stock, and enable the Directors to extend the road without delay to Lake Erie.

The inquiry then arises as to the mode in which it will be proper and expedient for the Common Council to aid in the accomplishment of a work affecting so deeply the prosperity of the city and its inhabitants.

Whether the city, in its corporate capacity, possesses the legal right to make donations of land or money, in aid of this work, or to subscribe its funds to any portion of the stock of the Company, is not necessary now to inquire. It may be well, however, to state, that the municipal authorities of the city of Baltimore deemed it their duty to assist in the construction of the railroad from that city to the Ohio River, by a subscription of \$500,000 to the stock of the Company engaged in its construction. The city of Richmond, with a population of less than 20,000 inhabitants, has recently subscribed \$200,000 to the stock of the Company incorporated for the purpose of opening a communication by canals and railroads, between the Atlantic coast of Virginia and the river Ohio. The Union Canal Company of Pennsylvania has recently been aided by a loan of the credit of that State, authorized by its Legislature: and the Pottsville and Danville Railroad Company, incorporated for the purpose of directing to the city of Philadelphia the trade of the Susquehanna Valley, and avowedly claiming that they will be able through that channel to divert from the city of New-York a large part of the trade of the southern counties of this State, has recently obtained from the State of Pennsylvania a loan of its credit for \$300,000.

In the judgment of the committee, the aid to which the New-York and Erie Railroad Company are justly entitled from the public, ought to be rendered directly by the State. They therefore report, that it will not be expedient for the Common Council at present to aid in the enterprise, except by uniting strongly in the petitions to the Legislature, praying the State to co-operate in the efforts of the Company, and thereby signifying the unanimous sense which the municipal authorities of this city entertain of the public importance of the work.

The city, possessing one third of the taxable property of the State, is consequently interested to that extent in the pecuniary consequences of any subscription by the State at large; and will accordingly gain or lose to that extent, by the profit or loss to result from the investment in that mode of the public funds. The committee, however, do not believe that the State can sustain any pecuniary loss by such subscription, inasmuch as they deem it almost positively certain that the road, when completed, will produce an annual revenue fully equal to the interest on its cost.

The road will cost, when fully completed, much less than the Erie Canal, and in many respects will be far more useful to the public; and consequently will be capable of yielding a much greater revenue.

The fact that it will be open and available, and earning income, during the long interval of five months, in which the Erie Canal is closed; that it will afford facilities

ties for the expeditious transportation of passengers and the public mails, not possessed by the canals; that it will be connected by its lateral branches, and the numerous rivers and canals which it will intersect, with the most fertile and populous parts of the State, and with an extensive district in Pennsylvania and in New-York, abounding in natural resources, and capable of rapid advancement in population, prosperity, and wealth; and, above all, the fact that it will open the most direct and central avenue of trade and intercourse between the Atlantic seaboard and the immense and expanding communities adjacent to the great lakes and waters, and internal communications of the West, will assuredly justify the most confident expectation that the business of the road will yield an income fully equivalent to the interest on its cost, and the risk assumed in its construction; and that the public spirited individuals who may subscribe to the stock (including the State to the full extent to which it may participate) will advance their pecuniary interest, while at the same time they will promote to an incalculable extent the public good.

The Committee therefore beg leave to submit for adoption the following Resolutions:

Resolved, That the speedy construction of the New-York and Erie Railroad has become an object deeply interesting and important to the merchants, mechanics, traders, landholders, and all other inhabitants of this city—and that the efforts of the company who have been incorporated with the power to construct it, merit and ought to receive the zealous support and co-operation of the public authorities.

Resolved, That from the minute and personal examination of the concerns of that Company made by the Committee of the Boards of Aldermen and Assistant Aldermen, and the facts herein above set forth of the situation and prospects of the Company, there can be no reasonable doubt of their inclination and ability to complete the Road with all practicable dispatch, and that the whole can be completed within five years, in case the company shall be aided to a moderate extent by the patronage and co-operation of the state.

Resolved, That it is proper and expedient for the Common Council as representatives of the City and County of New-York, containing one-third of the aggregate amount of taxable property within this state, to petition the Legislature to invest a portion of the public funds in the stock of the Company, or else to facilitate its objects by a loan of the credit of the state, and therefore—

Resolved, That his Honor the Mayor be requested to transmit to the Legislature the petition of the City of New-York under its corporate seal, setting forth the necessity and advantages of this great work and soliciting the Legislature to aid in its speedy completion.

Resolved, That the public authorities of our sister City of Brooklyn, constituting a large and important portion of our commercial emporium, be, and they hereby are respectfully invited to co-operate with the Common Council of this city in such measures as may become necessary to promote the speedy accomplishment of the proposed road.

Resolved, That it be recommended to the citizens at large, assembled either in general meetings, or in their respective wards, to adopt energetic measures to ex-

press to the Legislature their sense of the transcendent importance of the proposed road, in preserving and extending their internal commerce with the west, and thereby augmenting the extent, population and prosperity of this metropolis.

Resolved, That in view of the importance of the proposed route in affording unrivalled facilities for the rapid transmission of commercial intelligence, it will be proper to petition to Congress, or the Post Master General of the United States to adopt such measures as may be necessary to secure the permanent use of the proposed road, for the carriage of the public mails, and that his Honor the Mayor be requested to transmit to Washington such memorial and petition in that respect as may be appropriate.

Resolved, That the members of Assembly, and of Congress from this city at Albany and at Washington, be, and they hereby are respectfully requested to use their best efforts in such mode as to them shall seem proper, to promote the success of the petitions thus to be presented by this city—and that they be furnished by the Mayor with copies of this report and the accompanying resolutions.

WM. SAM'L JOHNSON,
SILAS S. STILWELL,
ISAAC L. VARIAN,
JOHN BOLTON,
J. J. BOYD,
JOHN DE LAMATER.

New-York, Feb. 4th, 1835.

ON THE COMPARATIVE VALUE OF FUEL.

(Continued from page 41.)

These kindling balls may be made so inflammable as to take fire in an instant, and with the smallest spark, by dipping them in a solution of nitre, and then drying them again; and they would neither be expensive nor liable to spoil by long keeping. Perhaps a quantity of pure charcoal, reduced to very fine powder, and mixed with the solution of nitre in which they are dipped, would render them still more inflammable.

[The foregoing meagre account of the relative value of several varieties of fuel, as determined by the heat produced in combustion, comprises about all the information which the labors of Crawford, Lavoisier, Rumford, Watt, Dalton, Clement, Desormes, and other philosophers, have shed upon the subject previous to the publication of Mr. Bull of Philadelphia, entitled "Experiments to Determine the Comparative Value of the Principal Varieties of Fuel used in the United States and in Europe," read before the American Philosophical Society of Philadelphia, in April, 1826. This is by far the most extended, systematic, and successful, effort yet made in this interesting field of experimental inquiry. I am indebted to the politeness of Mr. Bull for permission to transcribe the tabular results of his experiments, and such other portions of his interesting paper as more immediately comports with the practical character and design of this work; but would earnestly recommend the perusal of the whole paper to every scientific manufacturer, or artisan, whose processes involve any considerable consumption of fuel, as well as to enlightened readers of every class; for no subject is more generally interesting

in our cold climate than the most economical means of producing artificial heat.

The general principle on which Mr. Bull's experiments were conducted, for determining the comparative heat evolved in the combustion of the different varieties of fuel operated on, was to burn them in a close room, and note the time that the combustion of a given weight of each would sustain the air of the room at a temperature of 10° above the surrounding medium. To obviate the influence which the ordinary atmospheric changes of temperature and the winds would produce on the results, by furnishing a surrounding "refrigerating medium of inconstant power," the room in which the experiments were performed was surrounded by double walls, and the intermediate space sustained by artificial heat during the experiments, at a uniform temperature, and somewhat higher than the greatest natural temperature of the external atmosphere. The actual temperature of the inner and the outer rooms, during the experiment, was determined by common mercurial thermometers suspended in each, and the difference of temperature by Leslie's differential thermometer, the horizontal part of which traversed the inner wall, or partition, leaving a bulb and upright stem on each side. The combustion was effected in a small upright cylindrical stove furnished with forty-two feet of sheet iron pipe of two inches diameter, having in it several convolutions before it left the room. So completely was the heat generated in the process of combustion dissipated by the pipe, and emitted into the room, that a thermometer, the bulb of which was inserted in the pipe just before it entered the chimney, indicated the same temperature as the one which hung in the room. As the conducting power of air, in relation to caloric, is influenced by its hygrometric state, care was taken to preserve it in a uniform condition in this respect. All the varieties of fuel operated on were dried previous to combustion, at a temperature of 250°, Fahrenheit. Their solid contents were determined in the usual method for irregular bodies, by the volume of water which a given volume by the usual admeasurement displaces, and the specific gravities by the hydrostatic balance. In the latter case, porous substances, which expand by the absorption of water, as the wood, were previously covered with a varnish having exactly the same specific gravity as water; in short, no precaution seems to have been omitted by this laborious and able experimenter, to guard against every source of error, both in the construction of his apparatus, and in the general conduct of his inquiries. The annexed table exhibits the results of his experiments on sixty-six varieties of fuel.

On the first inspection of the annexed table I was surprised, as I presume others have been, at the general aspect of the 10th column in relation to the wood. The difference in the heat produced by the combustion of equal weights of dry woods is much less than I had apprehended, and such as to induce a momentary suspicion

Woods and Coals.											
Common Names.	Botanical Names.	Specific gravities of dry wood.	Avoid. lbs. of dry wood in 1 cord.	Product of charcoal from 100 parts dry wood, by weight.	Specific gravities of dry coal.	Pounds of dry coal in one bushel.	Lbs. charcoal from 1 cord of dry wood.	Bushels of charcoal from 1 cd. dry wood.	Time 10° Heat were maintained by the combustion of 1 lb. of each article.	Value of specified quantity of each article, compared with shell bark hickory.	
White Ash.....	Fraxinus americana.....	.772	3450	25.74	.547	28.78	888	31	H. M.	Cord.	
Apple Tree.....	Pyrus malus.....	.697	3115	25	.445	23.41	779	33	6 40	77	
White Beech.....	Fagus sylvestris.....	.724	3236	19.62	.518	27.26	635	23	6	65	
Black Birch.....	Betula lenta.....	.697	3115	19.40	.428	22.52	604	27	6	63	
White Birch.....	Betula populifolia.....	.530	2369	19	.364	19.15	450	24	6	48	
Butter-nut.....	Juglans cathartica.....	.567	2534	20.79	.237	12.47	327	42	6	51	
Red Cedar.....	Juniperus virginiana.....	.565	2525	24.72	.238	12.52	324	50	6 40	56	
American Chesnut.....	Castanea vesca.....	.522	2333	25.29	.379	19.94	590	30	6 40	52	
Wild Cherry.....	Cerasus virginiana.....	.597	2668	21.70	.411	21.63	579	27	6 10	55	
Dog Wood.....	Cornus florida.....	.815	3643	21	.550	28.94	765	26	6 10	75	
White Elm.....	Ulmus americana.....	.580	2592	24.85	.357	18.79	644	34	6 40	58	
Sour Gum.....	Nyssa sylvatica.....	.703	3142	22.16	.400	21.05	696	33	6 20	67	
Sweet Gum.....	Liquidambar styraci flua.....	.634	2834	49.69	.413	21.73	558	26	6	57	
Shell-bark Hickory.....	Juglans squamosa.....	1.000	4469	26.22	.625	32.89	1172	36	6 40	100	
Pig-nut Hickory.....	Juglans porcina.....	.949	4241	25.22	.637	33.52	1070	32	6 40	95	
Red-heart Hickory.....	Juglans laciniata ?.....	.829	3705	22.90	.509	26.78	848	32	6 30	81	
Witch Hazel.....	Hamamelis virginica.....	.784	3505	21.40	.368	19.36	750	39	6 10	72	
American Holly.....	Ilex opaca.....	.602	2691	22.77	.374	19.68	613	31	6 20	57	
American Hornbeam.....	Carpinus americana.....	.720	3218	19	.455	23.94	611	25	6	65	
Mountain Laurel.....	Kalmia latifolia.....	.663	2963	24.02	.457	24.05	712	30	6 40	66	
Hard Maple.....	Acer saccharinum.....	.644	2878	21.43	.431	22.68	617	27	6 10	60	
Soft Maple.....	Acer rubrum.....	.597	2668	20.64	.370	19.47	551	28	6	54	
Large Magnolia.....	Magnolia grandiflora.....	.605	2704	21.59	.406	21.36	584	27	6 10	56	
Chesnut White Oak.....	Quercus prinus palustris.....	.885	3955	22.76	.481	25.31	900	36	6 30	86	
White Oak.....	Quercus alba.....	.855	3821	21.62	.401	21.10	826	39	6 20	81	
Shell-bark Wh. Oak.....	Quercus obtusiloba ?.....	.775	3464	21.50	.437	22.99	745	32	6 20	74	
Barren Scrub Oak.....	Quercus catesbei.....	.747	3339	23.17	.392	20.63	774	38	6 30	73	
Pin Oak.....	Quercus palustris.....	.747	3339	22.22	.436	22.94	742	32	6 20	71	
Scrub Black Oak.....	Quercus banisteri.....	.728	3254	23.80	.387	20.36	774	38	6 30	71	
Red Oak.....	Quercus rubra.....	.728	3254	22.43	.400	21.05	630	30	6 20	69	
Barren Oak.....	Quercus ferruginea.....	.694	3102	22.37	.447	23.52	694	29	6 20	66	
Rock Chesnut Oak.....	Quercus prinus monticola.....	.678	3030	20.86	.436	22.94	632	28	6	61	
Yellow Oak.....	Quercus prinus acuminata.....	.653	2919	21.60	.395	15.52	631	41	6 10	60	
Spanish Oak.....	Quercus falcata.....	.584	2449	22.95	.362	19.05	562	30	6 20	52	
Persimmon.....	Diospyros virginiana.....	.711	3178	23.44	.469	24.68	745	30	6 30	69	
Yellow Pine (soft).....	Pinus mitis.....	.551	2463	23.75	.333	17.52	585	33	6 30	54	
Jersey Pine.....	Pinus inops.....	.478	2137	24.88	.385	20.26	532	26	6 40	48	
Pitch Pine.....	Pinus rigida.....	.426	1904	26.76	.298	15.68	510	33	6 40	43	
White Pine.....	Pinus strobus.....	.418	1868	24.35	.293	15.42	455	30	6 40	42	
Yellow Poplar.....	Liriodendron tulipifera.....	.563	2516	21.81	.383	20.15	549	27	6 10	52	
Lombardy Poplar.....	Populus dilatata.....	.397	1774	25	.245	12.89	444	34	6 40	40	
Sassafras.....	Laurus sassafras.....	.618	2762	22.58	.427	22.47	624	28	6 20	59	
Wild Service.....	Aronia arborea.....	.887	3964	22.62	.594	31.26	897	29	6 20	84	
Sycamore.....	Acer pseudo-platanus.....	.535	2391	23.60	.374	19.68	564	29	6 30	52	
Black Walnut.....	Juglans nigra.....	.681	3044	22.56	.418	22	667	31	6 20	65	
Swamp Whortleberry.....	Vaccinium corymbosum.....	.752	3361	23.30	.505	26.57	783	29	6 30	73	
Lehigh Coal.....					1.494	78.61			13 10	99	
Lackawanna Coal.....					1.400	73.67			13 10	99	
Rhode Island Coal.....					1.438	75.67			9 30	71	
Schuylkill Coal.....					1.453	76.46			13 40	103	
Susquehanna Coal.....					1.373	72.25			13 10	99	
Swatara Coal.....					1.459	76.77			11 20	85	
Worcester Coal.....					2.104	110.71			7 50	59	
Cannel Coal.....					1.240	65.25			10 30	230	
Liverpool Coal.....					1.331	70.04			9 10	215	
Newcastle Coal.....					1.204	63.35			9 20	198	
Scotch Coal.....					1.140	59.99			9 30	191	
Karthauss Coal.....					1.263	66.46			9 20	208	
Richmond Coal.....					1.246	65.56			9 20	205	
Stony Creek Coal.....					1.396	73.46			9 50	243	
Hickory Charcoal.....					.625	32.89			15	166	
Maple Charcoal.....					.431	22.68			15	114	
Oak Charcoal.....					.401	21.10			15	106	
Pine Charcoal.....					.285	15			15	75	
Coke.....					.557	29.31			12 50	126	
Composition of two parts Lehigh Coal, one Charcoal, and one Clay, by weight.....									13 20		

of the general accuracy of the results. The extreme times in which given weights of forty-six varieties of dry woods sustained a temperature, in the inner room, of 10° above the surrounding medium, are only as 9 to 10. If we turn to the 5th column, we observe a remarkable coincidence between the weight of charcoal, which each variety of wood yields, and the heat produced by combustion. This correspondence is noticed by Mr. Bull. It is not exact, but sufficiently so to justify the inference, that the small difference in the actual value of fuel, as determined by the heat emitted on combustion, is mainly attributable to variations in the quantity of carbon they contain. As the results in these two columns were

obtained by actual experiment, and by processes entirely dissimilar, the coincidence noticed affords a strong confirmation of the general correctness of both.

The eight first columns of figures, in the above general table, contain the results of actual experiments, for the details of which I must refer the reader to Mr. Bull's work. The last column is obtained by calculation. Mr. Bull found that shell-bark hickory has the greatest specific gravity of all the varieties of wood experimented on, (as indicated in the table;) and, as an equal weight of it was observed to maintain a given temperature in the room as long a time as any other, it follows that a cord of this wood would yield the greatest amount of heat in com-

bustion: assuming, therefore, the specific gravity of shell-bark hickory to be 1.000, and its value as 100, the value of the other woods must be in the compound ratio of their respective specific gravities, and the time which a given weight was found to sustain the required temperature, and is given in decimal expressions of this last number. On this subject Mr. Bull observes, "that although shell-bark hickory has been taken, for convenience, as the standard to construct the column of comparative values, the economist should take the cheapest article of fuel in the market, as his standard of comparison."

If we assume the average quantity of charcoal yielded by the dry woods to be 20 per cent. by weight, and the average time that a pound of dry wood sustained a temperature of 10° above the surrounding medium, in Mr. Bull's experiments, to be six hours (both of which terms are below the truth, but which sustain to each other about the ratio which we observe between the 5th and 10th columns in his table,) it results that just 50 per cent. of the heat emitted in the combustion of dry wood is to be attributed to the combustion of the carbon which it contains: for one pound of charcoal sustained the temperature of the room, at the required point, just two and a half times as long as the assumed average time that a pound of wood would do, which yields 20 per cent. of charcoal, and $.20 \times 2.5 = .500$.

The following remarks of Mr. Bull are full of interest to the economist of fuel. "From experiments made to ascertain the weight of moisture absorbed by the different woods, which had previously been made perfectly dry, and afterwards exposed in a room in which no fire was made during a period of twelve months, the average absorption by weight, for this period, was found to be 10 per cent. in forty-six different woods, and 8 per cent. in the driest states of the atmosphere; and an unexpected coincidence was found to exist in the weight absorbed by forty-six pieces of charcoal, made from the same kinds of wood, and similarly exposed, the latter being also 8 per cent."

"The quantity of moisture absorbed by the woods individually was not found to diminish with their increase in density; whilst it was found that the green woods in drying uniformly lost less in weight in proportion to their greater density. Hickory wood, taken green, and made absolutely dry, experienced a diminution, in its weight, of 37½ per cent., white oak 41 per cent., and soft maple 48 per cent. A cord of the latter will, therefore, weigh nearly twice as much when green as when dry."

"If we assume the mean quantity of moisture in the woods, when green, as 42 per cent., the great disadvantage of attempting to burn wood in this state must be obvious; as in every 100 pounds of this compound of wood and water, 42 pounds of aqueous matter must be expelled from the wood, and as the capacity of water for absorbing heat is nearly as 4 to 1 when compared with air, and probably

greater during its conversion into vapor, which must be effected before it can escape, the loss of heat must consequently be very great.

"The necessity of speaking thus theoretically, upon this point, is regretted; but it will be apparent that this question of loss cannot be solved by my apparatus, as the vapor would be condensed in the pipe of a stove, and the heat would thereby be imparted to the room, which, under ordinary circumstances, escapes into the chimney."

If we adopt the statement of Mr. Tredgold, that 8.49 pounds of Newcastle coal will convert one cubic foot, or 62½ pounds, of water, into steam, under common pressure of the atmosphere, which is probably correct, Mr. Bull's table furnishes the remaining necessary data for a more accurate determination of the loss sustained in burning green wood. Take, for example, 100 pounds of green white oak, which Mr. Bull found to contain 41 pounds of moisture: according to Mr. Tredgold, 41 pounds of water require 5.51 pounds of Newcastle coal for conversion into vapor. Now we have the relative values of oak wood and Newcastle coal, as it regards their power of producing heat, in the 10th column of Mr. Bull's table: 1 pound of white oak maintained 10° of heat in the room six hours and twenty minutes, and one pound of Newcastle coal nine hours and twenty minutes. We have then this proportion, as 380°: 560°:: 5.51: 8.12 pounds of dry oak, consumed in converting 41 pounds of water into steam; or, in other words, 13½ per cent. of the combustible matter of green oak is employed in boiling away its own water, and, in all ordinary cases, is a dead loss. It is true that arrangements might be made by a very protracted iron pipe, as in the stove used by Mr. Bull in his experiments, and other contrivances, for condensing the steam thus formed from green wood, and recovering both the latent and the sensible heat of the steam; but such an apparatus would be attended with too many inconveniences to be adopted in our dwelling houses, and would be perfectly impracticable in large fires in the arts, where the flue is necessarily kept at a temperature above boiling water, and where, of course, the steam could not condense.

In the foregoing estimate of the loss of heat by the combustion of green wood, I have considered the subject in a theoretical point of view; or, at least, only in relation to those operations which have for their object the diffusion of heat in the air of apartments. But in most of the arts the object is the reverse of this,—to produce a strong and circumscribed heat. In these cases there is not only an entire loss of that portion of caloric which escapes in the steam from most fuel, (for it cannot be recovered, even if subsequently condensed, to any efficient purpose,) but if the temperature fall, in consequence of this loss of caloric in the steam, below the required point, there must be a total loss of the whole fuel. I suspect that it would be quite impossible for our glass

manufacturers and iron founders to procure the intense heat required in their furnaces with the use of green wood. I have noticed at several glass-houses, and the practice is probably general, that the weather seasoned pine wood is dried, or rather baked, by a stove heat, at a temperature that not unfrequently ignites it before it is used. I think it not unlikely that this practice might, in many instances, be profitably extended to the ordinary fuel (pine wood) used for steam boilers in our river boats; or, in other words, that a portion of the fuel might be economically expended in drying the remainder preparatory to use. Mr. Bull estimates the average quantity of moisture, in woods which have been weather seasoned from eight to twelve months, at about 25 per cent. of their weight. It may be objected to this suggestion, that although stove-drying may be indispensable where the attainment of a certain high degree of heat is absolutely necessary to the success of the process, yet where this necessity does not exist, the water may be as cheaply dissipated by the absorption of the caloric in the ordinary combustion, as by burning a portion of the fuel separately for that object. To this it may be replied, that the effective heat imparted to steam boilers is not, as is generally supposed, in a direct ratio to the quantity of caloric emitted by the burning fuel, but more nearly in proportion to the elevation of the temperature in the fire-place above that of the water within the boiler. The vapor formed by a fire that shall only elevate the temperature of the water to within a few degrees of the boiling point, say to 200°, bears a very small proportion to that which is produced at 212°; so that it is quite easy to burn a considerable quantity of fuel under a boiler to almost no practical effect. To pursue this subject into the causes of these results would lead to a theoretical disquisition on the laws which govern the communication of heat, foreign to the object of this work.

The great superiority assigned by Mr. Bull to the Lehigh and other anthracite coals, not only over wood but the best English coals, has also excited some doubt, and particularly with us at the north, of the accuracy of the comparison; but this, it may reasonably be supposed, is attributable to a mistake, against which Mr. Bull has warned us in his treatise, that of comparing his results with common experience derived from the very imperfect arrangements for the consumption of this fuel, both in the arts and in our dwellings. Its introduction is of too recent a date to have diffused correct information on this subject, and doubtless we have yet much to learn as to the best methods of applying it to many purposes in the arts.

"The composition balls of Lehigh coal, charcoal, and fire clay," Mr. Bull observes, "were made for the purpose of ascertaining whether a very economical fuel might not be formed of the culm, or fine portions, of the two former, by combining them with the latter article, as they possess very little value: the same prac-

tice having been adopted with considerable advantage in various parts of Europe. The fire produced by these balls was found to be very clean and beautiful in its appearance. Its superior cleanliness is in consequence of the ashes being retained by the clay, and the balls were found to contain their original shape after they were deprived of the combustible materials. The beauty of the fire is enhanced by the shape and equality in the size of the balls, which during the combustion present uniform luminous faces. No difficulty was found in igniting, or perfectly consuming, the combustible materials, and the loss in heat, when compared with the combustion of the same quantity of each article in their usual states of aggregation, was found to be only three per cent." I think there must be an error, probably a typographical one, in carrying out the result of the combustion of this mixture in Mr. B.'s table: allowing the anthracite and charcoal to yield the same heat as assigned to them when burned separately in the aggregate form, they should have sustained the same temperature only ten hours and twenty minutes.]

Bridge across the Hudson.—At a highly respectable meeting held at Albany on Wednesday, Feb. 4th, a committee of 30 was appointed to draw up a petition to the Legislature on the subject of a bridge across the Hudson.

FARMINGTON CANAL.—The damages the Farmington Canal has sustained, in consequence of the late freshet are said to be very great. Those in the neighborhood of Westfield, Ms., are estimated from ten to fifteen thousand dollars.

By the annual report of the directors of the WELLAND CANAL, it appears that there have passed through the canal the last season, 570 schooners, 334 boats and scows, and 66 rafts, the amount of tonnage of which was 37,927. The tolls in 1833 amounted to £2,432; in 1833 to £3,618; in 1834, £4,300. The total amount of expenditure on the canal, including the year 1834, was £411,079 6 11 1.2 or nearly \$1,800,000.

The number of steamboats which passed through the Louisville and Portland Canal, during the year 1834, was 938; the number of keel and flat boats 623; the total tonnage was 162,000 tons, and the amount of tolls received thereon \$61,848 17.

Steam Boat on Crooked Lake.—We are happy to learn that a contract has been made for the building of a steam boat to run on this lake, and that it will be in operation by the first day of July next. The boat will play daily between Hammond's Port and Penn Yam—a distance of about 23 miles.—[*Liberty Argus.*]

Curious Historical Fact.—The first rough model of a steamboat, made by Fulton, in this city, was cut out of a common shingle, shaped like a mackerel, with the paddles placed further before than behind, like the fins of a fish. The paddle wheel had been first put in the rear, on the sculling principle, but was abandoned on consulting with Mr. Greenwood, the well known ingenious dentist of this city, now deceased, in whose possession the model remained for many years. Old Admiral Landais, whom many of our readers recollect as the enemy of Paul Jones, was also in frequent consultation with Greenwood at the time. He recommended the paddle wheel to be placed in the stern, and to be moved by a tunnel shaped sail, that was to catch the wind even when it was directly ahead, and thus communicate the power by reaction to the wheel.—[*N. York Star.*]

NEW-YORK AMERICAN.

FEBRUARY 7-12, 1835.

LITERARY NOTICES.

WORKS OF MRS. SHERWOOD—Uniform Edition, Vol. VIII.: New York, HARPER & BROTHERS.—Another volume of this handsome republication. It contains a variety of stories—some short, others longer—all well told, and inculcating good lessons.

THE BOOK OF NATURE, by JOHN MASON GOOD, M. D., F. R. S., &c. &c.; 1 vol. 8vo: N. York, HARPER & BROTHERS.—We are glad to see this standard book—for as such, by universal consent it is, we believe, received—stereotyped and presented to the American public in so accurate a manner. Delivered originally in the form of lectures, which name, and corresponding division of subjects they yet retain, these essays embrace a systematic and popular survey of the most interesting features of the science of Nature. How great the range thus taken is, will be perceived by the mere mention of the three great heads under which the lectures are arranged.

Series I, treats of the nature of the material world, and the scale of organized and unorganized tribes that issue from it.

Series II, treats of the nature of the animate world, its peculiar powers and external relations, on the means of communicating ideas, and on the formation of society.

Series III, embraces the nature of the mind, its general faculties and furniture.

MECHANIC'S MAGAZINE, &c. &c.: vol. V. Nos. 1 and 2: N. York, D. K. MINOR.—The persevering proprietor, and now sole editor, of this periodical, goes ahead with unabated spirit; although, as we find by a notice in the number before us, his reward from adequate public patronage is yet prospective. Confident, however, that his work merits support, and strong in his reliance upon the intelligence as well as interest of Mechanics generally, not to let an undertaking fail, which is so especially devoted to their benefit, he looks back without regret, and forward without despondency.

FOREIGN CONSPIRACY AGAINST THE LIBERTIES OF THE UNITED STATES—1 vol. New York, LEAVITT, LORD & CO.—A series of numbers which appeared originally in a religious newspaper, the *New York Observer*, have been collected, revised, and with the addition of notes, are republished in a volume under the above title, by the author. The publication is sanctioned by a recommendation from four clergymen, of four different denominations, Episcopal, Presbyterian, Methodist, and Baptist.

The aim of the author is to show, that the Catholic religion has a *political* character, and that those who profess it are subject to *political* influence, adverse to the interests and liberties of America; that this character and this influence are actually arrayed under the control of European despotism and notably that of Austria, against the prosperity and progress of our free institutions; and that as Catholicism spreads in the land, the power of those who would, and can wield it to our political overthrow, is increased.

The author is represented as an American for some years resident on the continent of Europe, and whose attention was first aroused to the subject by what he there saw and heard; and whose

inquiries and observations in Italy, led him to the conclusion that danger existed to his own country, and that duty required him to point out that danger.

The cause, it will be admitted, is an important one. The motives of the writer are, upon this shewing, such as to entitle him to a willing hearing, at least; and the decision at which he arrives such as all Protestants and Patriots will unite in. This is, not that there should be persecution, illwill, or associations against Catholics—but that the Bible should be spread far and wide—religious instruction be made more universal—education generally be more extensively and more carefully disseminated—and, finally, free discussion.

We have said thus much of this little volume, because its title is one calculated to excite attention; and we desired, at once, to explain to our readers its meaning and tendency. We have as yet, however, only read a few of its pages, and reserve, therefore, for another day our opinion as to how the case is made out of "A Foreign Conspiracy against the Liberties of the United States."

LEAVES FROM MY LOG-BOOK: BY FLEXIBLE GRUMMET, P. M. 1 vol. Philadelphia: CAREY, LEA & BLANCHARD.—This is a collection of sea stories, published originally in an English periodical, and now gathered up in a volume. They are attractive, spirited, and, as we judge, full of good seamanship.

THE NORTH AMERICAN REVIEW; No. LXXVI—Boston, CHARLES BOWEN.—We have read some of the articles in this number with much pleasure, and one—that on Mr. Jefferson—certainly without conviction, and we add not without regret. Of this however we may have more to say hereafter.

We make to-day another extract from the ingenious paper on poisoning. It refers to Leicester's arts.

The arts improve by time and practice, and under the reign of Elizabeth, that of secret poisoning was introduced from Italy, and flourished under the auspices of no less a personage, than the great Earl of Leicester, the most magnificent subject that ever adorned the British court. Among the persons attached to his household, was an Italian secretary, whom he had brought home from his travels, and was the reputed instrument with which he removed his victims. There is no great reason to doubt, that many of the tales which circulated about the secret practices of this arrogant favorite, were the product of envy and political hostility. They were so generally believed, however, that persons dying of a sudden death, were said to have gone off by Leicester's cold; and Camden who wrote his work, under the auspices of the Lord Treasurer Burleigh, gives no doubtful countenance to some of the most atrocious of the insinuations against Leicester. Among his earliest victims was his wife, the gentle Amy Robsart, immortalized by Sir Walter. He married this lady on the 4th of June, 1560; his sovereign, King Edward, was present at the nuptials; and from a passage in his journal, we obtain a knowledge of the somewhat singular bridal festivities of that day. June 4, 1560, Sir Robert Dudley, third son of the Earl of Warwick, married Sir John Robsart's daughter; after which marriage there were certain gentlemen, that did strive, who should first take away a goose's head, which was hanged alive on two cross posts. We commend this extract from the royal journal, to our brethren of the London Quarterly Review, who, a few years since, undertook to found a charge of heathenish barbarity, against the good people of the United States, in consequence of their indulgence, in some part, we forget where, of the western country, in this royal divertimento. After liv-

ing with him ten years, this poor lady disappeared, 'at a very unlucky juncture for the Earl's reputation; because the world at this time conceived it might be much for his convenience, to be without a wife, this island then holding two queens, young without husbands.' She was prevailed upon to visit Cumnor-house, the seat of Antony Foster, one of Leicester's creatures.—There the unfortunate lady became ill,—the consequence of the infernal practices upon her,—which however produced their effect too slowly to answer the desired end. She was importuned by Foster and his tool Varney, to take medicine for her disorder. They, seeing her sad and heavy, as one that knew by her other handling, that her death was not far off, began to persuade her, that her present disease was melancholy, and other humors, and would needs counsel her to take some potion. This she absolutely refusing to do (as suspecting the worst,) they sent a messenger for Dr. Rayly, professor of Physic, in Oxford University, and intreated him to persuade her to take some little potion, by his direction.—They would fetch the same at Oxford, *meaning to have added something of their own for her comfort*, as the doctor, upon just cause and consideration did suspect, seeing their great importunity and the small need the lady had of physic, and therefore he peremptorily denied their request. As well he might, for a part of this ingeniously contrived plan, was to mix a deadly poison with the medicine, which the doctor might prescribe, and thus throw upon him the responsibility of her death.—Her warieness baffled the attempts at poison, and she perished by arts still more atrocious. The superb and remorseless hypocrite who caused her death, bestowed upon her the honors of a splendid funeral; but his own chaplain, in pronouncing her eulogium, stammering under the load of the dark and universal suspicion of foul play, twice in the course of his address, invoked the sympathy of the audience for the fate of the poor lady 'so sadly murdered.'

The next experiment of Leicester was upon Lord Sheffield, who suddenly died, and, as it was charitably rumored, of a Leicester cold. Leicester shortly after espoused the widow, and under the pretence that the Queen would be offended at the marriage, compelled her to keep it secret. After some time, the more effectually to conceal the connexion, he required her to marry Sir Edward Stafford. This she refused, till under the gentle discipline of Leicester, her hair fell off, and her nails dropped out, and she did what was demanded of her, to save her life.—These facts are certified by her own testimony on oath, and atrocious as they are, incredible as they seem, they are related by Sir Wm. Dugdale, and do not appear to be discredited by Camden.

The Earl of Essex went off in the same way, and for the same cause; but his countess happily survived this western Blue Beard. Besides his two first wives, and the husbands of the two last, there were others who were publicly said to have travelled the same road, by the same conveyance. The Cardinal Chastillon, ambassador from France, was poisoned at Canterbury, on his way homeward, and as was believed, by Leicester, out of revenge for the freedom which which the Cardinal had expostulated with Queen Elizabeth, on the arts with which Leicester defeated her marriage with a foreign prince. Sir Nicholas Throgmorton was seized with a mortal complaint at the Earl of Leicester's table, and died before he could be removed. Thus much appears by a letter of Leicester himself to Walsingham. That he perished, in consequence of poison given him in the salad, rests upon a tradition in the family, purporting to be founded on the dying asseveration of Sir Nicholas. The Earl of Essex, his great rival, was one of his reputed victims. On his death-bed, he gave this warning to his friends: 'I am passing into another world, and must now leave you to your fortunes, and beseech the Queen's grace and goodness, but beware of the gipsy, (Leicester,) for he will be too hard for you all. You know not the beast as well as I do.'—These dark imputations and many others of like import may be believed, when we reflect that Camden states positively, that Leicester proposed in council, that Mary, Queen of Scots, should be removed by poison. The biographer, who records all these facts, adds with commendable

simplicity, that "they must be exaggerated at least, if not false, since the earl at this juncture, (that of Lord Shaftesbury's death,) obtained an act of parliament to enable him to erect a hospital at Warwick, which he afterwards did, and plentifully endowed it, that it might bear his name, and preserve his memory, as a most religious person,—the character which, of all others, he most affected,—to succeeding times?" Well done, candor!

SUMMARY.

Destruction of the Athenaeum, Baltimore.

This elegant building, we regret to state, was destroyed by fire on Sunday. When the alarm was first given, about an hour before noon, the fire was seen bursting through the windows of the third story near the western end. The flames soon rose to the fourth story and afterwards to the roof, and a strong wind from the north west carried them rapidly to the eastern and southern parts of the edifice. Large flakes of fire were wafted to the roofs of the adjacent houses, and in two or three cases had actually communicated to the shingles, but they were immediately discovered and extinguished.

The fire was happily confined to the premises in which it originated, but the devastation there was complete. From the roof down to the floors of the basement, the flames have devoured every thing combustible. The offices of the Attorneys in the basement and second stories were all cleared of their books, papers and other contents, before the fire reached them. Except the damages incident to so hasty a removal, it is believed that the gentlemen of the Bar have escaped without loss. In the third and fourth stories, however, the loss has been extensive and heavy.

In the fourth story were the rooms occupied by the Maryland Academy of Arts and Sciences. In these were arranged, in costly and elegant cases and fixtures, valuable and interesting cabinets of minerals, shells, insects, birds, and other specimens of Natural History—a collection of fifteen years' formation. There was also a Library of costly works, not so valuable for its extent as for its interest and fitness for the purposes for which it was established. Buffon's Natural History, in 100 volumes, was among them. Added to these was an extensive collection of phrenological casts, imported from Edinburgh, comprising the heads of several hundred celebrated individuals. We learn that the property of the Academy was insured, but the loss, in many respects, is one which money cannot easily replace.

The Baltimore Lyceum Library was in the 3d story. We are informed that this institution had recently purchased the collection of books which was formerly known as the Athenaeum Library. Here, we believe, there was nothing saved.

On the same floor were the Lecturing Hall and Library of the Maryland Institute, and a valuable philosophical apparatus—nothing of which was saved.

The Young Men's Society also occupied a room or two in the building, and it is said their loss in books is several hundred dollars.

The elegant Musical Saloon, so frequently used on public occasions, was the last of the upper rooms destroyed. The frame work which formed its arched and beautifully ornamented ceiling added, for a time, new vigor to the flames. The few movable articles it contained were saved, but there was no time afforded to take down an excellent organ belonging to Mr. R. Shaw, teacher of psalmody, and it was consequently involved in the general destruction. We learn that there is a policy of insurance on the organ for \$1000, which does not, however, cover its value.

The Athenaeum Building is insured in the Equitable Society's office for \$20,000, and we hear that there are policies for \$10,000 each, in two other offices.

DETROIT JANUARY, 22.—Postscript.—The bill authorizing the People of Michigan to form a State Government was passed by the Council this morning. It authorizes the election of delegates to take place on Saturday the 4th of April next, and the time for holding the Convention on the 21st are retained. What say the freemen of Michigan to this!—[Journal.]

Extract of a letter from an Officer in the Dragoons, dated

FORT LEAVENWORTH, JAN. 4, 1835.

I returned on New-Year's eve from a trip across the country to the Kansas Indians, about ninety miles west, having gone there for the purpose of paying them their annuity. I was absent eight days, and had to spend four nights in the woods—not a very pleasant thing at this season of the year. My duties as Paymaster to the Indians and Indian Agents, employ a large portion of my time, and require frequent absence from the post, having four agencies, and a number of tribes to pay, some of them above Council Bluffs. The Kansas are in nearly a wild state, living in lodges composed of dirt or buffalo skins, neatly formed, and the skins beautifully painted. In the same lodge you will frequently find an Indian, with his three wives, and eight or ten children, living in the most perfect harmony. After getting through my business in the day, I generally spent the evening in their lodges, although it was sometimes a severe task, as the fire, which is built in the middle of the floor, would make so great a smoke, that it was almost impossible to breathe. The Indians, being accustomed to it, did not mind it, and I would cross my legs before the fire, on the ground, and stand it as long as I could. In order to have a little sport, I put up a red blanket for the squaws to run for: about a dozen started, stripped, except a piece of cloth around their bodies. The race (about four hundred yards) was well contested, and the winner was carried off in exultation by her band. I made myself quite popular with them, by carrying a paper of red paint in my pocket, and painting a number after their fashion, both their hair and face; and I can assure you it had not a bad effect. I have a pipe and tobacco pouch, which was presented to me by one of the prettiest girls I saw among them. She was about fifteen, and a widow, her husband, the son of the head Chief, having died two years before—the time they wear mourning, or rather, go in sackcloth and ashes, wearing the oldest skins during the whole time, and every morning putting a parcel of ashes on their hair; and as long as the ashes remain on, they cannot either eat or drink, without water is brought by some of their friends to wash it off; and every night and morning they cry most bitterly for about a quarter of an hour. The first morning after we got there, we were awoke by three of the wives of the Chief that had been killed a short time before, crying most hideously by our tent; and there they continued until something was given them, and they then went off. The time of mourning of the young widow being out, her father brought her up, dressed in their richest fashion, in scarlet, and painted, to shake hands with their father, as Major Cummins, the Agent, is called, and the Great White Chief, (myself.) She looked so pretty that I gave her a scarlet blanket, and she, in return, gave me a pipe and pouch—(the pouch is the skin of a skunk.) I told her that I should keep it, and carry it on to my friends that lived three moons (months) travel from there, and that I would tell them that it was given to me by the prettiest girl in the nation, and the daughter of one of their greatest Braves, &c. at which she seemed much pleased.

RAILROAD ACCIDENT.—On Sunday, the 25th ult. a serious accident occurred on the Lexington and Ohio Railroad, near Lexington. The locomotive was propelling instead of dragging, two burden cars and a passenger car of unequal height. The burden cars were filled with people, and no railing around the platform on which they stood to prevent their falling off. In passing a curve, the projecting end of one of the burden cars passed above, instead of meeting plump, the corresponding projection of the next car, and was thereby raised up and thrown off the rail.

The sudden jerk and change of direction, caused a considerable shock and great alarm: some of the passengers on the burden cars attempted to jump off—Those standing on the forward burden car, were, of course, most sensibly affected, having no safe guards; some were thrown backwards and knocked off those

standing near the side, under the wheels of the succeeding car and tender. But for a sloping bank at the point where the accident occurred, most probably, no serious accident would have been the consequence, for all seemed to clear the rails in jumping or falling off.—Lewis Leonard of Lexington, reached the bank, and fell or rolled back under the hind wheel of the near car, which passed over and killed him: his body impeding the front wheel of the tender, and thus, with the instant action of the admirable engineer, preventing the loss of several lives.—The engineer stopped the moment he saw the accident—quicker than a carriage, with horses, could have been halted.—Leonard Taylor, of Lexington, and Daniel Green of Fayette, had each a leg broken.—Alexander Shidel and Samuel Long, Sen. of Lexington, Wm. A. Cocke and Joseph Holt of Louisville, and P. W. Turp-nall of Springfield, were all thrown or knocked under the car by the sudden shock or by the multitude jumping out, and severely bruised.

Mr. Cocke's escape with life was remarkable. In attempting, with his feet, to push himself from the car after he had fallen, the forward wheel of the rear burden car caught his left foot and held it so fast, that it was necessary to cut off his boot and take that side of the car to pieces, before he could be released—another move of the wheel would have been fatal; as it was, his foot was very severely torn.—The presence of mind and promptitude of the Engineer saved him.—[Lexington Journal.]

HOLLAND LAND COMPANY CAUSES.—Another of these causes (against Daniel Kemp) came on to trial in the district court of the United States before Judge Conkling, on Tuesday, the 27th ult. and continued from that time until yesterday, when a verdict was rendered for the plaintiffs.—In this case, we learn that the plaintiffs deduced a title to the lands claimed by them from the State of New York to the State of Massachusetts, and from the latter to Robert Morris. They then relied on a Sheriff's sale under a judgment and execution against Robert Morris, through which the title was transmitted to them. In the course of the trial, the nature of the Indian right came under discussion, and the plaintiffs contended that it was a mere right of occupancy, personal to the Indians, which could not be transmitted, and which could not be set up in bar of an action of ejectment brought by a person having the title of the soil; that it was to be deemed extinguished, from the fact that the country was and for many years had been occupied by the whites: and the plaintiffs also gave in evidence a treaty held with the Senecas in 1797, by which their right to the premises had been extinguished. Numerous exceptions were taken by the defendant's counsel to the decision of the court in the various questions presented. The case was conducted by John C. Spencer and Daniel Cady, Esqrs. for the plaintiffs, and by Joshua A. Spencer and Samuel Stevens, Esqrs. for the defendant.

We learn that a third cause (against Sylvester Lock) was commenced yesterday, and that in this the plaintiffs counsel have gone into another chain of title directly from Robert Morris.—[Albany Argus.]

An aged Blanket.—The Boston Transcript says, a boy about six months old, was carried to church to be baptized, the other day, wrapped in a blanket which once belonged to the family of the Cottons; and was brought by John Cotton, from England to this place 199 years ago. The material of which it is formed, appears to be the kind sometimes called cotton flannel, but the cotton furz, or nap, is nearly worn off. The body of the cloth is still tolerably good, and may last with care another century.

Buying a Hat.—"Misther, have ye ever a palm leaf hat?" Yes, sir. "I wad be aither purchasing one, and what will you ax? Nine shillings." "Nine shillings! but that beats the devil intirely I could buy the same for four and sixpence a while since!" Oh well, wait a while till summer is over and you may have this for that price. "True for ye, and what'll cover the head of me the while? O, by the powers, fill it so that nather of us will be chated.—I'll take the hat now and pay when the price is down."

ACCIDENTS ON THE ROAD.—Mr. Ballard, a much esteemed merchant of Boston, was returning from Ipswich to Boston on the 3d instant in the stage, when it was upset by the driver's running against a wagon. Mr. B., who was on the coachman's seat, was thrown with violence to the ground: the stage fell on him, broke his collar bone, ribs, and otherwise so seriously injured him, that he survived but a few hours. His wife was inside the stage, and escaped uninjured.

On the 4th instant, the stage to Albany on the west side of the River, was upset near Newburg, and Mr. E. Tibbets of this city, a passenger, had two ribs broken.

Whales in the Sound.—Capt Marther of the revenue cutter Wolcott, saw a few days since, two large whales in the vicinity of New London light house and Fisher's Island.

SAILORS' SNUG HARBOR.—The annual report of the Trustees of the Sailors' Snug Harbor, was made to the Senate yesterday.

The receipts for the year, from rents, dividends and various other sources, were \$34,744.65
Cash on hand, 31st Dec, 1833, 2,011.96

\$36,756.61
Disbursements, including \$1,477.49 for erecting a monument to the memory of Mr. Randall, \$33,568.98
Cash on hand, 31st Dec. 1834, 3,187.63

\$36,756.51

The vested funds of the institution at par value, the cash on hand, and the outstanding rents and interest, amount to \$103,754.38. The income for 1835, is estimated at \$29,519.74. The President states, that "there are now in the Snug Harbor fifty-four aged and disabled seamen, who are entitled to support under the provisions of Mr. Randall's Will, and the doors are open for farther applicants. These aged men are plentifully fed, comfortably clothed, and supplied with every thing requisite to soothe their declining years."—[Albany Argus.]

Inspection of Tobacco.—The first annual report under the law providing for the inspection of leaf tobacco, in the city of New York, was made to the Senate yesterday, by James D. Stevenson, inspector.

The following is the amount inspected from 22d April (the day the law took effect) to the 31st December:

Hhds. tobacco.	Weight.	Probable value.
5791 merch'ble	7,762,030 at 7cts.	\$539,142.10
118 unmerch.	159,433 5	7,971.65
5909	7,921,463	\$547,113.75

Amount of fees for inspection, \$11,818.00
For storage, 1,556.00

\$13,374.00

Expenses, officers, deputies, coop-
era, &c., 11,958.00

\$1,416.00

Appended to the report are a number of letters, from importers and growers of the article, many of whom (the inspector states) opposed the passage of the law, expressing a decided conviction of its beneficial operation. Of the tobacco inspected, 3657 hhds. were the growth of Kentucky, 1754 of Virginia, 413 of Ohio, and 85 of Maryland.—[Albany Argus.]

Henry A. S. Dearborn has been appointed Adjutant General of Massachusetts, and entered upon the duties of his office.

An honorable Anecdote of Erskine, the eminent lawyer.—A poor man, in a distant part of Scotland, who wished to obtain redress for a wrong done to him by a wealthy neighbor, being cautioned against contending for his right in such a case, gave his friendly adviser this answer: "Ye dinna ken what ye say, Maister; there's nae pair man in Scotland need to want a friend, or fear an enemy, while Harry Erskine liues!"

Sudden Death.—The Rev. Joseph Sanford died in his pew in the Methodist Church in Green street, a few minutes after taking his seat on Sunday morning. He walked to the Church in company with his wife, to whom he had been married but two weeks, from his residence in Mulberry near Bleecker street, and while on the way complained of some slight indisposition.—He was noticed in a kneeling posture in his pew, and after a supplication to his God, rose and fell back lifeless on his seat.

Propensity of Birds.—At the recent fire in Spring street a covey of pigeons was observed hovering over the flames at a great height, presenting a beautiful appearance, resembling that of gold, caused by the reflection of the light below. For several minutes they were seen darting in every direction, as if at a loss where to wend their passage. At last they were noticed to follow the propensity ascribed to birds by naturalists, and plunged one by one into the flames, where they perished.—[Com. Adv.]

Feather Dressing.—Mr. Philip Wilcox has now in use at his shop a very simple apparatus for cleansing and restoring life to feathers, by means of heat and action in a large revolving cylinder over a coal fire. The feathers are thus purified from all dampness, perspiration and noisome effluvia collected in use, and restored to their original life. Mr. George Raynolds of East Hartford is the inventor. Mr. Wilcox has the last week, dressed twenty or more beds for different families in this town, and the improvement has surprised them.

So says the Litchfield (Ct.) paper; but what sort of life is restored by this process?

Capture of a Slave.—The British brig of war Cruiser arrived at Havana on the 18th ult. with a schooner which she had captured, having on board 340 slaves. Four vessels had recently arrived there and landed their cargoes, consisting of 2300 slaves.

Education in Russia.—The whole number of pupils of schools in Russia, is 65,589, out of a population of fifty six millions. Is. two to every 1,465 inhabitants!

Principles and Practice.—"Give me," said an infidel, to a distinguished French divine, "your principles, and I will be a better man than yourself."

"Begin," replied the believer, with being a better man, and you will soon have my principles. The promise of our gracious Redeemer harmonizes with this sentiment: "If any man will do his will, he shall know of the doctrine whether it be of God."

ALABAMA.—The Legislature of this State adjourned on the 10th ult:

Among the acts passed (217 in number!) was one prohibiting the circulation of any bank notes under five dollars, of banks out of the State.

Eleven bills of divorce were granted by this Legislature.

We have recently seen an estimate in the papers, that the number of divorces granted annually in the United States is near two thousand!

What a state of morals does such a fact—if true or approaching to truth—imply?

It becomes our melancholy duty to announce the death of another aged, patriotic and universally esteemed citizen, William Patterson, Esq. He departed this life on Saturday last, in the eighty-third year of his age.—[Balt. Amer.]

MILITIA APPOINTMENTS.—By the Governor and Senate of New York.

Montgomery.—Benedit Arnold, major general of 2d division of cavalry.

Niagara.—Edward Cole, major general of 4th division of artillery.

Westchester.—Aaron Ward major general of 4th division of infantry.

New York.—Ebeneser Irving, major general of 28th division of infantry.

Jefferson.—John W. Edwards, brigade inspector of 4th brigade of infantry.

Commendable Enterprise.—We learn from the Philadelphia Inquirer that the sum of fifty thousand dollars has been subscribed for the purpose of establishing a line of steamboats to tow vessels up and down the Delaware. It is a commendable enterprise, and one that will be of great advantage to the commerce of Philadelphia.

AMERICAN QUARTERLY REVIEW.—We have before stated that Mr. Robert Walsh with his son as associate, has become the proprietor of this periodical. We may now add that Mr. Maximilian Towsky is in this city with a view to obtain subscribers for the new series commencing on 1st proximo. We cordially commend this Review to the patronage of our citizens.

It appears by the annual address of the Mayor of Boston, that the city debt on the 1st Jan. was \$1,265,164, the whole of which, except \$100,000 had been created since the city was incorporated. The annual taxation is \$9 40 on \$1000. The city (says the N. Y. Star,) maintains 72 primary schools, having 4,014 pupils between four and seven years of age; ten grammar, one Latin, and one English High school—in all of which are 4,009 pupils, chiefly from seven to fifteen years of age. Thus the city educates 8,423 children at a cost annually of \$8 each child, exclusive of interest on the buildings. The number of pupils in private schools is about 4,500, which is a total of 12,923 pupils in a population of 70,000. The city owns 20 engines, 25 hose, 4 bucket, and 3 hook and ladder companies, making in all 1,257 members, the expenses of which are \$16,000.—The annual amount of property destroyed by fire the last three years is \$63,000. The fire department is very efficient.

A bill is before the Legislature of New Jersey, to incorporate a Life Insurance and Trust Company, with a capital of 1,000,000 of dollars, to be located at Hoboken! The bill is modelled after the New York Life Insurance and Trust Company's Charter, which gives pretty ample powers and privileges.

Divorces in New Jersey.—Matrimony appears really upon the eve of "breaking up house keeping" in New Jersey. The number of applications for divorces to the Legislature now in session, has been beyond all former example. Three petitions were presented in one day, during the last week. We are afraid that bad husbands or bad wives are more plentiful in New Jersey, than they should be.

Inducement to Matrimony.—A Texas letter writer states that the tide of emigration to that country from the United States is very great.—Nor can this be a matter of surprise, when it is added that the Mexican government assigns to each settler, if married, a league square, 4446 acres, of land as a bounty. If the emigrant be a single man when he arrives, he gets only 1110 acres—but if he gets married afterwards, he receives the very pretty dowry, not from his bride, but from the Government, of 3336 acres more!—[Com. Adv.]

A laughable adventure.—Not long since, a reverend clergyman in New Hampshire, being apprehensive that the accumulated weight of snow upon the roof of his barn might do some damage, resolved to shovel it off. He therefore ascended it, but having first, for fear the snow might all slide off at once, himself with it, fastened to his waist one end of a rope, and giving the other to his wife, he went to work; but fearing still for his safety, "My dear," said he, "tie the rope round your waist." No sooner had she done this, than off went the snow, poor minister and all, and up went his wife. Thus on one side of the barn the astounded and confounded clergyman hung, and on the other side hung his wife, high and dry, in majestic sublimity, dinging and dangling at the end of the rope. At that moment, however, a gentleman luckily passing by, delivered them from their perilous situation.

PREPARATION AND PRECAUTION.—The Baltimore American of yesterday publishes the annexed extract of a letter from Washington:

"Our squadron in the Mediterranean is ordered to Gibraltar, to prevent sequestration in a French port, or blockade in a Spanish. Commodore Elliot hoists his broad pendant on the Constitution, and proceeds from New York to the Mediterranean. Captain Kennedy is to command the Peacock and Boxer, and proceed to the Chinese seas, for the protection of our commerce in that quarter, and the whole naval establishment is to be put on a war footing."

COMMERCE WITH FRANCE.—It is wise to look before we leap, to count the cost of a war before we rush into it. A communication we publish from the Journal of Commerce, will assist our readers in the last process. A letter from the Baltimore American, of which we also insert an extract, seems to look, if authentic, as though our Government apprehended that France might take the initiative of hostilities.

We do not ourselves think this probable, but if she should, it would overwhelm the commerce, and especially the Insurance Companies of this country with ruin. One single company, for instance, in this city, has insurance on property amount to the amount of *twenty millions of dollars*; two thirds of which, at least, would, in the event of instant hostilities, be captured or destroyed.

Let us then pause and prepare—let us not act rashly, to repent at leisure.

[From the Journal of Commerce.]

Our Trade with France.

In order to form a correct notion of our affairs with France, the following statements, taken from the Treasury Report, will serve for a guide:

	Imports.	Cotton exported.
1890	\$9,517,000	\$6,500,000
1891	8,300,000	7,550,000
1892	14,720,000	4,300,000
1893	12,755,000	7,755,000
1894	12,303,000	8,900,000

It will be perceived that the imports are rapidly increasing, being in 1893 about 45 per cent. above the amount of 1890. The average of imports for the last 5 years is about 12 millions.—The export of Cotton has augmented about 30 per cent. within the 5 years ending 1893, and that for 1894 will be much larger than that of the preceding year. The average export of this article, for the 5 years ending 1893 is about 7 millions of dollars. The amount of exports (beyond the cotton) necessary to pay the balance due for the imports, is made up of Rice, Tobacco, Ashes, with some foreign articles, and occasionally Specie is shipped, as in 1890, when 1.34 million dollars, and in 1891 when 3 million dollars were sent. Taking one year with another, 7.8 of our exports to France are of the products of our soil, carried chiefly in American vessels, giving freight and employment to about 130,000 tons of American shipping. Since the reduction of duty, French tonnage entering our ports has increased, and it now stands to the American from France, as one to five.

The following statement will show the leading articles which form our imports from France:

	Silks.	Wool.	Wine & Brandy.	Med. Lard.
1890	\$4,235,000	540,000	500,000	1,000,000
1891	3,255,000	425,000	650,000	910,000
1892	7,100,000	1,200,000	1,545,000	914,000
1893	5,000,000	775,000	1,320,000	1,330,000
1894	6,000,000	914,000	1,023,000	1,800,000

The above exhibits a great increase for the last 5 years, and there is reason to expect that if the trade suffers no extraordinary interruption, it will go on augmenting in quite as great a ratio. Silks, which make so large a portion of the imports, are well adapted to our wants, and are become so common an article of clothing, that we are not likely to do without them, even if we have to seek them through indirect channels. The Import of Woollen and Cotton manufactures is destined to be enlarged in proportion as by the existing law our Tariff becomes re-

duced, and although Brandy may be lessened in demand from local causes, yet for the same reason the use of Wine will much increase. It may be too worth considering whether the health and morals of the people are not improved by the use of a wholesome beverage such as mild wines offer, rather than ardent spirits, and whether in any event, the Government would not show wisdom in keeping down the duty on wines for the purpose of a more extensive consumption.

Notwithstanding the duty is still high on manufactures of leather, it will be seen that the importation has kept pace with those articles on which the duty is repealed,—a proof that they are necessary, and we can obtain them from no other source at so cheap a rate. In short, our whole trade is in a flourishing state. The importation of silk and leather manufactures has increased 50 per cent. in five years, while that of woollen and cotton manufactures has nearly doubled within the same period, and there is good reason to expect a further extension in the ratio of our increasing population. Of the whole imports, less than 10 per cent. (as near as can be ascertained,) only is re-exported to the West India and Mexican markets,—which clearly shows, by so large a portion of consumption, that the goods are suited to our wants, and that we cannot supply ourselves with them elsewhere.

The French themselves attach much value to the intercourse with this country, and view with satisfaction the interchange of articles the manufactures and products of the soil of each nation, and which each derives benefit in exporting to the other. But according to data furnished by the French journals, it is apparent they overrate the amount of the trade.

In the debate in the French Chamber of Deputies, April 1894, on the question of the indemnity bill, the Minister of Commerce, Mr. Duchatel, states the exports to the United States as follows:—

	fr. 65 millions.	\$12 millions.
1890	65	12
1891	110	204
1892	28 (Cholera)	11
1893	106	20

These accounts are from January to December of each year. Besides the disagreement between the French statement and our own for each year, there is a general irregularity in the sums as compared with ours, which is altogether unaccountable. The whole is greatly exaggerated, possibly for effect, the Minister being desirous to impress on the Deputies the loss the nation would sustain by an interruption to the trade, which might arise in consequence of their refusing to pass the bill. The loose and inexact manner the exports are estimated in France, is a cause why no dependence can be placed on the above statement. The method of ascertaining the amount of exports of dry goods, is by weighing them and fixing a rate of export duty per kilo-gramme, which rate has been established many years, without reference to the cost of manufacture. Thus a piece of silk which cost 4f. the ell, will pay the same duty as one which cost 2f. the ell, at the same time the dearer may weigh less than the cheaper piece.

Our statements derived from the Treasury Reports are plain facts, which shew that the trade is advantageous, has been on the increase for several years, and will become still more extensive if the harmony now existing between the two countries be maintained.

"We understand," says the Globe of yesterday, "that information has reached the War Department, stating that several rencounters have taken place between some of the citizens of Georgia and parties of the Creek Indians who crossed from Alabama into that State, and committed many depredations. Persons have been killed and wounded on both sides, and the inhabitants seem much alarmed at the conduct and threats of the Indians, and have called upon the Governor of Georgia for a militia force to protect them—and the Governor has requested the interposition of the President to relieve the citizens of Georgia from this state of things."

Great age.—Jennings Allen, a soldier of the revolutionary war, died lately in Fairfield Dis-

trict, S. C. at the age of one hundred and four teen years.

STRAWBERRIES—EXPENSIVE BREAKFAST.—

Under date of May 29, 1783, we find this paragraph in one of Miss H. More's letters:

"Did I tell you that the Bishop of Chester's Sermons were out of print in eight days. I hope the age is not so bad as we took it to be; and yet it cannot be very good, when the strawberries at Lady Stormont's breakfast, last Saturday morning, cost one hundred and fifty pounds."

This sum is equal to about \$700, which will support a whole family a year, or buy land enough for a farm.

MANUAL LABOR AND MENTAL CULTIVATION.—"My conviction—not lightly taken up, but the result of long and earnest thought—is, that daily occupation with manual labor is in no way incompatible with the highest mental cultivation and refinement; that so far from the exercise of mechanical employment daily, for a moderate time, being detrimental to the mental powers, it has, on the contrary, a decided tendency to strengthen them; and that if those who at present serve the public in the capacity of writers, were to employ several hours a day in mechanical labor, their bodily health would be improved, and their writings would take a character of vigor, startling even to themselves. They would find the workshop a more healthy atmosphere than the drawing room. There is no reason, save ignorance, why any thing like degradation should attach to the character of the working mechanics. There is no reason, save ignorance, why they should not have dwellings as good as their employers, as to all the purposes of comfort. There is no reason, save ignorance, why they should not have refreshing baths, after their daily toil, and abundant change of comely garments conducive to health. There is no reason, save ignorance, why they should not have abundance of good and well-prepared food for the body, and access to books of all kinds for the proper culture of the mind. There is no reason, save ignorance, why they should not have access to theatres, and operas, and lectures of all kinds, and picture and sculpture galleries, and museums, far more imposing than any thing the world has yet beheld. There is no reason, save ignorance, why the great body of the working people should not possess, in addition to all that is necessary for the comfortable maintenance of the body; all the pleasures of mental refinement, which are now only within the grasp of the very rich. There is no reason, save ignorance, why the ruling power of the state should not be in their own hands, and all else, save only the excitements of ostentation and expensive sensuality." —[Tait's Magazine.]

There is much truth and good sense in the preceding paragraph—enough, indeed, to secure comfort, intelligence, and happiness, to thousands, if they will believe, and will it.

The venerable M. D'Ornay, member of the Academy of Sciences of Rouen, died recently at Paris, aged upwards of 100.

**A Legend of Nummernips,
(A VERY CELEBRATED GERMAN FAIRY.)
Translated from the German.**

One day as Nummernips was sunning himself in the corner of his old garden, which was now like any other part of the Harz mountain, there came trotting gaily along a woman who attracted his attention. She had one child in her arms, she carried one on her back, she led one by the hand, and a somewhat larger boy bore along a heavy basket, which was to be filled with greens for the cow. A mother, thought Nummernips, is a good creature to be sure, she drags on her four children, waits upon them without a murmur, even if she has the weight of the basket beside her. These thoughts made him wish to have some talk with the good woman. She set the children down on the grass and stripped some leaves from the bushes. In a little while the baby began to grow tired and to cry. The mother left off her work, played and frolicked with the children, took the little one up, jumped about and sang to it, at last rocked it to sleep in her arms and returned to her work. Soon the flies bit the little sleeper and he began his music again; but the mother did not grow impatient; she went into the woods and picked strawberries and raspberries, and put the smallest child to her breast. This motherly management pleased Nummernips much, but the little crier, who had ridden on his mother's back, would not be contented, he was a naughty, violent boy, threw away the berries that his kind mother offered him, and then cried for them to eat. At last she grew impatient, and called out, come Nummernips and take away this screamer. Immediately Nummernips took the figure of a coal-man, stepped up to the woman and said—Here I am, what would you have? The woman was very much frightened at this sudden appearance, but she was a brave hearted woman, and soon gathered courage. I called you just now, said she, to still the children, but as they are now quiet I do not need you, though I am much obliged to you for your kindness. Do you know, said the old fellow, that people do not call me here unpunished? I held you to your word, give me the screamer that I may eat him, I have not met with so nice a bit for a long time. As he said this, he stretched out his hand to take the boy.

As a hen, when she sees a hawk hovering high in the air, or the wicked wolf creeping into the yard, first calls her chicks into the secure hen coop, then ruffles her feathers, spreads out her wings and begins with her strong foe, an unequal contest, so did the woman seize the black coal-man fiercely by the beard, doubled her fist, and cried out, monster, you must first tear my motherly heart from my body before you take away my child. Nummernips had not expected so violent an attack; he stepped back, having never before felt the strong gripe of a human hand. He smiled kindly on the woman; do not disturb yourself, said he, I am no flesh eater, as you suppose, and will do you and your children no harm, but let me have the boy, I like his look, I will bring him up for my own, I will clothe him in satin and silk, make a brave knight of him, and he shall grow up a brave knight, who one of these days will support his father and brothers. If you ask a hundred crowns for him I will pay you now.

Ha, ha, laughed the woman, you like the boy, do you, he is one of a thousand, that I would not sell for all the treasures in the world.

You fool, answered Nummernips, have you not besides three children who give you trouble and pain, whom you can hardly feed, and who plague you day and night?

Woman—Oh well I am a mother, and must follow my calling, children give pain, but they also give pleasure.

Nummernips—Fine pleasure to bear with their bawling, to drag them and feed them.

Woman—In truth, sir, you do not know a mother's joys, all her labor and fatigue is sweetened by one friendly look, the pretty smiles and lipings of the little innocent creatures. If I look only at the little gold headed fellow as he hangs

on me, the little flatterer, he is not crying now you see. Oh, if I had a hundred hands I would lift and carry any thing in working for you, dear little creatures.

Nummernips—But has your husband no hands to work?

Woman—Oh, indeed he has, I feel them some times.

Nummernips—What, does your husband dare to raise his hands, and against such a wife? I will break him of that trick, the murderer.

Woman—(laughing)—You will have a great many necks to break, if you break the necks of all the husbands who abuse their wives—they are a poor race, and those who wed, take sorrow to bed—but it must be borne, for why was I married.

Nummernips—If indeed you knew that the men were a bad race, you were much to blame when you married.

Woman—May be so, but Stephen was a brave lad, who had a good trade, and I was a poor girl without a dowry. He came to me, and asked me to marry him, gave me a wild man's dollar, and the bargain was made. He afterwards took the dollar away from me, but I have the wild man still.

Nummernips—Perhaps you have made him wild by your obstinacy.

Woman—Oh he has driven that all out of me, I assure you. He is a violent fellow. If I behaved like an angel he would be more furious in the house than you good Nummernips are in the mountain, and then he tells me of my poverty and that stops my tongue. If I had brought with me a portion, I would stand my ground better with him I assure you.

Nummernips—What is your husband's trade?

Woman—He is a glass trader. His calling makes him cross, sometimes. The poor fellow bears his heavy loads from Bohemia, year out and year in. If he breaks a glass on the way I and the poor young ones must suffer, but love blows do no great damage.

Nummernips—But can you love your husband when he abuses you so?

Woman—Why not? Indeed, is he not my children's father. That makes up for all, and they will pay for all our troubles when they grow up.

Nummernips—Poor comfort, children reward their parents with trouble and care indeed! The last drop of comfort will be drained from your cup, when the Emperor sends them far away in his army to be killed by the Turks.

Woman—Oh fie! that does not trouble me:—if they die, 'tis for their Emperor and country, in their proper calling. But if they live, they get booty and gladden their parents' hearts.

Upon this, Nummernips began again to traffic for the boy; but she gave him no answer, crowded the leaves into her basket, tied the little screamer fast to her belt, and Nummernips turned as if he was going to leave her, but as her load was very heavy, she called him back and said, I have called you once before, help me up, and if you would do me any farther kindness, give the boy who pleases you so much a Good Friday penny to buy him a couple of biscuits.—To-morrow the father comes home, and will bring us some white bread from Bohemia. I will help you up, said Nummernips, but if you will not give me the boy, you shall have no penny.—Very well, said the woman, and went her way.

The farther she went, the heavier grew her basket, and every ten steps she had to take breath. She thought something was out of the way, and that perhaps Nummernips had played her a trick, and hid a heavy stone among her leaves. So she put her basket down on the next fence and emptied it. But there fell out leaves only and no stone. Then she filled it half up, and put as many leaves in her apron as it would hold, but soon it grew too heavy again, and she was obliged to throw away some more, which made the stout woman wonder greatly, for she had often carried home much larger quantities of grass, and never felt such fatigue. Nevertheless she set her household in order when she got home, threw the leaves to the goat and little kid, gave her children their supper, put them to sleep, said her evening prayers, and quickly and gaily sunk herself to slumber.

The first red of the morning, and the waking baby, who called for his breakfast with a loud voice, disturbed the healthy slumbers of the busy wife and called her to her daily labor. She went first, according to her custom, with her milk pail to the goat's stall—What a dreadful sight. The good old goat, who nourished the family with milk, lay there stiff and cold, her feet stretched out, already dead, but the kid was rolling its eyes in its head, stretched out its tongue, and showed by many signs that it was near dying. Such a misfortune had never happened to the good woman since she had been a housekeeper; struck dumb with fear, she sunk down on a bundle of straw, put her apron before her eyes, that she need not see the pain of the dying kid, and sighed deeply. Unhappy woman, thought she, and where will my rude husband begin when he comes home; the blessing of God in this world is gone from me. In a moment she drove this thought from her mind—If the dear goat was thy only blessing from God what is thy Stephen, and what are thy children? She was ashamed that she had been so hasty.—Let all the wealth in the world go, said she, I have my husband and my four children.—The fountain of milk for my nursing is not dried up, and there is water in the well for the rest.—And if Stephen is angry and treats me ill, it is no matter, I shall lose nothing by it. The harvest is near at hand, I can go and reap, and in winter I will spin till late midnight,—so I shall be able to buy another goat, and if I get her, I shall have the kid without doubt.

As she thought thus, she dried up her tears, gained her courage, and as she raised her eyes she saw lying at her feet a leaf which shone as bright and yellow as gold. Quickly she sprang up, ran with it to her neighbor, the Jew's wife, showed her what she had found, with great joy. The Jewess owned it to be pure gold, took the usury and paid her for it two thick dollars down upon the table. Every heart's sorrow was now forgotten. Such a treasure in money the poor woman had never before had in hand. She ran to the baker and bought bread and butter and a shoulder of mutton, that she might prepare supper for Stephen when he came home at night tired and hungry. How the little ones jumped to meet their mother when she came in and brought them such an unusual breakfast. She gave herself up to the joy of feeding hungry children; and then it was her first care to get rid of the goat, which she thought killed by witchcraft, and to hide this family misfortune as long as possible from her husband. But her astonishment exceeded every thing when she by chance looked into the manger and saw a whole heap of golden leaves. If she had read the Greek popular tales she would have quickly supposed that her dear goat had died of an indigestion like that of King Medas; as it was she supposed something of the sort. She sharpened her knife, cut open the dead goat, and found in its stomach a lump of gold as big as a greening apple, and another smaller one in the stomach of the kid.

Now she knew no end to her riches, yet in possessing it, she began to feel a care how she should keep it. She became uneasy, fearful, felt her heart beat, knew not whether she had better put her treasure in the chest, or bury it in the cellar. She began to be afraid of thieves and treasure diggers. She was not willing that Stephen should know all, since she feared that he would be carried away by avarice, take possession of the gold, and leave her and her children to starve. She reflected long how she should manage the matter, but could not come to any conclusion.

The priest of the village was the patron of all good wives who were oppressed—whom he always supported, either out of kindness, or because he considered them the weakest party, he gave them all due honor, and never suffered those husbands who were strikers to misuse his spiritual daughters, but if complaints of such treatment reached his ear he laid a hard penance upon the unruly house tyrant, and always took the side of the wife. Thus he had never spared the staff of penance over the grumbling Stephen, hoping by means of it to drive his ill humor out of the house. The good woman hastened to this comforting soul

curer, repeated to him her adventure with Numbornips, told how he had helped her to a great treasure, and what anxiety she felt about it—she proved the truth of her story by showing the whole treasure which she had brought along with her. The Priest crossed himself at the wonderful occurrence, rejoiced heartily at the fortune of the poor woman, and turned his cap back and forward, to try to find some good counsel, as to how she should keep possession of her wealth, and also to find means to prevent the ill-humored Stephen from getting it into his hands.

After he had considered the matter for some time, he said, listen my daughter, I will give you good counsel. Weigh the gold that I may keep it faithfully for you. I will then write a letter in the Italian language which shall say, that your brother who years ago went into foreign parts was in the Venetian service, and then sailed to India, where he died and left all his wealth by will to you, on condition that the Priest of the parish shall take care of it for you, that it may be for your sole use. I desire neither pay nor thanks from you, only consider that you owe the holy Church a thank offering for the blessing heaven has bestowed upon you, and dedicate a rich mass robe to the vestry. This advice pleased the woman greatly; she promised the Priest the robe, he weighed conscientiously in her presence the gold to the last drachm, placed it in the Church treasury, and the woman took her leave of him with a gay and light heart.

Numbornips was no less the patron of the woman than the parish priest, but it was with this difference—the latter honored the female sex particularly (as he said) because the virgin Mary belonged to it, without having any predilection for any individual maiden, which might have brought reproach on his good name—Numbornips on the other hand, hated the whole human race on account of one girl who had jilted him, though his humor had now taken a mild tone, and induced him to protect and be gracious to one single little woman. As much as the good wife had won his heart by her feelings and her conduct, so much also was he displeased with the rude Stephen, and felt a great longing to revenge the good woman upon him, to play him a trick that would vex and worry him, and thereby make him so humble that the good wife should have her wish and get the upper hand in the house. For this purpose he saddled the morning wind, set himself galloped over mountain and valley, spied like an outsider all the roads and cross paths of Bohemia, and when he saw a wanderer with a load he was behind him and watched him as narrowly as the owner of a basket looks after its contents.—In this way it was impossible for the heavy laden Stephen to escape. At the hour of vespers came along a stout man with a great pack on his back. Under his heavy steady step the burden that he carried was heard to sound. The watcher was rejoiced as he saw him at a distance, that his prey was now secure, and moved himself to de his best. The panting Stephen had nearly gained the top of the mountain, the last swell of it alone remained before him, and then his way home would be all down hill. So he strove to gain the summit, but the mountain was steep and his load heavy. He was forced more than once to rest, and put his knotty staff under the basket to take off its heavy weight while he wiped off the sweat that stood in great drops on his forehead. After stretching his strength to the utmost, he reached the top, and a fine straight path led down the other side. In the middle of the path lay a pine tree, which had been cut down, but the stump was left standing as straight as a candle, and as smooth as the top of a table, and all around it was the green grass. This sight was so inviting to the traveller and so convenient for a resting place, that he immediately deposited his loaded basket on the stump, and stretched himself opposite to it on the soft grass. Here he thought over how much clearer gain his wares would bring him this time, and found after a close calculation, that if he did not spend a single penny in the house, but depended on the skillful hands of his wife for food and clothing, he should make enough to buy him an ass in the Schmiedberg market, and to load him. The thought of how gaily in future he should lead his beast and trudge along by his side, came

to him at the time when his shoulders were smarting under the pain of the load, and was so agreeable to him that he continued the train of it. If I once get an ass said he, a horse will soon follow, and when I get a horse in the stall, I shall soon get a patch of ground to raise his hay upon—from one field I shall come to have two, from two, four, in time a whole acre, and at last a farm, and then shall Eley have a new gown. He had got thus far with his project, when Numbornips raised a whirl-wind around him and overthrew at once his basket of glass, so that the broken wares fell into a thousand pieces. This was a thunderbolt to Stephen's heart: at the same time he thought he heard at a distance a loud laugh; perhaps he was deceived, and that it was only the echo giving back the sound of the breaking glass. He thought it was malicious triumph, and as the whirl-wind seemed to him supernatural, he easily divided the author of his misfortunes. Oh, complained he, oh Numbornips, what have I done to you that you take away from me my morsel of bread, my bitter sweat and blood—alas I am a man dead while I am yet alive. He then got up in a kind of rage, and uttered all sorts of reproaches to the mountain spirit—villain, said he, come and murder me, since thou hast taken away from me, all that I have in the world. Indeed his life was of no more value to him in that moment than a broken glass. Numbornips however kept out of his sight and hearing. Poor Stephen resolved, if he would not carry his basket home empty, that he must gather up the fragments of glass, that he might exchange them at the glass-house, for at least a pair of glass dishes for the beginning of a new trade. Melancholy as the merchant whose ship and its lading, its men and mice have all been swallowed up in the devouring ocean, he descended the mountain bearing with him many hard thoughts and occupied with many speculations as to how he should make up his loss and continue his business. He at last recollected the goat which his wife had in the stall, yet she loved it like her children, and willingly he knew she would never part with it. He resolved, however, upon this trick to prevent his loss being known at home. He determined not to go back to his house in the daytime, but at midnight to steal in, drive away the goat to the Schmiedberg market, and spend the money for which he sold it in purchasing new wares—but on his return he would reproach and upbraid his wife for having through carelessness suffered the goat to be stolen in his absence.—With this well arranged plot, he threw the broken fragments in a heap near the village in a hedge, and awaited with great anxiety for the hour of midnight in which he might rob himself. When twelve struck, he took his thievish path, climbed over the low gate, opened the inner door and went in with a beating heart to the goat's stall; he was fearful lest his wife should find him engaged in such wicked doings. Contrary to the usual custom, the stall was open, which surprised him, though it gave him pleasure, for he found in the neglect a sort of justification of his designs. But he found the stall all empty and bare; there was nothing there with life and breath, neither goat nor kid. In the first terror he thought some treble adroit thief had been before him, for misfortunes seldom come single.—In astonishment he sunk down upon the straw and a heavy sadness came over him that this last attempt to renew his traffic had failed him.

After the busy Eley had come back from the priest, she had employed herself very carefully in making preparations to receive her husband with a good feast, to which she had invited her friend the priest. He was to take along with him a mug of spiced wine, and at the cheerful feast announce to Stephen the news of his wife's legacy, and upon what conditions she was to share it. Towards evening she looked anxiously out at the window, to see whether Stephen was coming, went out of the door in her impatience, looked up the street with her black eyes, and wondered what kept him so late; and when night came, her care and anxiety followed her into her bedroom; and she thought not of her supper, and no sleep visited her eyes, until morning, when she fell into a restless slumber. Poor Stephen was not less tired and troubled in the stall. He had

so little strength and spirit left, that he dared not knock at the door. At last he aroused himself, knocked, and said in a sad tone—Dear wife, awake and open the door to your husband. As soon as Eley heard his voice, she sprang like a dart from her couch, opened the door, and embraced her husband with joy, but he returned her hearty embraces in a cold and hasty manner; set down his basket, and threw himself sullenly on a bench. When the gay wife saw his sad countenance, it went to her heart. What troubles you, husband, said she, surprised: what is the matter? He answered only by sighs and groans. She continued to question him about the cause of his trouble, and his heart was so full he could not long conceal his misfortune from his trusty wife. When she found that Numbornips had been playing him a trick, she understood the good intentions of the Spirit, and could hardly repress her laughter, which would have displeased poor Stephen. He did not take notice of her seeming gaiety, but asked anxiously about the Goat. This amused the good woman still more, for she saw he had been spying about the house. Why are you concerned about my Goat, said she: you have not yet asked about the children? The goat is carried off to pasture, perhaps—leave off vexing yourself about the malice of Numbornips; who knows but he will still make up your loss to you in some other and better way? You may wait long enough for that, said the desperate man.—Oh! said the wife, good often comes unlooked for—take courage, Stephen, to be sure, you have no glass, and I have no goat, but we have four stout children, and four stout arms to feed them and ourselves: these are all our wealth. God have mercy, cried the sorrowful man, if the goats are gone; then throw the four babies into the water, I can never feed them. Well then, I can, said Eley.

At this moment the good priest came in; he had heard the conversation while he stood at the door. So he took up the word, and preached Stephen a sermon on the text that the love of money is the root of all evil, and after he had with sufficient sharpness explained to him the law, he announced to him the good news of his wife's legacy, took out the Italian letter and interpreted the contents of it, that the present priest of the parish was to be the executor of the will, and that he had already received the money into his safe hands.

Stephen stood stupefied at the news, and could do nothing but bow, as the priest from time to time mentioned the mighty Republic of Venice, and took off his cap as he did so; at last he embraced most tenderly his wife, and from that time Stephen was the most pleasant husband, the kindest father, and most careful provider, for idleness had never been his fault.

The honest priest from time to time changed the gold into money, and bought with it a good farm on which Stephen and Eley lived the rest of their life. The remainder of the money he put to interest, and guarded the capital of his parishioner as carefully as the treasures of the church, never taking any reward for his services but the Mass Robes which Eley took care to make so splendid, that an Archbishop would not have been ashamed of them.

This tender and faithful mother lived to a great old age in happiness with her children, and Numbornips' favorite grew to be a brave man, served for a long time in the Emperor's army under Wallenstein in the thirty years' war, and became in time a very celebrated officer.

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansburg, in the county of Kesselberg, and state of New York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about fifty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shingles. The nail is hammered and comes from the machine completely heated to redness, and its capacity for being cleaned is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Simon Fairman will make, vend and warrant machines as above, to any person who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one-half of his patent rights for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansburg.

August 16, 1833.

AND J. R. M. & F.

RAILROAD AND CANAL MAP.—Price, in pocket-book or morocco cover, with 70 pages of letter-press description, \$2—put up in marble paper cover, with the letter press, so as to be sent by mail, \$1.50. The sheet alone, to be put in the 3d volume of the Journal, \$1.

LAFAYETTE.
THE Eulogy by JOHN QUINCY ADAMS, on the Life and Services of this Benefactor of Mankind; on a beautiful paper and type; with a spirited medallion *pentographic* likeness. Is just published and for sale by
D. K. MINOR, 35 Wall st.

✶ The subscriber will shortly commence a Saturday evening newspaper—containing all the news of the week, foreign and domestic, worthy of recording, entitled
KNIGHTS WEEKLY DISPATCH.

It will contain much curious matter with illustrative engravings on wood; the price will be three cents per week, and in all cases subscribers will be called upon monthly for the amount of their subscriptions; to those who will pay in advance for 12 months will be given a handsome copper-plate engraving of some distinguished character. An extended prospectus will shortly be issued.

JOHN KNIGHT,
Editor of the past 4 vols. of the
Mechanics' Magazine.

THE CIVIL ENGINEER & MACHINIST—
PRACTICAL Treatises of Civil Engineering, Engineer Building, Machinery, Mill Work, Engine Work, Iron Founding, &c. &c. Designed for the use of Engineers, Iron Masters, Manufacturers, and Operative Mechanics. By Charles John Blunt and R. Macdonald Stephenson, Civil Engineers, Architects, &c. &c. Consisting of examples worked through their entire detail of fundamental principle, organization, and progress of execution; and being in every case the known great works of British and Foreign Engineering complete and at length. Exemplifying the Practical application of the Laws of Statics, Dynamics, Hydraulics, Hydrostatics, Pneumatics, and General Mechanics; accompanied by full reports, specifications, estimates, and journals of progress; and illustrated by the formulae, calculations, tables, &c. in use by the first authorities. The working plans and general views of these important subjects are laid down in original drawings of great practical accuracy and careful execution, and occupying upwards of five hundred folio and imperial folio plates. In Divisions, containing from ten to fourteen plates in a folio.—Price one guinea.

Of this great work, the three first Divisions are received and for sale by WM. A. COLMAN, No. 122 Broadway, agent in the United States for the Publisher—who solicits subscriptions and the particular attention of Engineers, Iron Masters, Manufacturers and Operative Mechanics, toward the sale in the United States of this excellent and useful Publication. 11 Feb 31.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y 10b1a

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The Subscriber has now on hand a full supply of Garden and Field seeds, growth of 1834; among which are all the finest cabbages, cauliflower, broccolis, radishes, peas, &c., that are cultivated in England, France, and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store, I warrant genuine and fresh.

Also, skinless oats, potatoe oats, 44 lb. weight to the bushel, perennial rye grass, white clover, lucerne or French clover, orchard grass, Herd's grass, white mulberry, and yellow locust seeds, spring tares or vetches, genuine mangel wurtzel, and ruta baga, and field turnip seeds, well worth the attention of farmers.

Canary, Hemp, Rape and other bird seeds; wholesale dealers supplied on accommodating terms. Price lists by the pound and bushel furnished on application, as also catalogues of whole collection.

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Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money.

W. THORNBURN,
347 N. Market st. (opposite Post Office)

* Mr. Thornburn is also Agent, and will at all times receive subscriptions, for the NEW YORK FARMER and AMERICAN GARDENER'S MAGAZINE; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. MINOR, F-10b11

MECHANICS' MAGAZINE, Nos. 1 and 2 of Vol. 5, for JANUARY and FEBRUARY, 1836.—The two first numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal to any other of the kind published. Bound or stitched volumes may be had single, or in complete sets, at the office, No. 35 Wall street, of
D. K. MINOR.

AGENTS FOR NEW PUBLICATIONS.
HENRY G. WOODHULL, of Wheatland, Monroe county, New York; is agent for the following Publications: The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance. The American Railroad Journal, Weekly, at \$3.00 per annum. The Mechanics' Magazine, two volumes a year, at \$3.00 per annum. The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number. The Family Magazine, 416 pages a year, at \$1.50 in advance. The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, now in the 5th volume, bound volumes \$1.25. The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance. The Rochester Gem, at \$1.50 in advance.

All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 19, 1834.

✶ **TOWNSEND & DUFFEE**, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Duffee, May & Co. offer to supply Rope of any required length (with or without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New York, {
January 29, 1835.

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✶ Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 12-1y

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✶ The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of:
No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotive and other steam Engines.
No. 2. Blacksmith's Shop, 50 feet by 30, fitted with cranes for heavy work.
No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 130 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathe, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per day, exclusive of other work; three Trip-Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 18 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

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The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

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Boston, Dec. 29, 1834.

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RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

✶ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.
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25 tons of 1 inch by 1 inch.	Flat Bars in lengths of 14 to 15 feet, counter sunk holes, ends cut at an angle of 45 degrees, with splicing plates and axles to suit.
40 do. 1 1/2 do. do.	
40 do. 1 3/4 do. do.	
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200 do. 2 1/2 do. do.	

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 20, 22, and 26 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, and 4 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. BALSTON.

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Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. 471mewr

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The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1835.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Supt of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1835.
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
German and Morris Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K. MINOR, EDITOR.]

SATURDAY, FEBRUARY 21, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, FEBRUARY 21, 1835.

We give to-day the proceedings of a meeting held at Jessup's Hotel, on the evening of 7th inst., in relation to the Genesee Canal. We consider this Canal as one of the principal veins, which, when completed, will connect two great arteries of the system. It has been surveyed, and should, beyond all question, be promptly and favorably acted upon by the Legislature.

The friends of the Chesapeake and Ohio Canal will no doubt be highly gratified to learn, that one of the greatest obstacles on the whole line, (we allude to the projected tunnel of upwards of three miles in length,) may be partially obviated. Recent explorations in the vicinity of the summit, by persons qualified to judge, have satisfied them that but a short distance from the present site of the tunnel, and at about the same elevation, the waters, east and west of the dividing ridge, may be connected by a tunnel not over a mile in length, having all the advantages with regard to the proposed feeders which the present summit has. Should this, on actual survey and measurement, turn out to be the fact, of which we are assured there can be but little doubt, the greatest obstacles to a continuous water communication between the Chesapeake and Ohio will be removed, and give further stimulus to the friends of this national improvement to persevere in the grand undertaking.—[Somerset Whig.]

Jersey Railroads.—The Common Council of

New Jersey have resolved, 10 to 3, "that the passage or any act by the Legislature, authorizing any Railroad across the State would be impolitic, in violation of the faith of the State, and deeply injurious to the interest of the State.—[Journal of Commerce.]

The Florida Herald of the 17th ult, contains the message of Governor Eaton to the Legislative Council of that Territory. A topic of general interest in it, is the information it gives as to the want of an accurate survey of the coast of Florida. The only charts that the numerous American navigators of the adjacent waters have, are compilations from former French and British research. Governor Eaton thinks himself authorized to assert that statistical investigations will show that nearly one half of the whole export trade of the United States passes through the Gulf of Mexico. And yet this immense amount of trade is guided on a tempestuous and dangerous coast, by charts made by foreign nations, and become incorrect from the alterations produced in the bars and in the depth of water by currents. There are two important points where light houses are wanted.

Egypt.—The *Observateur Tricestine* gives the following extract from the Egyptian *Moniteur*:

"ALEXANDRIA, Nov. 15.

"The Viceroy set out some time ago on his annual journey through Lower Egypt, on which he devotes his attention particularly to agriculture. He will then go to Cairo, and afterwards to Upper Egypt, in order to animate there also the labors of agriculture by his presence. At the time when the Egyptians were carrying on the war in the Morea there were at Alexandria, no more than thirty inexperienced carpenters.—At that time large ships could not enter this port without difficulty. It was necessary to send to Europe for men who were able to second the plans of the Viceroy. Every body knows the success of his persevering efforts. Alexandria now possesses a large arsenal, a well disciplined fleet, commanded by officers who have been educated in France and England, and lastly, a naval school. The officers of the navy now are, 1 general of division, or admiral, 1 brigadier general, or vice-admiral, 1 colonel, or vice-admiral 15 lieutenant colonels, 15 adjutant majors, 15 adjutants, 35 captains of the first class, 41 ditto of the second class, 62 lieutenants, 55 sub-lie-

tenants, 80 cadets of the first class, 31 of the second, and 55 pupils of the marine. Divine Providence has given to Ali Pacha numerous descendants; these youths are brought up to the use of arms, and initiated in serious and useful studies. The eldest of them, Said Bey, aged eleven years, has already embarked on board the Admiral's ship, the Saint Jean d' Acre, as cadet, of the second class. M. Koenig, a Frenchman, acquainted with the Turkish language, accompanies him, to instruct him in French. He has also a Persian master, and eminent masters are expected from Europe, to teach him drawing and the nautical sciences. M. Carrey, one of them, who has already an appointment in the Polytechnic School, came to Alexandria to instruct him in the principal of the other European languages. Twenty-six chosen young men have the honor of being admitted to be the companions of his studies. Uniting theory with practice, he will probably be qualified, in 6 years, to take the command of a man of war. Two months ago he embarked at Alexandria to commence his naval apprenticeship, on the coast of Syria, but has now returned. The disturbances in Syria and Arabia are happily terminated. Some late troubles that broke out in Latakia and the environs, were stopped, as it were, in their birth. The works in cleaning the course of the Nile are continued with unparalleled activity. More than 12,000 workmen are divided into regiments, and distributed in the two branches of the river, of Damietta and Rosetta; their number is daily increased; a vast quantity of earth is already removed, and the materials for the works are accumulating. At the desire of the engineers employed on the works, Ceresy Rey lately had a hundred excavating machines made in the arsenal of Alexandria, which were immediately sent and are now at work. Thus a most useful and colossal work is carried on before our eyes in this country which possesses so many monuments of ancient splendor. The prosperity of Egypt must be infinitely increased if, as there is every reason to hope, the plan to regulate the inundation of the river should be successful.—The Pacha, who neglects nothing to accomplish this work has addressed a most flattering letter to Mr. Brunel, the contractor for the Thames tunnel, to induce him to come at least for one or two months to Egypt, in order to examine the banks of the Nile, and to forward the work by his counsel and experience: if Mr. Brunel declines he is requested at least to recommend another engineer. It was Marshal Marmont who suggested this step to the Viceroy. Next in importance to this great work will be the new Railroad, which is to be made from Cairo to Suez. Thus there will be a convenient channel of communication between Europe and India by the Red Sea. Mr. Galloway, on whom the Pacha has conferred the dignity of Bey, is gone to Europe to procure materials for the Railroad.

GENESSEE AND ALLEGANY CANAL MEETING.—Agreeably to public notice, a meeting of citizens of New-York, friendly to Internal Improvement, was convened at Colonel Jessup's Union Hall, corner of Greenwich and Courtlandt streets, on Saturday evening, February 7, 1835, Christian Bergh, Esq., was called to the Chair, and Messrs. George F. Hopkins and Edwin Williams were appointed Secretaries.

After a full discussion of the subject, and statements having been made to the Meeting, showing the importance of the proposed Canal, the following resolutions were unanimously adopted.

1. Resolved, That the proposed Canal from Rochester on the Erie Canal to Olean on the Allegany river, through the valleys of the Genesee and Allegany, is an object of great importance to this State, and particularly to this city, as it would open a direct communication with the valleys of the Ohio and Mississippi, and the tide waters of the Hudson.

2. Resolved, That when we consider that the Genesee and Allegany Canal would form a union of the Erie Canal with *twenty thousand miles of navigable rivers*, (the Mississippi and its tributaries,) watering thirteen States and Territories of the American Union, we cannot but view it as *superior* in its advantages to the present connexion of the Erie Canal with the waters of Lake Erie.

3. Resolved, That the great and increasing demand for *lumber*, for ships and habitations in this commercial emporium, forms an additional reason for making the proposed Canal, as in the valleys of the Genesee and Allegany abundant supplies of timber, and other lumber, of the best quality, may be readily obtained.

4. Resolved, That on a deliberate examination of the subject, and when it is considered that the proposed Canal, of about ninety miles in length, is estimated to cost only about seven hundred thousand dollars, we are firmly of opinion that no project of internal improvement promises so great benefits to this city and State, in proportion to the expenditures required.

5. Resolved, That the proposed Genesee and Allegany Canal is the only feasible work of internal improvement, which will insure to this city an advantage over Philadelphia and Baltimore in the trade of the Western States,—an object for which the States of Pennsylvania and Maryland have expended millions of dollars in constructing railroads and canals.

6. Resolved, That money expended in the construction of Railroads and Canals, is so expended to stimulate the industry, and increase the means of sustenance and comfort of the great mass of our citizens; that such improvements, so far from consuming the capital of the country, actually augment it, inasmuch as when they are completed, the money which they cost is still among us, diffused to the uses of those who are best entitled to it,—namely, those who, by the sweat of their brows, have opened channels of intercourse, which experience has taught us, add alike to the moral and physical advantages of the union; while the improvement perfected, remains a perpetual source of income, thus giving us its advantages, by means eminently adapted to the promotion of the best interests of society.

7. Resolved, That the members of the Legislature from this City are hereby earnestly requested to use their best exer-

tions in favor of the passage of a law, at the present session, authorizing the immediate construction of a Canal from Rochester to Olean.

A committee of 100 was appointed to take measures to have this subject properly presented to the Legislature now in session.

TO THE HONORABLE THE LEGISLATURE OF THE STATE OF NEW-YORK.

The Memorial of the Subscribers, Inhabitants of the City of New-York, respectfully represents:

That when the Erie and Champlain Canals were completed, (in 1825,) the assessed value of real estate in this city was only about fifty-eight millions of dollars; that the same is now one hundred and twenty-three millions of dollars; that they believe this astonishing increase is attributable in a great measure to the effects of the Erie Canal, which is now, however, only partially completed. Its original projectors contemplated a connexion of our tide waters with the Allegany, the Susquehanna, and the Delaware Rivers. The two latter have been done by means of hundreds of miles of Canals and Railroads, and at a cost of several millions of dollars. For the former, not a cent has been expended, although it requires only about seven hundred thousand dollars to construct it from Rochester to Olean, forming thereby a communication of more than 10,000 miles, with navigable rivers that water thirteen states, opening to our market incalculable quantities of the choicest timber and other lumber, with the rich productions of the tropical regions, and the produce of those great valleys that constitute so large a proportion of the whole area of the U. States. The interest of this city demands that it should be commenced at once; if for no other purpose than to relieve us from the paralyzing scarcity of timber, boards, &c., for our increasing ships and houses, which the demands of commerce and habitations for our growing population require.

Why this apparent neglect? Its importance has been known and long since pressed upon the Legislature in four successive messages by the late Governor Clinton. Why have trifling objects, in comparison, absorbed the attention and the resources of the State? The inhabitants on the line of this proposed Canal have never been outlawed; they are our patriotic fellow citizens, who depreciated their own estates by contributing to the construction of the Erie Canal. If they were not entitled to the common privileges of justice, their sins should not be visited upon your memorialists in this city.

The increased canal revenue, which would follow the increased transportation by means of this great internal opening, should not be forever lost to the State; and delay is every day diverting millions of commodities that would be attracted to our state, and pay tolls to our canals, and enrich and extend our commercial metropolis.

It is computed that the immediate enhancement of value of real estate in this city by the construction of the proposed canal would be at least *five per cent.*, which would amount to over *six millions of dollars.*

Pennsylvania, under all her disadvantages of almost impassable mountains, has already opened a communication, broken by alternate canals and railways, and at an immense cost, has reached the Ohio river, and will fasten on to the trade of the West, and bring it to her own metropolis, if supineness and miscalculation on the part of this State continue to predominate.

Your memorialists, therefore, most respectfully, but most earnestly pray, that a law may be passed the present session which shall require the completion of the Genesee and Allegany Canal, with the least possible delay.

[From the forthcoming number of the *Mechanics' Magazine and Register of Inventions and Improvements.*]

Specification of the Patent granted to GEORGE CARTER, of Nottingham, in the County of Kent, Gentleman, for certain Improvements in Paddle-Wheels.

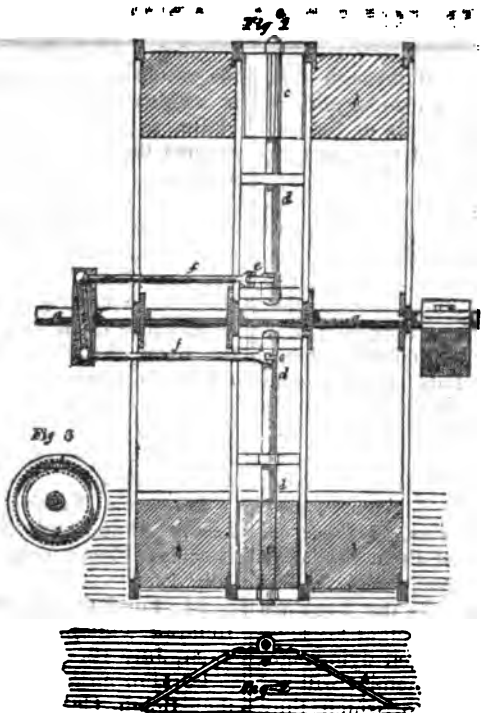
—Sealed June 1, 1833.

To all to whom these presents shall come, &c. &c.—*Now know ye*, that in compliance with the said proviso, I, the said George Carter, do hereby declare the nature of my said invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following description thereof, reference being had to the drawing hereunto annexed, and to the figures and letters marked thereon (that is to say):

My invention consists of certain valves added to the float-boards of paddle-wheels, whereby the water against which such float-boards are acting is permitted to flow through, so soon as the float-boards would no longer be acting advantageously in propelling the vessel, and at the same time the water will not be lifted by the float-boards as they leave the water, and thus the surge caused by the back-water will be in a great measure avoided. But in order that my invention may be most fully described and understood, I will describe the drawing hereunto annexed.

Fig. 1 shows an edge view of part of a paddle-wheel constructed according to my invention, there being only two sets of float-boards shown; but as the arrangement of the parts are similar to each set of float-boards, the invention will readily be understood by a competent mechanic.

Fig. 2 represents the plan of one set of float-boards, together with the valve between them, in the position at which they are when under water, and exerting their most effective force in propelling the vessel. In each of the figures the same letters indicate similar parts, *a* being the main shaft or axis driven by the engine; *b, b*, are float-boards, which, it will be seen, are set at an angle with respect to each other, leaving a space between the two inner ends, which is to be closed by the valves, *c*, at the time the float-boards are exerting their force against the water; but the valve *c*, turns on the axis or spindle, *d*, so soon as the further holding the water would not be advantageous in propelling the vessel, at which time the water flows freely between the float-boards, *b*, and thus tends to prevent the lifting back-water. The spindle or axis, *d*, turns in bearings on the framing of the wheel, and at the other end there is affixed a crank, *e*, having a connecting rod, *f*, attached thereto, as shown in fig. 1. The connecting rod, *f*, is acted on by two inclined planes



affixed to the side of the vessel, in such manner that the connecting rod is alternately forced outwards and drawn inwards for closing and opening the valve, *c*. These two inclined planes are shown separately in fig. 3.

Having now described the nature of my invention, and the manner of combining the various parts, I will describe the manner of their action. I will suppose a paddle-wheel constructed, having any determined number of sets of float-boards, fitted and arranged as above described. It will be evident, that motion being communicated to the same by the main shaft, *a*, the valves, *c*, will successively be closed by the connecting rods, *f*, rising up the lower inclined plane, and will be kept close till it arrives to the end of the plane, when it will pass over the upper inclined plane, by which means the connecting rod will be drawn inwards towards the vessels, which will turn the valve, *c*, edgewise, and thus no longer prevent the water passing between the float-boards. I would observe, that although I have here described the valves, *c*, as turning on axes, yet it will be evident that in place thereof the same may be caused to slide up and down; nor do I confine myself to the precise arrangement of parts for turning the valves. And I would have it understood that I am aware that paddle-wheels have been before made with angular float-boards; I do not, therefore, lay any claim thereto, but do hereby wish it to be understood that I confine my claim of invention to the placing of valves, *c*, to stop the water from flowing between such angular float-boards during the time they are advantageously acting on the water to propel the vessel, and opening a way for the passage of the water between them so soon as their action would not be longer advantageous, and thus tending to pre-

vent the lifting the water as above described.—In witness whereof, &c.

Enrolled November 30, 1833.

[From the Journal of the Franklin Institute for Feb.]
List of American Patents which issued in July, 1834, with Remarks and Explanations by the Editor.

1. For a *Saw for sawing Staves for Barrels, &c.*; Aaron Bard, and Simeon Heywood, Lunenburg, Worcester county, Massachusetts, July 8.
2. For a *Machine for Picking Curled Hair*; John Thompson, 3d, Marblehead, Essex county, Massachusetts, July 8.
3. For improvements in the *Crane used for raising and removing heavy bodies*; Hezekiah Bradford, city of New-York, July 8.

This crane is principally intended for raising and removing the earth, or other bodies, in excavating the ground for canals and railroads, and it is so constructed, that the boom which sustains the load can be made to raise it to a considerable height, and deposit it upon a bank in any spot required. The boom is rigged to a mast, and the respective motions are produced through the intervention of tackle. The arrangements have been made with much skill, and so far as a judgment can be formed from the evidence before us, we see no reason why the apparatus should not operate in a very advantageous manner. The whole description has reference to the drawings which accompany it, and these, indeed, seem absolutely necessary to the understanding of its details.

It is stated that, "by the use of the above machine, a horse, or other animal, and one driver, will accomplish the removal and deposit of a greater quantity of coals, or other heavy bodies, from one spot to another, or to and from a wharf, barge, scow, or other vessel; or remove

and deposit in the same manner, from excavations, or in other similar work, a large quantity of earth, or other heavy materials."

"By the arrangements for altering the rake of the mast, I with facility cause the weight that is raised to swing round while in the act of raising, and to be carried to the place where it is to be deposited, governing the motion thereof so as to make it more or less rapid, by merely changing the rake of the mast, and the position of the snatch block, so that it shall be farther from, or nearer to, the mast. I cause the emptying of the load, or the dumping, as it is called by the workmen, to be effected by the same power which raised it, and at the moment at which it arrives at its place of destination."

"I do not claim as my invention, or improvement, the introduction of the use of a crane, or boom, for the purpose of raising and removing heavy bodies; nor do I claim as my invention, or improvement, any of the several parts of the above machine. But I claim as my invention and improvement, the combination in all its substantial parts, and the above described new arrangement and adjustment of the parts of said machine to each other, in such a manner as to produce the above results, when applied to the purposes above specified."

4. For a *Portable Furnace*; John Lewis, Derby, New-Haven county, Connecticut, July 8.

5. For a *Cotton Whipping Machine*; Samuel P. Mason, Killingly, Windham county, Connecticut, July 8.

6. For an improvement in the *Construction of Hatters', or other, Kettles*; William Porter, and Abraham Sanger, Waltham, Middlesex county, Connecticut, July 8.

7. For an improvement in the *Fire-place*; Horace Saxton, Erie county, New-York, July 8.

8. For a *Horizontal Straw and Vegetable Cutter*; Paul Moody, city of Philadelphia, July 8.

The straw, or vegetables, to be cut, are placed in a box, or hopper, in which they descend by their own gravity, so as to come into contact with a revolving blade, extending from the centre to the periphery of a horizontal wheel. The patentee says, "I am aware that simply a wheel, with one or more knives, or cutters, screwed on the arms, in a machine for cutting straw, is no new thing. But the peculiar construction of the above described box-wheel in a machine for cutting straw, hay, &c. &c., which, with its regulating bottom, or gauge, the mode of fastening the knife and slitters to it, with the application of the latter in the machine to cut vegetables square, and also the apparatus above described for forcing down and compressing hay, straw, &c. &c., is what I claim as my invention and improvement."

Machines similar in principle have been previously patented and described by us; the claim, therefore, should be only for what are called improvements, the general construction belonging to the original

inventor, and not being usable without his consent.

9. For a *Hammer Hatchet*; Joel Howe, Princeton, Worcester county, Massachusetts, July 8.

If to the hammer part of a shingling hatchet, you add a claw projecting back from the hammer face, in a line with the handle, you have this machine.

10. For a *Plough*; James Jacobs, Maysville, Mason county, Kentucky, July 8.

12. For a *Filtering Apparatus*; Littleton Ayres, city of Baltimore, July 8.

13. For a *Self-balancing Slide Valve for Steam Engines*; John Kirkpatrick, city of Baltimore, July 10.

14. For an improvement on *Bushing the Sheaves of Pulleys*, and on their pins; Moses H. Marshall, Gloucester, Essex county, Massachusetts, July 10.

15. For a *Traverse Sleigh*; Bela Markham, Burlington, Chittenden county, Vermont, July 10.

17. For an improvement in *Railway Carriages*; Isaac Knight, city of Baltimore. First patented March 18th, 1829; patent surrendered, and re-issued upon an amended specification, July 10.

The same mode of sustaining the lateral thrust of the axle which forms the claim of Mr. Knight, was also claimed in one of the patents obtained by Mr. Ross Winans; which of these gentlemen was "the true and original inventor," is not a question for us to determine.

18. For an improvement in the employment of *Water Power*; Ebenezer Barford, Jay, Oxford county, Maine, July 10.

"The specific, new, and superior facilities comprised in the above described improvement, and which I claim as my own invention, are the following: 1st. The construction of the tub-wheel; its peculiar location, being immersed in a reservoir or cistern of water, and consequently not liable to be encumbered with ice; and the manner of its operation, as comprising the wedge power. 2d. The peculiar manner of using the water, so as to double its action upon the terminating wheel, with its full primary force in each action. 3d. The general arrangement and combination of the parts, without specially regarding their size or proportions, or the material of which they are constructed."

Those persons who are well acquainted with hydraulics, will see enough in the foregoing claims to convince them that the inventor has "travelled out of the record." The idea, which is clearly expressed, that the same water, in the same fall, may be twice used, "with the full primary force in each action," is so manifestly fallacious, as not to require to be disproved; if it can be twice used "with the full primary force," it may be so used a hundred times, and a fall of four feet would be as available as one of four hundred.

In the plan before us, a wheel, with spiral openings near its periphery, through which the water is to descend, is to be placed horizontally in a trunk, or flume;

and after it has descended through this, it is to be conducted to an undershot, or flutter, wheel; and the shafts of the two wheels are to be connected by straps, or gearing.

19. For a *Steam Bug Destroyer*; Jonathan Howlet, Greensboro', Guilford county, North Carolina, July 8.

Woe to the bed-bugs, should these steam bug destroying machines become as numerous as washing, thrashing, and churning machines, of which there seems to be some danger. This is the second from North Carolina, a State by no means prolific in patented inventions. In vol. xiii., p. 313, we described one from the State of New-York, and, not long since, there was one from the far West; and, what is somewhat curious, they are all alike, and are also all of them similar to such as had been previously described in the English journals. As the bugs are doomed to destruction, it might be some consolation to them in their dying agonies, to know that their enemies will not be able to sustain the right which they claim to their "infernal machines," under the patent laws, the great seal to the contrary notwithstanding.

20. For *Propelling Wheels*; William Kelly, city of Pittsburgh, Pennsylvania, July 10.

21. For propelling machinery by *Horse Power*; Eliakim Briggs, Fort Covington, Franklin county, New-York, July 12.

This is the common, inclined, movable floor, upon which the horse is to walk. The cross slats are to be connected together by staples and links on their under sides, which, by their bearing against each other, as the floor becomes straight, are to sustain it, with the horse, or horses, upon it. The doing this by means of the staples and links, is the part claimed as an improvement. There are at least two existing patents for sustaining such a floor, without ways between the drums at the ends; in both these instances, however, blocks, or stops, attached to, and rising to some height above, the upper sides of the slats, were to be brought into contact by the straightening of the floor. This latter method is undoubtedly preferable to that designated in the foregoing patent, but neither of them can be safely depended upon, with the weight of a horse upon the floor, as it is subjected to a leverage which will, sooner or later, cause them to fail.

22. For a *Chain of Boats*, for inland navigation; Gurdon F. Saltonstall, Darlington District, South Carolina, July 12.

As the title indicates, these boats are to be so constructed that two, three, or more, may be linked together. Those forming the two ends present a sharp bow to the water, whilst the joining ends terminate abruptly, so that, when brought together, and linked, they form one continuous boat. The specification points out the advantages to be derived from boats thus constructed, and the patentee manifestly supposes that the idea of thus connecting boats is altogether new; in this, however, he is mistaken, as will presently appear. He, in fact, seems to think that

the whole arrangement proposed by him is original, as he does not make any claim, or attempt to point out in what respect the invention is to be considered as new.

In vol. xii., p. 235, canal boats are described, for which a patent was obtained, April 6th, 1833. Six, or any other number of sections, were to be joined together, the two end sections being so formed as to cause them to pass readily through the water, the others being square, to admit of their being conveniently linked together, just as in the case before us. It is scarcely necessary to go further back, in order to prove the truth of the assertion above made.

23. For a *Machine for Drawing Boots*; Lewis Dole, and Nathaniel Peckard, Bowley, Essex county, Massachusetts, July 12.

24. For *Locks for Doors*; Simon Pettes, Bellows Falls, Windham county, Vermont, July 12.

25. For an improved *Cider Mill*; Nathan Booth, Cheshire, New-Haven county, Connecticut, July 12.

This cider mill is to be made in the form of the old-fashioned coffee or bark mill, with a conical nut, and a shell adapted to it, both of which are to be made of wood, the grooves or spirals upon them being formed by bars of iron fixed upon each, at an angle of about forty-five degrees. These bars are to be an inch wide, and half an inch thick; they are to project their whole thickness at the upper, or feeding end, but are to be let into the nut and shell, so that, at their lower ends, they shall not rise more than a sixteenth of an inch. The wood between them, at the upper ends, is to be grooved out, so as readily to admit the apples.

26. For an improvement in the mode of manufacturing of *Plates for Gun Barrels*; Harvey Mills, Springfield, Hampden county, Massachusetts, July 12.

The plates are to be prepared for welding, by rolling, instead of by forging, as has been usually done. The rollers are to be somewhat more in circumference than the length of the barrel to be formed, and are to be geared together in the ordinary way.

Flat bars are to be employed, of about three fourths of an inch thick, and wide enough to form the butt of the plate by rolling longitudinally; and in order to give the taper required, both in width and thickness, the bar is first rolled edgewise through eccentric grooves, wide enough to receive it, and is thus reduced to the proper width. It is then rolled flatwise through another groove, or grooves, so formed as to give it the required thickness at the butt, the muzzle, and the intermediate parts. The scarfing is performed in the same way, in suitable grooves, as is likewise the grooving by which it is finally prepared for welding.

27. For a *Pump Gauge*, for ascertaining the depth of the water in the hold of a vessel; James D. Woodside, city of Washington, District of Columbia, July 14.

29. For an improvement in *Railroad*

Cars; Joseph S. Kite, city of Philadelphia, July 14.

30. For a *Platform Balance* for weighing; Samuel L. Hay, city of Boston, Massachusetts, July 14.

31. For a *Bedstead for Invalids*; William Leo Woolf, city of New-York, July 15.

23. For a *Cooking Stove*; Samuel W. Phelps, Cincinnati, Hamilton county, Ohio, July 16.

33. For a *Rarefying Oven Cook Stove*; Samuel W. Phelps, Cincinnati, Hamilton county, Ohio, July 16.

34. For a machine for *Cutting Laths*; Dana Hubbard, Wheeling, Ohio county, Virginia, July 18.

A plank, of about eight feet in length, is to be fixed so as to slide backward and forward, horizontally, in grooves made for that purpose, in a strong bench or frame. The plank is to receive its traversing motion of about eight inches, from a pitman, or shackle bar, attached to one end of it, which is acted upon by a crank on a fly-wheel shaft. A knife, the full length of a lath, and from four to six inches wide, is to be fixed upon the sliding plank obliquely, making an angle of about 20 degrees with the edge thereof. The stuff to be cut is first sawed into boards, and then cross-cut to the length of a lath; these boards are dropped edgewise into a groove falling so as to be cut by the knife, the board bearing against a cutting block, faced with steel on its under side. The laths pass, as they are cut, through an opening made in the plank for that purpose.

35. For a *Cheese Press*; Sylvester Kibbe, Schoharie, Schoharie county, New-York, July 18.

36. For a *Steam Fireplace*; John W. Cochran, Lowell, Middlesex county, Massachusetts, July 18.

The apparatus here patented is intended to heat dwelling houses, ships, and other places, by means of steam generated by a fire in a common open fireplace, or caboose, without interfering with the use of the fire for culinary or other purposes.

A boiler of metal is to be made in the form of the back and jams of an ordinary fireplace. The back part of this boiler is to fit against the back of the fireplace, and its ends against the jams; it is not, however, we apprehend, to be in contact with them, but at a sufficient distance to allow heated air and flame to pass between them. The height of this boiler, judging from the drawing, will be about equal to that of the breast of the fireplace, and its depth at bottom about a foot, whence it is to slope back as it ascends; it is to have feet at the bottom, to raise it from the hearth. There are to be two long rectangular cavities in the front, something like ovens, into which the flame is designed to enter, to increase the heating effect, the double plates surrounding these cavities. Water is to be admitted through a pipe at top, and steam is to escape through another pipe, and to be thence conducted around a room, or wherever it may be wanted.

37. For a *Bush for Mill Spindles*; Samuel Merchant, Ohio county, Virginia, July 22.

Metallic wedges are to be so placed in the common wood bush as to form a collar around the neck of the spindle, with a piece of gum elastic, or some similar material, between the wood and the metallic wedge, so as to give elasticity thereto, and thus to relieve it, in some degree, from dead friction.

38. For an *Improvement in Wagons, or other Wheeled Carriages*; Reuben Rich, Albion, Oswego county, New-York, July 22.

The specification of this improvement is somewhat laconic, yet the writer terminates his description as though the few remarks made had been productive of some fatigue. The whole which can be called descriptive is in the following words: "The wheels are the same as common carriages, except the hubs, and the axles in the hubs. The axle in the hubs is a bar of iron through the hub, with the ends made round, sticking out of the hubs about two or three inches, as the case may be. These axles are made permanent in the hubs, and revolve round with the wheels, and the frame is explained in the drawing; so it needs no further explanation about it."

39. For a *Retaining Box for Oil in Upright Journals*; Henry Barton, Rochester, Monroe county, N. Y., July 22.

Below the box in which the upper gudgeon of a vertical shaft revolves, there is to be a cup for containing oil. The box is secured to the framework by a flanch on its upper side, and descends upon the gudgeon so that a cap fastened upon the shaft, just below the box, may have its sides rise so as to surround the said box, without touching it. The cup may then be nearly filled with oil, which, from the height of the rim of the cup, will necessarily flow in between the gudgeon and the box. When the shaft is to have a rapid motion, this, as the cup revolves with it, would tend, by centrifugal force, to throw the oil out of the cup; a recess, or groove, is, therefore, formed round the lower part of the cup, to retain the larger portion of the oil, and thus to counteract its tendency to overflow.

The advantages derived from the application of the retaining box are stated to be, "first, the effectual preservation of all such bearings from becoming dry, heating, and wearing, and deranging their relative positions, prevent fire from friction, which has not unfrequently been the result of rapid motion. Secondly, a great saving of oil, as the cup saves all that is applied. Thirdly, a saving of time, for, with the addition of the retaining cup, once a week will be often enough to apply oil, when, without it, from once to four times a day is required, in most cases. Fourthly, cleanliness in all fine machinery, as nothing can flow down the shaft, or spindle, to foul or otherwise disfigure or injure below."

40. For a machine for *Blocking Horse Collars*; Nathan Post, Norfolk, St. Lawrence county, New-York, July 24.

41. For a *Regulated Pressure Engine*; Daniel Livermore, Civil Engineer, Blairsville, Indiana county, Pennsylvania, July 24.

This is a very ingeniously contrived hydraulic engine, for applying the power of water to drive machinery, by a regulated pressure. The description of it is of great length, and it was our design to have epitomized it, accompanying our account with the necessary cuts. The article is not, however, yet prepared, and as we anticipate the reception of an account of its actual operation from the inventor, who is engaged in carrying it into practical operation, we shall, for a time, postpone the intended publication.

42. For a *Plough*; Henry Peachey, city of Philadelphia, July 25.

43. For a *Thrashing Machine*; Gideon Hotchkins, Windsor, Broome county, New-York, July 25.

Although a very labored description is given of this thrashing machine, and certain distinct claims are made, there still is not, in our apprehension, any thing presented which is new. The machine is of the cylinder and concave kind, with beaters which swing upon bolts passing through circular heads, in a way that is well known.

44. For improvements in the *Process of Tanning*; Edward S. and Daniel Bell, Smithfield, Jefferson county, Virginia, July 28.

45. For a *Female Auger for cutting Wagon Spoke Tenons*; John Lenher, Calico township, Lancaster county, Pennsylvania, July 28.

Bits for cutting round tenons, or pins, have been long and well known, and have also been used for tenoning spokes for wheels. So far as we can judge from a very imperfect description, there is nothing new in the one which is the subject of this patent; if there is, it consists merely in a change of shape, without the production of any new effect, or the employment of any improved means.

A patent was obtained for an improvement in augers, or bits, of this kind, by Mr. Abel Conant, in June, 1829, as may be seen by turning to p. 176, vol. iv.; at which time it was not pretended that there was any thing new in the thing itself. The plan, as there proposed, we think decidedly superior to that now offered.

46. For a *Saw Knife*; Lorenzo Graham, Paris, Oneida county, New-York, July 29.

Take a common knife, and cut teeth in the back of it, and you have the patent saw knife, which, we are told, may be used for culinary purposes, for pruning, or for any thing else which may be found suitable.

47. For an improvement in the mode of *Chilling Cast Iron Wheels for Railroad Cars*; Phineas Davis, Civil Engineer, city of Baltimore, July 29.

48. For promoting the *Combustion of Anthracite, in Locomotive and other Steam Engines*; Phineas Davis, Civil Engineer, city of Baltimore, July 29.

[From the London Mechanics' Magazine.]

Birch's Patent Axletree and Box for Carriages.

Many have been the attempts made to supply that important desideratum in coach-making, namely, a permanently oiled axle, or, to speak more properly, an axle that once supplied with a sufficiency of oil will remain so—if not forever, at least for such a length of time as will obviate the numerous inconveniences with which the necessity of frequent oiling is attended; when travelling, more especially. Mr. Birch, the eminent coach maker, has recently invented and patented an axletree and box, which seems to us to go much farther towards supplying this desideratum than any other invention of the kind with which we are acquainted.

Fig. 1 of the prefixed engravings, represents the arm and shoulder of Mr. Birch's axletree. The arm, which is a perfect cylinder, has a groove cut in it to allow the passage of oil; the end is screwed to receive the nut, and a hole is cut into it for the linch-pin.

Figs. 2 and 3 are two loose cylindrical barrels, made to turn easily on the axle-arm; each is perforated with holes, to allow the free passage of oil, and to receive any grit that may have got on the surface.

Fig. 4 is the nut, the back of which, or the end that meets the box, is made convex, so as to fit into the concave end of the box and against the cylindrical barrels. The other end of the nut is hexagonal, and cut through the six sides, in order that the linch-pin, fig. 5, may be put in at any of these sides, and the play of the wheel adjusted to a nicety.

Fig. 6 is the cap or reservoir which is screwed into the linch end of the box. Now let us put these parts together. The cylindrical barrels, (figs. 2 and 3,) are put on the arm, (fig. 1,) and, after these are inserted in the box, (which latter, as we shall see by the section, has a chamber in the rear for the oil,) the nut, (fig. 4,) is screwed on, and the linch-pin put in. Having screwed on the cap, the box will be complete, as inserted in the nave, and as shown by fig. 7.

Fig. 8 is a section on a larger scale, to show the connection of the different parts; *a a* is the box which shows the channels for the oil; *b b* the chamber to receive the oil; *c c* the cylindrical barrels; *d d* the nut; *e* the axle arm, showing the channel *f*; and *g* the cap.

Mr. Birch had fitted up a gig with one of these axletrees, one wheel of which being once oiled, was never again disturbed until worn out. The other wheel had the cap taken from it, and ran six hundred miles; the arm, &c. was then well cleaned and polished, and put together without any oil, when, in this state, the wheel ran sixty miles without sticking fast.

Sir John Conroy, who has the charge of the stables of her Royal Highness the Duchess of Kent, was the first person to notice the improved axletree, and he has introduced it in some of her Royal High-

ness's travelling carriages, where the improvement has been found to answer remarkably well.

One of these axletrees was put to the cabriolet of John Ramsbottom, Esq., M. P., which went out on the 9th October, 1831. One month afterwards it was examined and refitted up, and was not again touched until the 23d of May, 1833, when it was found quite full of oil. It was again refitted with the same oil, and the cabriolet continued in use until the 12th of May, 1834; when the axletree and wheel were examined, in the presence of Dr. Birkbeck and Mr. Toplis. The latter gentleman has made the following report of this examination:

"Museum of National Manufactures, &c.
"Leicester square, May 12, 1834.

"I was this day present on the premises of Mr. Birch, coachmaker, Great Queen street, to see the state of a pair of his improved axletree boxes, after the same had been in use above two years and a half since the last replenishment with oil. They were in a cabriolet belonging to John Ramsbottom, Esq., M. P.

"There appeared to have been no partial wear; every part was free and un-

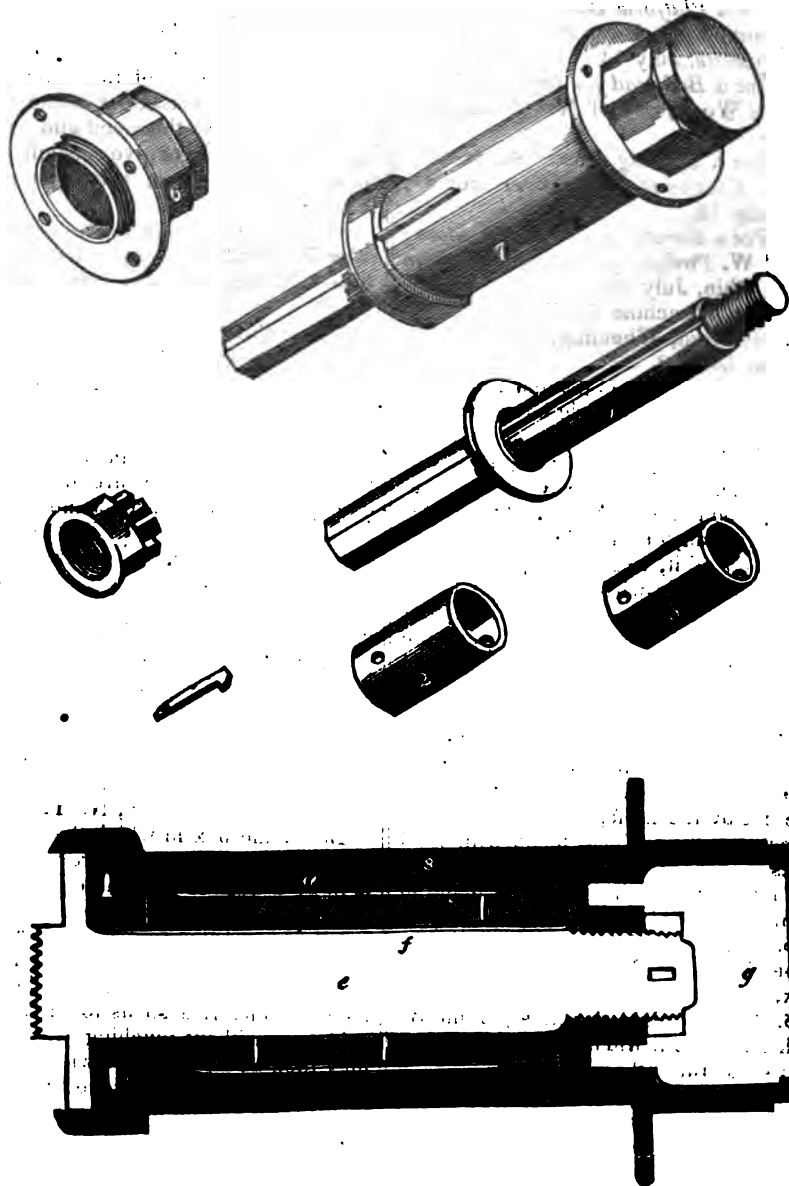
injured. All the rubbing surfaces were well covered with oil, and appeared to have been at all times sufficiently lubricated. The oil had not become glutinous, nor could much have escaped, as there remained still a sufficient quantity to keep the working parts in good order for a considerable time to come. The oil was discolored by the iron, but had no verdigris in it. The wheel was replaced without any further supply of oil.

(Signed) "CHARLES TOPLIS,
"Director of the Museum."

Specification of the Patent granted to WILLIAM NORTH, of Stangate, Lambeth, in the County of Surrey, Slater, for an Improvement in Roofing or Covering Houses and other Buildings or Places.—Sealed January 29, 1833.

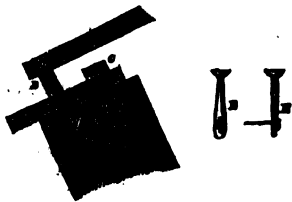
To all to whom these presents shall come, &c. Now know ye that my said invention is described and ascertained in manner following, (that is to say):

My improvement in roofing or covering houses and other buildings or places, partly consists in laying and retaining upon the wooden or iron rafters of roofs, slates or slabs of slates, each of



which, with the exception of those used in the lower tier of all, is raised at its lower end by means of a fillet of slate, lead, or other metal, or of mastic composition attached to the under side of the slate or slab, which fillet, excepting when laid on slates, or slabs of slates of uneven surface, is scalloped on its under side, more or less, as may be required, so as to admit air from without to the timbers of the roof, and to let steam, heat, and damp, escape from within. My said improvement further consists in laying or retaining upon the wooden or iron rafters of such roofs, slates or slabs of slate, each of which, with the exception of those used in the upper tier of all, has attached to the top side of the upper end of each, a fillet of slate, lead, or other metal, or of mastic composition, smaller than the fillet before described, and the upper end of the slate, or slab, to which the smaller fillet is attached, being overlapped by the lower end of the slate or slab to which the larger fillet is attached, the smaller fillet excludes wet from without, while it does not prevent the air from being admitted to the timbers of the roof from without, or steam, heat, or damp, escaping from within, which completes the horizontal joints. Further, on the under side of each slate or slab, a groove is sunk at each side, the outer edges of which overlap the edges of a slate, or iron bearer, which has a corresponding groove sunk on each side of its upper surface, forming a channel for the discharge of wet that may get into the vertical joint.

And in order that this my specification may be sufficiently clear to enable competent persons, at the expiration of my patent, to practise my invention with the same advantage which I myself now possess, I shall describe the whole process of roofing, or covering houses, and other buildings or places, in the manner which I practise.



Description of Drawing.—The slates or slabs of slate are in thickness from 7.8 inch to 1 inch, according to the strength required, in length from 2 feet to 6 feet, the breadth about two-thirds the length. On the under side of each slate or slab, is a groove at each of its sides about 3.4 inch wide and 1.4 inch deep, fig. No. 1, A, A.

On the under side of the lower end of

each slate, excepting those used in the bottom tier, or eave course, is a groove 3.8 inch and 1.8 inch deep, into which is fastened a fillet of slate, lead, or other metal, about 3.8 by 5.8 inch, by means of a seam of mastic or oil cement, having its bottom edge scalloped according as little or much ventilation is required, or not scalloped if the face of the slate upon which it bears is of uneven surface, fig. No. 2, B. And upon the upper side of the top end of each slate, (excepting those used in the upper tier of all,) is laid a fillet of mastic or other composition, or of slate, lead, or other metal, about 1/2 inch wide, 1/2 inch thick, fig. No. 2, C: observing, that I generally use a fillet of lead for the bottom end, on account of its exposure to the weather, and its flexible quality in bending to the unevenness of the slate, and a fillet of mastic for the top end on account of its adhesive quality to the slate, and being partly protected from the weather. The bearers upon which the sides of the slates or slabs bear, forming the vertical joints, are of slate or iron, from 1 to 2 inches thick, of the same length as the slates, and about 3 inches wide, with a groove about 1/2 inch wide and 1/2 inch deep on each side of the upper face, fig. No. 1, D, D, D.

Method of fixing the improved roofing.—The wooden or iron rafters must be placed horizontally, of sufficient distance apart to allow of the top end of the slates having 2 inches bearing, and the bottom end to overlap the slate below 2 inches, the principals or binders are about 8 feet apart. The slate or iron bearers are sunk and nailed at the upper ends, a sufficient depth into the rafters to allow of the slates or slabs bearing equally upon the rafters and upon the bearers, the bottom-end overlapping the head of the slate below 2 inches, and the sides of the slates or slabs overlapping the sides of the bearers, fastened at the bottom-ends with metal loops, E, E, countersunk into the face of the slate, and nailed to the rafters.—In witness whereof, &c.

Enrolled July 29, 1833.

*Specification of the Patent granted to JOHN BAPTISTE CONSTANTINE TORASSA, and others, for certain Improvements in Making or Producing the Pigment commonly known by the name of White Lead or Carbonate of Lead. Sealed December 11, 1833.**

To all to whom these presents shall come, &c. &c. Now know ye, that in compliance with the said proviso, we, the said John Baptiste Constantine Torassa, Paul Isaac Muston, and Henry Walker Wood, do hereby declare the nature of the said invention to consist in making or producing the pigment commonly known by the name of white lead without the use or employment of vinegar, or acetic, or acetous acid, in any other form or under any other name, and without the aid of artificial heat, except for the purpose of drying the white lead, as hereinafter mentioned, by reducing the ordinary lead of commerce, by friction

in water, to a very fine powder, and then exposing the said powder to atmospheric air, so that it may acquire both oxygen and carbonic acid, and thus be converted into the pigment aforesaid.

We cut common sheet lead into very small pieces or grains, or, what is preferable, we form lead into what may be termed shot, in the same manner as patent shot is made, except that no other ingredient is used to cause the lead to cool in a perfect round form. The exact shape of the pieces of lead is immaterial, but the shape of shot is the most convenient. These shots or pieces of lead should be about the size of duck shot, and having procured any given quantity, we place them in an open shallow wooden vessel lined with sheet lead, which we call a friction vessel, covering the bottom of the vessel with the shot or pieces of lead to the depth of about one inch, and then add water sufficient to cover them, but not more. We then tip the vessel containing the shot or pieces of lead, from side to side, in such manner as to cause the shots or pieces of lead to roll backwards and forwards on the bottom of the vessel, and thus produce great friction of the pieces of lead, one against the other, and this friction will produce an extremely fine powder of lead mixed with the water, from which it will separate easily, if left to subside. We then remove the moist powder, which is at an early period of the process of a dark color, pass it through a fine sieve, and expose it for about eight or ten days to atmospheric air, whilst the power is still in a moist state, and about the consistence of thick cream, in another shallow open vessel, which we call the carbonating vessel, where we agitate or stir it constantly, in order to expose it as much as possible to the action of the atmospheric air, until it assumes a beautiful white color, and is thus converted into the pigment commonly known by the name of white lead or carbonate of lead. The carbonating vessel may be made of any convenient material, but we prefer wood as nearly colorless as possible. When the white lead is thus produced, if it should still contain any moisture, it should be well dried before it is put into casks for sale.

Now, whereas we do not claim as the said invention the form of the friction or carbonating vessels here given, or the particular manner hereinbefore described of agitating the lead, though the foregoing is the process we usually employ as being the best adapted of any we now know of for the purpose, when engine-power is not used; but we claim as the said invention the following improvements, (that is to say,) making white lead without the use of vinegar or acetous acid, in any other form or under any other name, and without the aid of artificial heat, except for the purposes of drying the white lead, as hereinbefore mentioned, and converting the ordinary

* The engraving and description of it are omitted. We give merely the process of manufacture.—[Ed. M. M.]

lead of commerce into the pigment commonly known by the name of white lead or carbonate of lead, by reducing it to a fine powder by friction, as aforesaid, and then converting that powder into the said pigment by exposing it to the action of the atmosphere, as hereinbefore described. And such invention being, to the best of our knowledge and belief, entirely new and never before used, we do hereby declare this to be our specification of the same, and that we do verily believe this our said specification doth comply in all respects fully and without reserve or disguise with the proviso in the said hereinbefore in part recited letters patent contained; wherefore we do hereby claim to maintain exclusive right and privilege to the said invention. In witness whereof, &c.

Enrolled June 10, 1834.

THE BRICK MACHINE.—It will probably be recollected by our readers, that in our July number, or at page 26, of volume 4th, we gave a short description of a machine for making bricks. We now give a very minute account of it, with three of the ten drawings which accompanied the pamphlet. If it answers the recommendation accompanying it, even in a slight degree, we hope to see one of them in use in the vicinity of this city.

Fig. 1, a section of the machine.

Fig. 2, a ground view of the machine and wheel-house.

Fig. 3, the front view of a set of irons for one mould, namely, the foot-block, *t*; the piston, *s r*; with the wrought iron rods, *u v w*; the denser, *r g*; the levers, *q q*; and the head-block, *x*.

The above will suffice for a general description of the different plates. We shall now proceed to give a more particular and detailed description of each part of the machine, by referring to the letters upon the different plates.

A, fig. 1, represent the ends of the posts as connected with the other parts of the structure. These posts must be 20 inches square, and 21 feet 2 inches long. The ends above the cap, and below the sill, must be two feet long; and if the timber be not very firm, they should be rounded at the corners, and banded with good wrought iron.

B, fig. 1, represents a cap. This should be framed in two parts. The upper part 50 inches long, 29 inches deep, and 20 inches thick. Into the under edge of the cap two grooves must be cut five inches square. The outer edge of each groove must be 12 1-2 inches from the end of the cap. This will place the grooves fifteen inches apart in the clear. The under part of the cap is 50 inches long, 20 inches wide, and 5 inches deep. Into this part of the cap two mortices must be made, 5 inches long and 3 wide, which, when the two parts of the cap are put together in the frame, will meet the grooves in the upper part of the cap, above described. Both parts of the cap must have a strong tenon at each end, 15 inches long, to go through the posts. The horizontal grooves in the upper part of the cap, as above described, and as seen in the plate, are to receive each two iron wedges, which regulate the thickness of the brick. The mortices in the lower part of the cap are to receive the head-blocks, which press against the under sides of the wedges.

C, fig. 1, represents what may be called the Denser Clamp. In the side view, seen in the plates, only one of these clamps are visible. They are 46 inches long, 26 inches deep, and 7 inches thick. They are boxed into the posts; the posts being left full in the centre, (a width of 6 inches,) and the boxing cut in 7 inches wide, and 3 inches deep. These clamps sustain the irons which confine the denser, and keep it in its vertical position. The two clamps are confined together by four bolts, the heads of which are visible in the draft. The top of the denser clamps are 75 inches below the bottom of the cap.

D, fig. 1, represents the Mould Clamps.

They are 46 inches long, 18 inches deep, and 7 1-2 inches thick. They are boxed into the posts in the same manner as the denser clamps, leaving a space between them of 5 inches. They are confined together in the same manner as the denser clamps, that is by four bolts, with heads at one end and screws at the other. Care must be taken to place these bolts in the positions represented in the draft, or they will interfere with the irons connected with the piston. Into these clamps the moulds are set, by cutting away in the inside, so that they will fit close when the clamps are put in and screwed firmly together. The moulds are fastened down by a bar of iron running across each end of them, and then turned at right angles, down through the denser clamps, with screws and taps at the bottom to keep them firm. These bars of iron should be three-fourths of an inch square; and the cast iron blocks, which form the ends of the mould, should be three-fourths of an inch narrower than those which form the sides. Thus formed, the bar will, in fact, compose a part of the end of the mould. The bar should be made with a joint or hook at one of the angles, so as to be easily separated, when it may be necessary to take out the moulds. If this be not done, the denser clamps must be taken out before the moulds can be moved, which will always be difficult and troublesome.

E, fig. 1, represents the Sill, which is 50 inches long (exclusive of the tenons), 34 inches deep, and 20 inches wide. If it be difficult to obtain timber of the proper size, I can see no special objection to framing the sill in two parts, which will require the pieces to be 17 instead of 34 inches deep. The distance between the sill and mould clamps is 9 inches, between the mould clamps and denser clamps 10 inches, and between the denser clamps and cap 75 inches.

F, fig. 1, represents the Driving Wheel Shaft. This, (if the bottom of it be set on a level with the top of the sill,) must be 11 feet 10 inches long.

G, fig. 1 and 2, gives a ground and side view of the Driving Wheel. This, if the cog-work be of wood, should be at least eight feet in diameter; if made of iron, it may be much smaller. It should be strong and firm, as for mill gearing.

H, fig. 1 and 2, the Crank Shaft. This must be of the firmest kind of timber, 14 inches diameter, and 15 feet long. One end of this shaft runs on a gudgeon, which rests in a block or gallow, which gallow hangs from the beam *i*. To the other end is attached the crank, by a wing.

I, fig. 1 and 2, represents the Wallower or Pinion. This must be precisely one half the size of the driving wheel, whatever that may be.

K, fig. 1 and 2. In fig. 1 and 2 are seen the edge view of the small cog wheel which is attached to the crank shaft near the end next the press.

The wheel *k* 2 is supported by a short shaft, one end of which rests in the beam *d* 4, and the other in a beam passing between, and supported by, the two small posts last named. Upon the shafts of the wheel *k* 3 are placed four kams, which roll directly under the centre of the wrists. These kams, as they roll round, press down upon the ends of the levers which are attached to the rods of the piston, and thus raise the bottom of the moulds. The fulcrum upon which these levers rest must be precisely two-thirds of the way from the point where the kams act upon them, to the point where they are attached to the rods. The kams being 12 inches long, the bottom of the moulds will raise six inches, which is the proper distance.

L L L, fig. 1 and 2, represents the Crank. This is a casting of about four hundred pounds weight; and it is somewhat difficult to give a clear description of it, either in language or by a draft. The end towards the driving wheel is composed of a wing, (such as usually forms a part of a wing-gudgeon,) which goes into the crank shaft. The bearing next the wing must be 8 inches long by four and three fourths inches in diameter. The first angle, which must be four and one-half inches square, and so long that it will bring the wrist eight and one-half inches from the bearing just described, that is, by counting from the centre of the bearing to the centre of the wrist. The first wrist, which must be four and one-fourth inches diameter and five inches long, in

the clear. The second angle, four and one-fourth inches square and eight and one-half long, counting from the centre of the wrist back to the centre of motion in the crank. The centre bearing, four inches diameter and seven inches long. We have now got through the description of the first half of the crank, (or half next the driving wheel,) with the two first bearings. The second wrist must not be in an opposite direction from the first, but on an angle of 90 degrees from it, taking the centre of motion in the crank as the angular point: or, in other words, when the wrist next the driving wheel is up to the highest point of the circle which the wrist describes, then, and at that moment, the second wrist must be on a level with the respective bearings of the crank.

M M, fig. 1 and 2, the pole, or arm to which the team is hitched.

d d, fig. 1 and 2. These beams sustain the two outer bearings of the crank. In fig. 1 the ends of these beams only are seen. They should be so framed into the posts that their upper edges shall be 37 in. lower than the bottom of the cap.

f f, fig. 1, shows two of the corner posts of the wheel house. These should be one foot square and 13 feet long, (besides the tenons.)

g g, fig. 2, the two outside beams of the wheel house. These should be one foot square, and 30 feet long in the clear. **g g**, fig. 1, shows where these beams are inserted in the posts, that is, one foot below the top of the posts.

k k, fig. 1 and 2, the plates of the wheel house, 10 inches square, and 32 feet long.

i i, fig. 1 and 2. In figure 2 are seen the two centre beams which support the upper end of the driving wheel shaft, and one end of the crank shaft. These beams should be at least 15 inches deep and 12 inches wide. They are two feet apart in the clear, and are framed into the posts on a level with the outer beams.

k, fig. 1 and 2, the head block which sustains the upper end of the driving wheel shaft. This block should be 4 feet long, 1 foot square, and boxed into the upper edges of the beams 2 inches.

l l, fig. 1 and 2; these are mere braces, to keep the frame firm in its place, so that the gearing will run steady. Too much care cannot well be taken in the construction of the wheel house to make it firm and incapable of swerving.

m m, fig. 1; these posts sustain the centre beams; they must be 1 foot square, and 13 feet long in the clear. Braces, of at least 6 feet in length, should be framed from these posts to the centre beams.

n n, fig. 1, one of the sills of the wheel house. The sills should be of durable timber, 1 foot square, and long enough to form a square of 30 feet in the clear.

o o, fig. 2, the horse track, which must of course be as large as practicable in a square of thirty feet.

p p, fig. 2, the four pitman rods which run from the levers to the crank, and serve to straighten and bend the levers.

q q g g, figure 6, the levers and the denser. The bodies of these are 3 inches square, or as near that shape as the patterns can be drawn from the sand; the joints six inches wide, with projections on the outside of the joints to receive the snibils or hooks which hold the levers together, (*q*, 1.) The convex and concave half circles upon which the levers bend, should be one inch in diameter. The manner in which these circles should be cut, is obvious in fig. 7, which represents an edge view of the levers and denser. The levers should be precisely 36 inches long, counting from the angular points, and the denser 41 inches long; this, when the levers are straight, will give a distance of 9 feet 6 inches from the bottom of the cap to the bottom of the denser, (allowing one inch for the head block.)

r r, fig. 6, the bottom of the denser and top of the piston. The size of these must be the same as the flat surface of the brick, which size will be regulated by the custom of the place, or the views of the builder. It may be well to remember, however, that a brick 9 inches long, 4 1-2 inches wide, and 2 1-2 inches thick, contains a fraction over 100 cubic inches of clay—whereas, a brick 8 inches long, 4 inches wide, and 2 inches thick, contains only 64 cubic inches. It will therefore take less than two-thirds the force to press a brick of the latter than of the former description.

HARNESSE' NEWLY INVENTED BRICK-MAKING MACHINE.

Fig. 1.

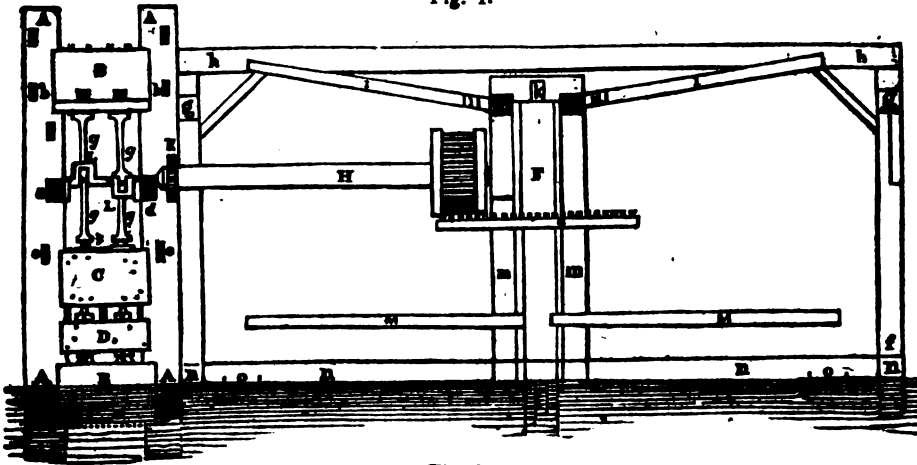


Fig. 2.

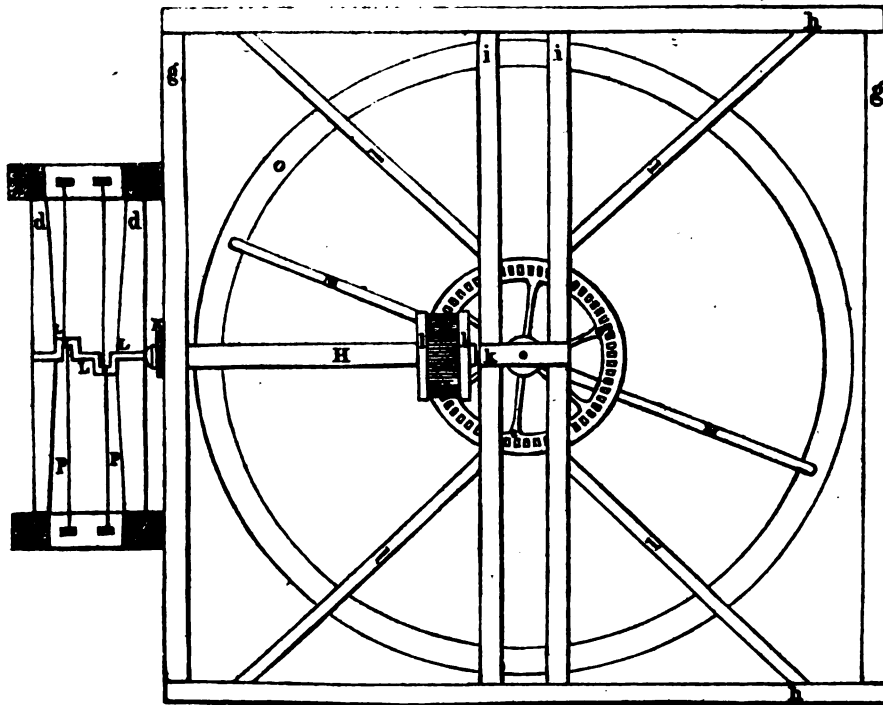


Fig. 6.

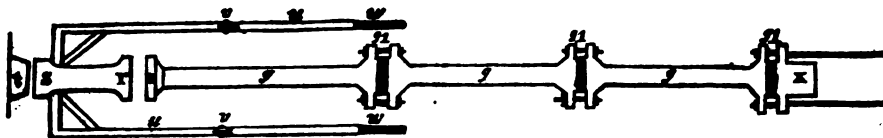


Fig. 6, the bottom of the piston. This should be 6 inches long, and 4 inches wide, with a cavity in the bottom of the right shape to receive a conical projection of the foot block; this conical projection of the foot block should be 2 inches square at the base, and 2 inches high, running to a point in the centre. This shape of the piston and foot block is necessary to make the piston, when it falls, invariably come to the same position. The piston must be cast with a hole through it large enough to receive a cross bar, 2 1/2 inches deep, and 5/8ths of an inch thick. [See fig. 6.] To each end of this cross bar is attached a rod 3/4ths of an inch square. These rods must 19 1/2 inches apart, (from outside to outside,) and firmly braced. There must be a joint in the rods at *a*, and perhaps it may be best to have another immediately below where the rods are attached to the raising levers. The raising levers must be forked near the point where they rest upon the fulcrum, so as to meet the upper ends of the raising rods. In order to have these le-

vers perfectly inflexible, they must be covered on the upper side with a thin bar of iron, which must be spiked or screwed firmly to the wooden part of the lever. The screws at the top of the rods are for the purpose of fastening them to the raising levers, and keeping the work at all times tight and in its proper place. The top of these rods, from the joint at *a*, must be inclined about two inches inward, so as to prevent the raising levers from interfering with each other. *t*, fig. 6, the foot block. This should be 5 inches deep, and a little smaller at the top than the bottom of the piston, so that the clay which may happen to fall through, or round the mould, shall not rest upon the block. The bottom of this block should be at least one foot square; but all, except the part which comes in contact with the piston, may be only 1 inch thick.

A machine with two pair of moulds only, will make from fifty to seventy thousand bricks per week. But if the regular market be large, it can, by using a steam engine of 10 horse

power, work sixteen moulds, (four on each side of the wheel house,) and make two hundred thousand bricks per week. It will probably be the better way, however, to multiply the number of presses, rather than the number of moulds in a press.

In order to make the best quality of brick, the clay must be pulverized, and rendered completely clear of lumps and small stones. This is easily done when the clay has been thrown up during the winter and frozen. All that is necessary to do with frozen clay is to pass it through a coarse wire rolling screen. This screen may either be turned by hand, or attached to a drum connected with the driving wheel. To screen clay by hand is about the same labor as to make it into mortar. Every manufacturer can have his own plan for pulverizing his clay.

The clay, to be worked to advantage, must be in a dry state—not so as to become dust, but so that it will in a measure lose its adhesive qualities. In this state, when pressed, the air will escape out of it, and it will become solid. But if it be moist, it is impossible to press it—or rather, the water renders it so elastic that it will not “stay pressed.” I would advise the manufacturer to connect with his wheel house a large shed, sufficient to protect clay for 150,000 bricks. Into this shed let him wheel clay during the winter, so as to have the whole of it frozen. He will then be able to supply the market in the spring with one kiln of brick as soon as they may be wanted. The balance of the clay required for the season should, during the winter, be thrown up into ridges. It can then be taken into the shed during dry weather, always taking care to have the shed so full that the press may not have to stop during a week of wet weather.

THE TOMATO.—Few vegetables of equal value are so little known through this country. None are more readily raised—none better repay the cultivator.

The tomato, or love apple, is a luxury in common use through the south of Europe. In France and Italy, particularly, it is largely employed in culinary preparations. Either raw or stewed, in soups, or fricassees, for gravy, or catsup, as well as for pickles and sweetmeats, its utility is such that it would not readily be dispensed with by those who have given it a fair trial in these various ways. The experience of several years enables me to recommend the tomato to all who desire the acquisition in their gardens of a cheap luxury. For salubrity none can surpass it. It has been constantly used in various forms at almost every meal during the last three or four seasons, by myself and several acquaintance, whose health continued excellent, even when the prevalence of the cholera banished fruits and vegetables generally from most tables.

Should any who are now unacquainted with the tomato, make the experiment of raising a supply, they may add to the simple luxuries of the table by adopting these directions for making tomato catsup:

The tomatoes, when fully ripe, should be bruised and boiled slowly for half an hour—then strained through a cloth, and the liquid boiled for another half hour, after adding salt and spices, but without any admixture of water. The scum should be carefully removed, so as to render the liquid as pure as possible. It should be bottled and kept in a cool place. After it has stood a short time, should any sediment be discovered in the bottles, (and in order to know with certainty, *clear* glass bottles would be the best for this use,) the liquor should be poured off into other bottles. In this way catsup of excellent quality—preferable, in my judgment, to that from mushrooms, and clear as choice Madeira—can be readily made, in greater quantity, and with less trouble, than in the common way. RHO.—[Genesee Farmer.]

NEW-YORK AMERICAN.

FEBRUARY 14—20, 1838.

LITERARY NOTICES.

A SERMON PREACHED BEFORE THE GOVERNOR AND LEGISLATURE OF MASSACHUSETTS, ON THE ANNUAL ELECTION, JAN. 7th, 1835, by JONATHAN M. WAINWRIGHT, D. D., Rector of Trinity Church, Boston. Boston: LUTTON & WESTWORTH Printers to the State.—It is in some sort a rule with us, in these occasional literary notices, to confine ourselves, in regard to sermons and other analogous publications, to a mere mention of their title and subject. In the case before us, however, both the topics selected and the manner of treating them, induce us to depart from this rule.

Called to preach, according to a good old custom, the annual sermon before the Government and Legislature of Massachusetts, Dr. Wainwright happily availed himself of the occasion "to exhibit religion in what may be called its temporal aspect, as advancing and sustaining principles essential to the welfare and happiness of civil society." The text he chose was from Deuteronomy xv. ii. "The poor shall never cease out of the land," and the lesson which he thence eloquently inculcated was, that *inequality of individual wealth is the ordinance of Providence, and essential to civilization*. That the preacher acquitted himself ably, it is only matter of course for one who knows him, to say—that he acquitted himself satisfactorily to his auditors, is evinced by the handsome edition of the discourse now before us, published at the request, and by the order, of the Senate of Massachusetts.

We have read this discourse with unfeigned gratification, and wish it could be read by all, whose heads may have been turned by the idle and wicked doctrines—with which selfish and heartless demagogues have so recently excited our happy country—of incompatibility between the rich and the poor. There is no such incompatibility; but, on the contrary, mutual dependence and mutual interests. Nor is this inequality of condition among men, the result of political institutions, though undoubtedly it may be greatly aggravated thereby. It is founded in nature, and sanctioned by revelation; and as by man's wisdom or agency it was not ordained, so neither by man's wisdom or agency can it be abolished. But we are sermonizing ourselves, when a more accustomed and far more capable Preacher invites the attention of our readers.

The scope of the Sermon is—*first*, to interpret accurately the broad assertion of the text; *secondly*, to prove that the inequality of condition which it implies, is essential to the political, intellectual, moral and religious improvement of the human race; and *lastly*, to point out how "the more grievous and repulsive circumstances attending upon this constitution of the social state, may be meliorated, if not entirely removed."

From the second head we make the following extract:

"But follow out the consequences resulting from diversity in the condition of men, and you will see accumulated reasons to assent to, and admire, this ordination of Providence. No one who has for a moment thought of the subject can doubt, that in order to the comfort even, of civilized society, very many different occupations must be performed, and must be carried on at the same time—lands must be tilled, houses must be built, fabrics for clothing must be made, implements of various kinds must be formed, and vessels must be constructed and navigated. It is equally obvi-

ous that the division of labor is essential to giving full effect to these occupations. In addition to these employments, there are various other trades and professions to be filled, and also different offices for the due maintenance of the laws—and without laws, no civilized community can hold together. If you oblige every man to be his own mechanic, farmer, manufacturer and navigator, and to do his share of the magistracy upon some principle of rotation, it is obvious that we can none of us enjoy as many, or as great, advantages as we do under the present system; and it is equally obvious, that all these various occupations, receiving only the divided attention of an individual, must very fast go backward, and the knowledge and dexterity which men now possess in their various employments, in proportion to the undivided attention they give to them, must be constantly and rapidly diminished. I take it for granted that no man, even in very moderate circumstances, would choose to relinquish the comforts and conveniences he now possesses, in his humble habitation. He would not like to be deprived of his glazed windows which let in the light while they exclude the cold, of the various domestic utensils of iron and earthenware in which his simple meals are cooked and served up, or the different fabrics of linen, cotton, silk, woollen and leather, which supply himself and his family with clothing; nor would he choose to exchange his convenient tools of trade, for the stone-axe and the flint knife of the Indian. Yet such would be the inevitable result, were the benign and admirable principle of the division of labor to be banished from society. How then is it to be maintained—how? but by holding forth to every man a stimulus to activity, ingenuity and enterprise, in the hope of bettering his condition.—Many employments essential to the existence of civilized society, are yet so unpleasant in themselves, that no one would undertake them but from the excitement of such a motive. But were all men to be made equal, and were they obliged by the laws of society to continue so, there could be no such animating impulse to the exertion of our bodily or mental powers. Who is so ignorant of himself and of human nature, as not to know, that until we have secured the kind assistance of habit, labor of every description is irksome, and that the hope of advancing ourselves, is the exciting principle that overcomes our natural love of ease, and sharpens all the human faculties. Strike this out of the social state, and we should deteriorate year by year, till we dropped down to the degraded level of savages. Now this important, this essential principle cannot subsist without the distinction of rich and poor."

Thus much for the physical discomforts of the state of equality. The next extract illustrates, by a fine rhetorical figure, the intellectual stagnation it would induce:

Were the circumstances of men equalized, their intellectual and moral faculties would become feeble and sluggish, and the state of the moral world would be analogous to that of our physical earth, were the whole reduced to one unvaried plain. The whole atmosphere then being one dense, unwholesome vapour, the whole land, one dead and dreary flat, the whole ocean, one waveless and stagnant pool, our world would be fit only for those huge misshapen creatures, the next remove from senseless matter, such as geologists have discovered, and such as existed ere the Almighty Architect broke up the fountains of the great deep, and caused the mountains and hills to pierce the skies and condense the vapors for refreshing showers, the healthful winds to blow about them, the joyous rivers to pour down from their summits, carrying verdure and fruitfulness to the humble valleys beneath, and thus rendering it capable of supporting active life, in varied and countless forms of beauty and utility to man.

One only extract more, and we must, though reluctantly, conclude:

The unequal distribution of wealth then, we believe to be not only an unalterable consequence of the nature of man, and the state of being in which he is placed, but also the only system by which his happiness and improvement can be promoted in this state of being. We do not

deny that there are evils attending it, and that in some countries it has been fostered by artificial and injurious regulations, until it has become oppressive and unreasonable. The principle itself is fundamentally true and just, but it may be, and often has been, pushed to such an extreme as to be detrimental to the best interests of society. When in any country there are only two classes, the very rich and the very poor, or when the tendency of political regulations is to produce this effect, as is the case under all aristocratically governed, the consequences must be bad. The middling class, as it is sometimes called, that is, the portion of the community that lies between the two extremes of riches and poverty, is its strength, intelligence and virtue. Of course we may infer, that that country is the most prosperous and happy which has the greatest proportion of this class of citizens. It is one evidence, and we may assert it to be the strongest, of the value of our public institutions, that they have produced this effect, and that in no country on the face of the earth, is the middling class relatively as large as in our own. How then are we to maintain ourselves in this enviable condition? Or if, as is feared by some, we are gradually declining from it, and individuals amongst us are becoming too rich, by the accumulation of capital, and others getting to be too poor and threatening to become burdens upon society, how are we to remedy the evil and prevent its recurrence?—These are momentous questions. Can we accomplish the object, and keep the happy medium through legislative interference, by checking the increase of capital, by forcing the wealthy under a process of unequal taxation to give up a portion of their superabundance, or by an agrarian system of the division of property? None but a madman, an ignorant enthusiast, or an unprincipled demagogue could propose this latter remedy. Nor will the others be tolerated for a moment by sound and enlightened judgment. As to an equal division of property by some act of legalized violence, it would avail just as much as a child's play in drawing squares and circles upon a sandy beach; the returning tide of human passions, enterprise and industry, (and return it would as certainly as ocean ebbs and flows) would sweep the whole away, and leave the surface marked as before by unequal ridges. If we would save the structure of society from utter dissolution, maintain inviolate our civil and religious liberties, and preserve ourselves from political dangers, awful and incalculable, let us most sacredly guard the rights of property. This is the palladium of nations, this is the pledge of their improvement in all the arts that civilize and adorn our nature, this is their security for advancement in morals and religion. Once touch the rights of property, let it be felt that men are impeded and harassed in their efforts to obtain it, that its possession is insecure, and that portions of it may be taken from them by unequal taxation, and you immediately stop enterprise, and with enterprise the progress of knowledge, and with the progress of knowledge, that also of virtue—and then where is the happiness of such a community? It must be torn by intestine commotion, or if this is kept under by the military arm of a strong and despotic executive, it must prepare to see its commerce sicken and die, its agriculture decay, its manufactories silent and in ruins, its schools deserted, its roads impassable and infested with banditti, and all its institutions relapsing into a state of Turkish barbarism.

ALLEN PRESCOTT, or the fortunes of a New-England boy; by the author of "Morals of pleasure," &c., 2 vols.—New York, HARPER & BROTHERS. It requires no great discrimination to find out that this novel is written by a lady, or that she is one thoroughly imbued with American feelings and principles. The hero, Allen Prescott, the only son of a destitute and widowed mother, with his New England education, hardihood of character, and uprightness of principle, begins the world without any thing but hope and energy, and arrives where so many living, have under almost similar circumstances, arrived, at honor and fortune. This simple story, intersper-

and with incidents of village life, of early, interrupted, but finally, triumphant love, is made the vehicle of illustrating the real equality of our political institutions, and the opportunities they open alike to all, of personal distinction. The style is easy and equal—though we confess our dislike of the frequent introduction of the ungrammatical peculiarities of Yankee speech—accurate, though they doubtless are, as records of real life. The sentiments and reflections are always praiseworthy, and often very happily expressed. Take for instance this description of maternal love:

"Some one has said that the heart of a mother is the master piece of Nature's works. It is, at least, that portion of them which least asks the aid of culture. She may be required to be instructed how to govern, to punish, or to teach; but to *love*—through evil as well as good report—constantly, fervently, deeply, to the sacrifice of herself, even unto death, what mother, if she be true to the instincts of her nature, does not know."

In the only other extract we have room for, our readers will find a just and discriminating view of the influence and effect of our political institutions, upon the mass of native Americans:

"There is in the laboring classes (a distinction growing every day more reputable) not only a practical good sense and susceptibility of refined and generous emotions, but a patriotism, a true estimate of our blessings as a people, and of our individual responsibilities, and on subjects of national interest, a justness of thinking, of which you are little aware. You profess to love your country; but learn to reduce this abstract idea to the practical test of love of countrymen—not a sympathy with a select few, having the same advantages and pursuits with yourself; your heart must warm to every one who worthily bears the name of an American! and must sincerely approve of those institutions by which you, as an individual, are rendered of comparatively small importance, while the mass is elevated."

There is good feeling and sound judgment in these sentiments, and with these we take leave of the book.

THE PRINCESS, or the Beguine; by LADY MORGAN. 2 vols. Philadelphia: Carey, Lea & Blanchard.—What a Princess is, all our readers knew, or think they do; but a Beguine, what is that? Nothing more than a Sister of Charity, vowed to works of kindness and benevolence, gratuitously rendered to the poor, the sick, and the dying. The title, therefore, of this new novel of *Miladi Morgan*, would seem to embrace the two extremes of human existence, the favorite of fortune and of a court, and the humble attendant upon the pallets of the outcasts of the world. How the apparently discordant attributes of these two conditions, are brought together and harmonized, it is not for us to reveal, for that would spoil much of the interest of the story. We, therefore, only add, that there is much of what purports to be English high life, but which, in the scale of morals, may be set down as very low and degraded life—some *connaissance* about Flemish pictures, Flemish architecture, and Flemish history, and a great deal of politics about Belgium and the Belgian Revolution of, we believe, four days.—It is written throughout in the sprightly, dashing vein of Lady Morgan.

THE PENNY CYCLOPEDIA OF THE SOCIETY FOR THE DIFFUSION OF KNOWLEDGE: Vol. I. London: CHARLES KNIGHT, New York: WM. JACKSON, Boston: MUNROE & FRANCIS.—The title of this volume is so explanatory, and the character of the weekly numbers in which the Cyclopædia is distributed, is so well known, as to render any re-

marks on this head from us, unnecessary. The volume now before us comprises the numbers for a year. It is a royal 8 vo, of 580 pp. of double columns—and costs nearly bound in calf \$2!

As a book of ready reference, such a work is of great value, and this one, has in that view this peculiar advantage, that whereas other Cyclopædies give under a general head an elaborate treatise on each branch of knowledge, and refer for the explanation of particular terms, to what is said under that general head—this Cyclopædia gives under each term, as it occurs alphabetically, such explanation as to render it abundantly intelligible. The superiority, for occasions of reference merely, of such a plan will at once be perceived.—This volume extends through A to Andes. The plates, cuts, and engravings &c., as in the separate numbers, are all preserved here.

WONDERFUL CHARACTERS by HENRY WILSON: 1 Vol. 8 vo. New York HARPER & BROTHERS, for sale by WM. BURNETT. Here is a very curious and handsomely printed volume, which unannounced and without signal note in advance of any sort, comes before the public in a most agreeable shape. We know not whether it is a republication from England or whether the collection embodied in these pages is now for the first time given to the light—but we do know that we have a capital assemblage of "Wonderful Characters" high and low, with engravings of some of them worthy of the pencil of Cruikshanks. Beggars and princesses, *Jean of Arc*, and *Bampfylde Moore Carew*, figure alternately and make up a gallery of portraits in which "the ultimities and summities" or the lowest and the highest pitch of which man's nature is susceptible, are exhibited and personified.

THE FOREIGN QUARTERLY REVIEW, for Dec. 1834; American edition, Vol. 1, No. 2, being No. IX. of the Republication of the Foreign Reviews, by THRO. FORSTER: New York, WM. VAN NOORDEN.—Several papers of interest in this number will reward the attention of readers. One on the state of Italy—in reference to a publication by the Italian *Beltrami*, who put forth several years ago a ridiculous book in this country, claiming to have discovered the sources of the *Mississippi*—presents some views of the actual state of that country, new to us. That on the Viscount *Arlincourt's* new novel—historical, polemical, and anti-Louis Philippist—of which the Brewer King of Ghent, *Jacques Van Artevelde*, is the hero; and a third on the Prussian Government and its administration, where the paternal wisdom and affection of a despotic sovereign, contrast strongly, by their beneficent results, with some of the realities of the rule of our republican Chief Magistrate—will be found interesting.

A PRACTICAL SUMMARY OF THE LAW OF ASSIGNMENTS IN TRUST FOR THE BENEFIT OF CREDITORS, WITH AN APPENDIX OF FORMS; by JOSEPH K. ANGELL, Boston: Hilliard Gray, & Co.—This handsomely printed volume exhibits, in a methodical form, and within a small compass, a mass of information in relation to the law of assignment, which will prove very valuable to persons engaged in trade. As a general rule, it is about as absurd to become one's own lawyer, as for "every man to be his own doctor," as the advertisements of Empyrics have it; for in either case, people are equally prone to quack their persons or property to death. But there are branches of the profession with which it is important that every one should be in some de-

gree familiar; and in a commercial country like ours, where property is so fluctuating, every business man should be acquainted with the relations created between debtor and creditor, and learn in what manner, and subject to whose direction, the effects of an insolvent debtor are to be distributed among those to whom he is indebted, and those who may have become his sureties. The infinite diversity of cases that continually arise, will indeed render such knowledge of but little service to himself unless backed by legal advice: but the attainment of a certain degree of information, will teach him at least when to resort to a practitioner: and we do not remember a work from which such knowledge may be more readily gathered, than from that before us.

The great number of cases cited, with the analytical table of contents, must render this a very convenient volume to the junior members of the profession.

THE KNICKERBOCKER, for February; N. York, J. DISTURNELL.

THE U. S. MILITARY AND NAVAL MAGAZINE, for February; Washington, BENJ. HOMANS.

These are the only two periodicals for the month that have reached us.

The Knickerbocker has a pleasant variety, and some good articles. Of these, we specify the first on "Life," by Dr. S. L. Metcalf—and the Historical notice of Columbia College. The *Cruise of a Guinea-man*, is extravagant and impossible, though evincing considerable power. We take an extract from the notice of Columbia College, which only does justice to the value of, and course of instruction pursued in, that institution:

In October, 1839, the office of President became vacant by the death of Dr. Harris, who had continued to an advanced age, with great zeal and fidelity, to preside over the institution; and early in the following December, the Hon. William A. Duer, then one of the Circuit Judges of this State, was elected to supply the vacancy.

On the first of January, 1839, the new President entered upon the duties of his office, and within the same month, the system of instruction was extended by the establishment of a *Literary and Scientific course*, distinct from the *full course*, in which latter the classical studies are included, and students were allowed to be matriculated for any of the various branches composing the new course, in which also were comprised the Modern Languages of Europe.—Free scholarships were established by the bounty of the Trustees, the nominations to which were vested in each of the religious denominations in the city, and in its leading institutions for the promotion of knowledge; and the Professors of the college were authorized to deliver Public Lectures at extra hours in any of the branches of Literature and Science, falling within their respective departments.

The sub-graduate course of instruction was subsequently enlarged by the addition of lectures on the Evidences of Christianity,—by the extension of the English studies in the younger classes, and enlarging those in the departments of Natural Philosophy and Chemistry. A course of lectures on the Constitutional Jurisprudence of the United States has since been added to the studies of the senior class, and directed to be delivered by the President. To enable the Faculty to discharge these increased duties, one hour was added to the daily attendance of the students, so that each class now attends one hour every day in each department of its studies; or four hours daily, exclusive both of the previous religious service, and exercises in declamation in the Chapel; and of the subsequent attendance of one hour of those who pursue the study of Hebrew, or any of the Modern Languages.

The Grammar School of the college was also placed upon a footing which has rendered it more

extensively useful, as well as more efficient as a preparatory seminary to the college, and the immediate superintendence of it committed to the *Jay Professor of the Ancient Languages*, as Rector of the Grammar School. A junior department has since been added, and the number of instructors increased to eight in the Classical, Mathematical, and English departments, besides two of Modern Languages; so that a pupil may be received into the minor department of the Grammar School as soon as he can read the English language, and in nine or ten years be conducted upon one uniform system of instruction, through both the preparatory school, and the college, and at the end of that time receive his first-degree; or in five or six years he may receive a complete English and Mathematical education, including any of the modern languages, so as to fit him for business without entering the college; or he may, if duly qualified, enter either the Grammar School or the college at any stage of their respective courses.

As the institution now stands, the Faculty of the college consists of a President and five Professors; all of whom the students of the full sub-graduate course are required to attend, and any of whom, except those of Greek and Latin languages, students of the Literary to Scientific course, may attend. These form the *Board of the College*, to aid the President in administering its discipline. There are besides, a Professor of Law, Professors of the principal modern languages of Europe, and one of the Hebrew language, upon any of whom the attendance of the students of both courses is voluntary; but these are not members of the Board.

The general course of instruction in the college, may be considered as three fold, viz:

1. *The Full Course*, including every branch of collegiate study, and entitling the successful student to the degree of *Bachelor of Arts*.

2. *The Literary and Scientific Course*, which excludes the study of the Ancient Languages, but includes that of the Modern. To the successful student in this course is given, upon a vote of the Board of Trustees, a College Testimonial, differing but in name and extent, from the Academic degree of the full course.

3. *The Veterinary Course*, which is intended for graduates and others, who have made some proficiency in learning, and is limited solely by the wishes of parents, or of the applicants themselves, both in regard to extent and duration, and admits, also, of a higher course of instruction in the Greek and Latin languages.

An attendance on the first course requires the student to be matriculated, and forbids all professional studies, and pursuits. An attendance on the second, also requires matriculation, but admits of professional studies at the same time.

An attendance on the third course is altogether voluntary, requiring no matriculation, and capable of being rendered consistent not only with professional pursuits, but even with mercantile and mechanical employments.

No student is admitted into the Freshman, or lowest class of the full course, unless he be accurately acquainted with the Grammar of both the Greek and Latin tongues, including such rules of Prosody as may be applicable to the Poets he is required to be examined upon. He must be master of the greater part of Cæsar's Commentaries, of the principal Orations of Cicero, of the first eight Books of the *Æneid*, Sallust, certain portions of the Greek Testament, Jacob's Greek Reader, and parts of the *Cyropædia* and of the *Iliad*. He must also be able to translate English into grammatical Latin, and be well versed in Arithmetic and Algebra, as far as the end of Simple Equations, and with Modern Geography; and no student is admitted into an upper class without being master of the previous part of the course,—nor are any admitted from other colleges, without a certificate of good standing.

The full course of studies in the different classes is as follows, viz:

FIRST YEAR. Freshman Class.—Parts of Livy and Horace, Dalmat's *Collectanea Græca Majora*, Latin prose compositions, Roman Antiquities, and Ancient Geography, the Elements of Geometry, Algebra, Universal Grammar, English Composition, and outline of Ancient History, with Chronology.

SECOND YEAR. Sophomore Class.—Virgil's *Georgics*, the *Satires* and *Epistles* of Horace, Cicero, *de Senectute* and *de Amicitia*, parts of Tacitus, Dalmat's and Dunbar's *Collectanea Græca Majora*, Homer's *Iliad*, Latin composition in prose and verse, Greek and Roman Antiquities, plain Trigonometry and its applications, Algebra, Elementary Chemistry, Elements of Rhetoric and Oratory, English Composition and outline of Modern History with Chronology.

THIRD YEAR. Junior Class.—Cicero's *de Oratore* and *de Officiis*, Terence, Horace's Art of Poetry, Longinus, Homer's *Iliad*, continued, Latin composition, Greek and Roman Antiquities, Spherical Trigonometry, Conic Sections, Analytic Geometry, Fluxions, Natural Philosophy, including Chemistry, applied to the Arts, Principles of Taste and Criticism, English Composition, Logic, General History of the Literature of Europe, Ancient and Modern, with a Critical History of English Literature.

FOURTH YEAR. Senior Class.—The classical part of the course of this year is conducted in such a manner as the Professors of Languages, with the assent of the President, may direct.—The Greek Tragedians are the authors principally read. Fluxions, Natural Philosophy, including Mechanics, Astronomy, according to the methods of Newton, La Place and La Grange, History of Philosophy, Intellectual and Moral Philosophy, Political Economy, Evidences of Christianity, Constitutional Jurisprudence of the United States, and English Composition.

All the classes are, moreover, exercised at stated periods in declamation upon subjects connected with their respective courses. There are two public examinations of all the classes every year. The first, or *intermediate* examination, commences on the first Monday in March; and the second or concluding examination on the fourth Monday preceding the vacation, which begins on the first day of August, and ends on the first Monday in October.

An honorary testimonial decorated with suitable devices, and bearing the seal of the college, is adjudged at the intermediate examinations to the student in each class who is most distinguished for his general merit; and an additional testimonial to the best in each department of study; and at the concluding examination, a gold medal is adjudged to the student of the best general standing in each class, a silver medal in each class to the best, and a bronze medal to the next best in each department; all of which are announced and delivered at the annual commencement, held on the day subsequent to the opening of every term.

Of this number of the *Military and Naval Magazine*, we have only room to speak in terms of general praise, and to express our satisfaction at finding by a notice at the close of it, that its patronage is largely increased. It *should* be further increased.

SUMMARY.

St. Louis, Jan. 20.—*Luck is a fortune.*—The Steamboat Warsaw arrived at this port on Saturday last from New Orleans. The Warsaw was seriously disabled by striking a snag below Ste. Genevieve Island, some of the cargo is in consequence damaged. The snag made a large hole in the bow of the boat, and the pilot at the wheel, discovered that she must go down, altered her course so as to run her on the bar nearly opposite. Strangely enough, in steering on this course the pilot, without seeing it, ran the boat directly athwart of the wreck of the Steamboat Illinois, which was sunk some years since, and so great was her head way that the bow was lifted out of the water, and safely moored. She was thus afforded an excellent opportunity of making the necessary repairs. The boat remained in this position for twelve hours; when the river, as good fortune would again have it, rose sufficiently to drift her clear of the wreck.

The Mississippi is rising slowly, and is clear of ice below this point. Thus far, we have had a remarkably mild winter—and should it continue for a few days more, we need expect no further interruption to navigation. The *Olive Branch* and *Potosi* have departed for Louisville.

Captain Gibson of barque Kent, at Boston, reports, that just as he was leaving St. Helena, (28th Dec.) the American Consul informed him that the British trade with China had been stopped by the Chinese Government.

THE FAITHFUL AND SAGACIOUS DOG AGAIN.—The Baltimore American in alluding to the recent Fire, has this paragraph:

A circumstance came to our knowledge yesterday, which shows that there must be incendiaries among us. The Foreman of our office, soon after he reached his dwelling in Pitt street, between eleven and twelve on Thursday night, had his attention arrested by an unusual barking of his dog, in the yard. On going out to ascertain the cause, the sagacious animal continued to bark, and ran several times to the stable door, as if some one were within. The manner of the dog at once led his master to open it, when he found a parcel of combustibles burning on the floor. They had apparently been but a short time on fire, and were extinguished without difficulty, but it is evident that but for the singular warning of the dog the stable would have been fired.

MEDITERRANEAN SQUADRON.—The Gazette publishes the annexed extract of a letter from the Fleet Surgeon of the Mediterranean Squadron. It is dated on board the United States Ship Delaware in Nov.

"I am still in the land of the living, after having been exposed to scenes almost calculated to make death too familiar. Our ship remains in port with the Shark; we sent their men, as fast as they were attacked, to an island in the harbor. It has been a melancholy scene. About 20 of our men have died, and two were buried this day; but from the favorable state of those now under care, and a change for the better in the weather, this afternoon, I entertain strong hopes that the worst is over. No officer has died on board, and but one petty officer, the acting boatswain of the Shark, who died on the 15th inst."

Attempt by the Malays to cut off and Murder the Crew of another American Vessel.—The barque Kent arrived yesterday from Palo Penang, coast of Sumatra, brings intelligence of an attempt to cut off the barque Derby, of Salem, belonging to Stephen C. Phillips, on the coast of Sumatra, by the Malays. The information is conveyed in the following letter from Captain Felt, master of the Derby, and published in the Salem Observer of this morning:

On the 10th June, 1834, lying at Trabangan Tehute, barque Derby, of Salem, loading pepper; while on shore that day, received information that a prow in a neighboring port was preparing to come that night and cut me off; I went on board immediately, and made preparations for the defence of the vessel, and kept a vigilant watch through the night. As the day began to dawn, discovered the prow right ahead, coming slowly down upon me, and within musket shot.

I opened my musketry and cannon upon him, upon which he got his head towards the sea, and appeared to be getting off as fast as he could, soon after which a strong breeze came up, and I saw the prow pass in shore towards the village of Qualas Ralissahn. I afterwards learn from several sources that the prow came from Qualas Assahan, and had 12 men on board; one of which came to Baccongung, while I lay there, and stated, that they started with creosote only, calculating to find us unprepared to receive them—to dagger every person on board, and to possess themselves of the money—and that they took freely of opium in order to be more desperate."

Capt. Felt, in a letter to his owner, says:—"It is high time that the American Government had a sloop of war on this coast from March to August, (during the pepper season) to protect our commerce. She would do a great deal of good to the Americans."

I will be remembered that the ship Henry Ewing, of Boston, was obliged to leave the coast of Sumatra, about the same time of the occurrence related above, on account of an attempt to cut her off at Assahan.—[Boston Transcript.]

The extreme cold of Sunday, the 8th inst., extended to Charleston, S. C., where the thermometer, at day break, was at zero: a temperature (according to the Southern Patriot) 8 or 10 degrees colder than ever before experienced in that city.

The number of American whale ships at sea, on the 30th of January, ult., was 257, comprising an aggregate of about 1,000,000 tons, and manned by about 9000 seamen. There were in port at the same date, 16 whale ships, making a total of 273. The number of sperm whale ships which may be expected to arrive within the present year is estimated at 70, and their cargoes at 135,000 bbls. oil, valued at more than three million dollars.—[Journal of Commerce.]

NAVAL CHAPLAIN.—We are happy to learn that the Rev. C. S. Stewart has been assigned as Chaplain to the Navy Yard at Brooklyn.

Death of Gen. Hampton.—General WADE HAMPTON, of South Carolina, died at his residence in Columbia, on the 4th inst., in the 81st year of his age. Gen. Hampton served with great gallantry in the war of the revolution, and though then a mere youth, was, with one or more of his brothers, distinguished in the partisan warfare under Marion and Sumter, in South Carolina.—During the late war with Great Britain he commanded a brigade on the northern frontier. He was one of the wealthiest men, if not the wealthiest, in the whole Southern country.—[Courier.]

The packet ship Britannia, Captain Waite, which arrived last week from Liverpool, is said to have brought the largest cargo of any packet since the line was established. It appears by the manifest, that she had on board 1805 cases and bales, 300 tons of iron and steel, &c. &c.

Invoice cost of the cargo,	\$497,000
One case gold,	50,000

Value, on first cost of cargo,	\$547,000
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[Mercantile Adv.]

IMPORTANT NEWS FROM FRANCE.

Recall of the French Minister from Washington.—Passports tendered to the American Minister at Paris.

Such most unhappily, is the intelligence we have this day to communicate to our readers.—In the midst of prosperity unequalled, in the full rids of honorable and successful enterprise, straining every faculty in the race of physical, intellectual and moral improvement—while the ocean is whitened with our canvases—while the forests of the far wilderness are disappearing before our pioneers of civilization—while new undertakings are every where springing up for Canals and Railroads, to connect and benefit regions between which nature seemed to have placed insurmountable barriers—and when in addition, and as a grace and ornament to all these enterprises for advancing our wealth and material power and enjoyments, we are alive to, and liberally mindful of, the claims which the cause of education, of morals, and of religion has upon us, as a nation of Christian freemen—at such a period, and in the midst of such a career, the blight and curse, the desolation and demoralization of war seem about to fall on us.

By the *Orpheus* from Liverpool we have our London papers of Friday 16th ult. inclusive—and these furnish from the Paris *Moniteur* of Wednesday 14th, (the official paper,) a notification that M. Serrurier had been recalled from Washington, and that Mr. Livingston had been apprized that passports were ready for him—an

intimation to depart, which, it is said in several of the Paris papers, he meant immediately to comply with.

The paragraph in the *Moniteur* which follows this announcement of the cessation of diplomatic intercourse between the two countries, that "in consequence of the engagements" of France, the project of law for satisfying the indemnity to America would be immediately presented to the Chamber, must be looked on—unless there is really a disposition and intention on the part of the Ministry to make a sincere and vigorous effort to carry the indemnity through—as an insulting mockery.

* * * * * We were not parties in, nor consenting to, the counsels which have thus needlessly precipitated this matter; but "being in," we must bear ourselves as Americans, having a common cause, and resolved, at all hazards, if the flag of war must be thrown out, to rally under it, even to the death.

But we yet trust that war may be avoided—much, if not all, now depends on Congress.

What then should Congress do? Normans at present. If the recall of the Minister be not followed up by any other hostile demonstration—though we confess our apprehension now is, that an embargo may be laid in the French ports—if however, nothing of this sort occur, we would wish this Congress might adjourn, without adopting any definitive measure—and that the President should forthwith issue a proclamation requiring the next Congress to meet on or about the 1st August. By that time the purposes of France would be fully developed, the feelings of our own people would be ascertained—and a Congress assembling under such circumstances, and acting with full knowledge and calm deliberation, would carry with them the assent of the whole nation.

We annex some extracts from Liverpool letters, which shew how this question is viewed there.

Extract of a letter dated Liverpool, Jan. 15.

There is a regular demand for Cotton, and prices have undergone little change of late, good fair Bowed selling to day at 9 3/4d. Business in Manchester is steady, and there is a tolerably steady sale for yarns for export, at prices which afford some remuneration at the present value of Cotton.

The aspect of affairs between your country and France is not pleasant. From present appearances, there is no reason to suppose the payment stipulated for in the treaty will be made, and the matter therefore will rest with Congress what measures, if any, are now to be adopted.

Extract of a letter dated Liverpool, January 17.

The recall of the French Minister at Washington is important, and will throw the course of proceedings on your Legislature, which we trust and believe will be temperate.

It is probable that the Chamber of Deputies will make some specific offer of compensation, which perhaps it would be well to accept. British shipping would certainly derive much benefit from war between France and the U. States, but trade will thereby be thrown out of its customary channels, and become hazardous and uncertain.

The Paris Correspondent of the London Times—a paper noted for the accuracy of its foreign information—thus writes about the rupture between France and us. It looks more favourably on the cases than other accounts.

Private Correspondence.

PARIS, WEDNESDAY, JAN. 14.

For the second time since the declaration of American independence an interruption has taken place in the friendly relations between the Government of this country and that of the United States. In both instances a question of pecuniary indemnity has led to the rupture, and now, as formerly, there is very little doubt that the French will consent to concede to the American people all that justice requires, as soon as they have done what is necessary to heal the wound which their self-love has sustained from the Message of General Jackson. On the former occasion two French frigates were seized and carried into American ports, but were afterwards released on the adjustment of the question at issue. A still stronger measure would probably have resulted from the present posture of affairs between the two countries, had not the French Government, in the very act of recalling their Minister at Washington, and of intimating to Mr. Livingston that his passports were ready for him, conveyed the official notification that the bill for the adjustment of the American differences was this very day to be presented to the Chamber of Deputies.

It could not, of course, have been very agreeable either to the Government or the Chamber to have been bearded during the discussion by the presence of an American Minister in the Hotel of the Rue de la Victoire. On the other hand, Mr. Livingston has not thought it necessary in the meantime to embark for the United States, but takes his passports in the first instance for London, when he will be at hand to give his advice to Mr. Barton, the Secretary of Legation, who will probably be left here in the capacity of Chargé d'Affaires, unless it shall appear, contrary to all present probability, that the whole of the French establishment at Washington is to retire with M. Serrurier, its chief, and that the last postern is to be closed to any thing like an amicable accommodation.

The National of this morning, in a short but sarcastic paragraph, treats this rupture of diplomatic intercourse, and the whole course adopted by this Government, which it had anticipated pretty accurately, as amounting to a declaration of war; but suggests that in eight days, when the outraged dignity of the Citizen King has been satisfied, and the Chamber has sanctioned the treaty for the payment of the 25,000,000 of francs to America, peace will be restored. In fact, ever since the arrival of the Message, the opposition journals have been much more moderate in their tone than was to have been expected under the circumstances, considering the part they took against the Duke de Broglie's Administration when the affair was formerly under discussion in the Chamber.

There appears, however, to be little ground for alarm. In the official conferences which have taken place within the last four days, between Mr. Livingston and Admiral de Rigny, every sort of assurance was given, on the one side and the other, of the anxiety of both Governments to avoid any serious cause of quarrel.—On the part of the Foreign Secretary this assurance was strongly repeated the night before last, and as late as yesterday, at the hour of post, there was not the least idea at the American legation that such a proceeding would have been resorted to as that which must by that time have been resolved on, and of which you have the official announcement in this morning's *Moniteur*.

We derive from Paris papers of Jan. 14, the following important paragraphs—

Confidential instructions have been sent to the sea-ports, and principal commercial towns of the kingdom, to get up petitions for the immediate adoption by the Chambers of the treaty with the United States.

Mr. Middleton, Secretary to the American Legation at Madrid, arrived in Paris on Monday, with inscriptions for 13,000,000 reals delivered by Spain in pursuance of the new treaty between the two Powers for liquidating the claims of American citizens upon Spain.

Old Cobbett, we see, is re-elected from Old Aton, and is classed in the list of Reformers; but we think it an even chance if he does not support the Duke.

The steam ship *Pylades*, new and carefully constructed, bound from Amsterdam to the East Indies, sank in smooth water off the coast, on the second day out—without having met with any accident whatever. The crew and passengers, to the number of 40 were taken off by fishermen. It is believed that holes had been maliciously bored in the vessel and temporarily stopped.

The Duke of Leuchtenberg, husband of the young Queen of Portugal, was expected in London at the last dates, on his way to Lisbon.

Old Talleyrand has at last retired from public life. His political testament is annexed. It was said in Paris that Louis Philippe hinted, that it should not be made public, which the wily statesman turned off by saying, the only question was, "whether it should be published by the royal permission, or his own."

The *Moniteur* announces officially that the King has accepted the resignation of the Prince de Talleyrand as Ambassador to England, and has appointed General Sebastiani to be his successor.

The Prince's letter follows:

"Sir—When the confidence of the King called me four years ago to the Embassy of London, the very difficulties of the mission induced me to obey. I believe I have accomplished for the benefit of France and of the King, two objects of interest which I have always had in my mind, and which I have always considered as closely connected. During these four years, the maintenance of a general peace has admitted of all our relations being simplified. Our policy, isolated as it was, has been mingled with that of the other nations. It has been accepted, appreciated, and honored by the honest men of all countries. The co-operation we have obtained from England has cost nothing to our independence or our national feelings; and such has been our respect for the rights of all, such has been the candor of our proceedings, that far from creating mistrust, it is our guarantee that has been called for against the spirit of Propagandism which disturbs the old States of Europe. It is certainly owing to the exalted wisdom and great abilities of the King that all these satisfactory results must be attributed. I claim for myself no other merit than that of having divined before all others the profound thoughts of the King, and to have announced them to those who have since been convinced of the truth of my words.

Now that all Europe knows and admires the King, and thereby the principal difficulties have been surmounted—now that England has perhaps an equal want with ourselves for a mutual alliance between us, and that the path which she appears to be inclined to follow must induce her to prefer a mind with traditions less ancient than mine, I conceive I may, without failing in my devoted duty to the King or to France, entreat, respectfully, that his Majesty will accept my resignation, which I request you, Sir, will lay before him. My great age, the infirmities which are its natural consequence, the repose they counsel, the reflection they suggest, render this step very simple, but too fully justify it, and even render it a duty. I rely upon the equity and goodness of the King to form the same judgment. Accept, etc.

PRINCE DE TALLEYRAND."

The following is the answer of the Minister for Foreign Affairs, which is only dated on Wednesday—

"PRINCE—I have laid before the King the letter you addressed to the Minister of Foreign Affairs, by which you entreat his Majesty to accept your resignation of the Embassy at London. His Majesty for a long time hesitated to accept it. In associating yourself with his sentiments and those of his Government, you have so ably concurred in giving stability to the new Monarchy and grandeur to its policy, and in maintaining the Peace of Europe, that the King could not consent to deprive France of your powerful services and vast experience. But his Majesty has felt that after so great and so long a career, the attachment

even, and the gratitude he bears towards him, will not suffer him any longer to resist the desire you have expressed to him, on account of your great age, to retire into repose. Accept, etc. KING."

Our venerable fellow-citizen Col. Trumbull has, under his own signature, made a statement in our columns to-day, not without interest, as bearing upon the French question of indemnity.

Col. Trumbull's suggestion of discriminating duties, or non-intercourse, rather than war, is surely the right one to begin with.

To the Editor of the New York American:

SIR: The dispute between the United States and France, on the question of compensation to the citizens of the former, for spoliation committed by the Government or the citizens of the latter, and which the actual Government of France, stipulated by treaty to pay,—has arrived at such a stage, as to require correct information, in order to the forming of a just and firm decision on our part.

I possess some information which I think it my duty to offer as authentic and accurate.

In the commencement of the French Revolution, more than forty years ago, spoliation to a considerable extent, were committed by subjects of Great Britain on our Commerce, and became in some measure the cause of the mission of Mr. Jay to London, which mission resulted in what is commonly called Jay's Treaty. I acted on that occasion as Secretary to Mr. Jay.

The 7th article of that Treaty is in the words following:

"Whereas complaints have been made by diverse merchants and others, citizens of the United States, that, during the war in which his Majesty is now engaged, they have sustained considerable losses and damages, by reason of irregular and illegal captures or condemnations of their vessels and other property, under the color of authority or commissions from his Majesty; and that from various circumstances belonging to the said cases, an adequate compensation for the losses and damages so sustained, cannot now be actually obtained, had, and received; it is agreed, that in all such cases where adequate compensation cannot, for whatever reason, be now actually obtained, had and received, by the said merchants and others, in the ordinary course of justice; full and complete compensation for the same, will be made by the British Government to the said complainants. But it is distinctly understood that this provision is not to extend to such losses or damages as have been occasioned by the manifest delay, or negligence, or wilful omission of the claimants.

"For the purpose of ascertaining the amount of any such losses or damages, Five Commissioners shall be appointed and authorized to act in London, exactly in the same manner as is directed with respect to those mentioned in the preceding article, and after having taken the same oath or affirmation (*mutatis mutandis*) the same term of eighteen months is also assigned for the reception of claims, and they are in like manner authorized to extend the same in particular cases. They shall receive testimony, books, papers and evidence in the same latitude, and exercise the like discretion and power respecting that subject; and shall decide the claims in question, according to the merits of the several cases, and to Justice, Equity, and the Law of Nations; the award of the said Commissioners, or of any such three of them as aforesaid, shall, in all cases, be final and conclusive, both as to the justice of the case, and to the amount to be paid to the claimant; and his Britannick Majesty undertakes to cause the same to be paid to such claimants, in specie, without any deduction, in such place or places, and at such time or times, as shall be awarded by the same

Commissioners, and on condition of such releases or assignments to be given by the claimants, as by the said Commissioners may be directed."

Reference is made in the above to the Sixth Article, for the mode in which the Commissioners were to be appointed, it was as follows:

"Two of them shall be appointed by his Majesty, two of them by the President of the United States, by and with the advice and consent of the Senate thereof; and the Fifth by the unanimous voice of the other Four: and if they should not agree in such choice, then the Commissioners named by the two parties shall respectively propose one person, and of the two names so proposed, one shall be drawn by lot, in the presence of the four original Commissioners."

The two Commissioners named by Great Britain, were Sir John Nichol, and Maurice Swabey, Esq. her two most distinguished Civil Lawyers. Those named by the United States, were Christopher Gore and William Pinckney, two of their most distinguished Lawyers.

These gentlemen could not agree in electing by unanimous vote a Fifth, and therefore, resort was had to the other mode pointed out by the Treaty, and I became the Fifth Commissioner.

The Board set in London, received a multitude of complaints, which were carefully examined, rejected some, admitted others; and in cases where we decided that loss or damage had been sustained, for which adequate compensation could not be obtained, had and received in the ordinary course of judicial proceedings, we referred all the papers to our merchants, (one British and one American) to examine and make up the accounts, and ascertain the exact amount of such loss and damage. They reported to the Board, who again, by themselves and their Secretary, re-examined the merchants' report; and finally, having determined the amount, we gave our award signed by each member, as well as by our Secretary, for such sum, payable at sixty days, at the British Treasury.

All these awards were paid with strict mercantile punctuality on the day named; and I never heard a single complaint of delay, much less of a refusal to pay.

The aggregate amount exceeded 10,000,000 of dollars, or 50,000,000 of French livres.

The period of time in which these British spoliation were committed, was short, commencing in 1793 and terminating at the date of the Treaty, Nov. 19th, 1794.

The spoliation complained of, as having been committed by France, extended over many years, and were wholesale transactions, comprehending seizures of ships in port, and confiscations of property on the land, as well as on the ocean.

Who can believe that the amount of these latter was not as great as that of the former? Who can doubt that it far very exceeded them? From the experience which I acquired by a careful examination of a great number, I have not a doubt, that if an accurate examination of each case could now be made, it would be found that the damage done to our commerce in the course of the wild revolution of France, decupled the damage done by Great Britain in that short period; and that, instead of 25 millions, the sum of 250 millions of livres would hardly be an equitable compensation.

The Legislative power of France seem disposed to nullify the Treaty on their part, and have once refused to grant the sum stipulated to be

paid to us. Why should we not nullify it on ours, by withdrawing those commercial advantages which are not only stipulated, but which France has actually enjoyed since the date of the Treaty?

And having first done this, if we should in addition impose heavy duties on the importation of French wines, silks, &c. &c. and apply the monies which might thus be collected to the payment of the losses which have been sustained by our citizens, would not that be a wiser and safer course than a resort to hostile measures?

If Mr. Gore or Mr. Pinckney were living, I should have left this office to them, but being the only survivor of those scenes, I have felt that this duty devolves on me, notwithstanding the neutral character which I held in the commission.

I am, sir, &c. &c.

12th February, 1835.

JNO. TRUMBULL.

complete adequacy to the end in view, was anxious to make the great value of the practice more generally known and had recourse to than it is in our community.—[Glasgow Herald.]

CHARLES LAMB.—It is with a feeling of the deepest pain and sorrow that we have to record the death of this friend and benefactor of humanity. Charles Lamb, the fine-minded and noble-hearted Elia, expired at his house at Edmonton on the morning of Saturday last. His death was rather sudden, and we greatly fear that it may have been hastened by an accident which he met with a few days before. While taking his customary morning walk along the London road his foot slipped, and he fell, striking his face against some stones, so as to wound it severely. He was recovering, however, when we heard of him, (on Christmas day,) and as full of jest and whim as ever. Mr. Lamb sustained a severe shock in the loss of his, perhaps, oldest and dearest friend, Coleridge—to whom he so recently paid the last tribute of mortality—with whom he has been so soon re-united. All love and honor wait upon the memory of the friends! No man was ever more loved and honored in life than Chas. Lamb; his audience was fit, though few. His exquisite humor, his refined and subtle thought, his admirable critical powers—the fancy, the feeling, the wit that gave a character to his essays quite unique—

"All were but ministers of love,
And fed his sacred flame;"

that love which embraces humanity—the sympathy that encircles the whole family of life. Mr. Lamb was, we believe, in his sixty-first year. He has left a memory to which years will but add grace and lustre.

Irish Cottage.—"Tell me of the cottage, Laggan." "God bless you, Ma'am dear, you're cruel fond of hearing of cottages; sure the history of most of them in this country is alike;—a wedding, and little to begin with—a power of children, and little to give them—rack-rent for the bit of land, turned out, bag and baggage, for that or the tithes!—beggary, starvation, sickness, death! That's a poor Irishman's calendar since the world was a world, barrin here and there, now and then, when he gets a sight of good fortune, by mistake!"—[New Monthly Magazine.]

Leave Me Not Yet.

Leave me not yet!—through rosy skies from far,
But now the song-birds to their nests return!
The trembling image of the first pale star
On the dim lake but now begins to burn,
—Leave me not yet!

Not yet!—low voices borne from hidden streams,
Heard through the shivery woods, but now at ease,
Their sweet sounds mingle not with daylight dreams,
They are of vesper's hymns and harmonies:
—Leave me not yet!

My thoughts are like those gentle tones, dear love!
By day shut up in their own still recess,
They wait for dew on earth, for stars above,
Then to breathe out their voice of tenderness:
Leave me not yet!

TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of *Duffee, May & Co.* offer to supply Rope of any required length (with-out-splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jarvis, Eng. M. & H. R. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.
Hudson, Columbia county, New-York, {
January 29, 1835. }

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.
Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.
Orders may be addressed to Messrs. **ERASTUS CORNING & CO.** Albany, or to **THOMAS TURNER**, at the Factory, Troy, N. Y. sep.12-17

STEPHENSON,
Builder of a superior style of Passenger Cars for Rail-roads,
No. 264 Elizabethstreet, near Bloeker street,
New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J351f

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, **AXLES** furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.
Also, **CAR SPRINGS.**
Also, **Flange Tires** turned complete.
J35 ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

35 tons of 1 inch by 1 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. do.	14 to 16 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
800 do. 5 do. do.	of 45 degrees, with ap- licing plates and nails to
500 do. 2 1/2 do. do.	suit.
soon expected.	

7250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.
Wrought Iron Bars of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 50 inches diameter for Locomotive wheels.
Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.
The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON,
9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mcowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.
Leveling instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by
E. & G. W. BLUNT, 154 Water street,
J31 61 corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Concometer, with two Telescopes—and a Leveling Instrument, with a Concometer attached, particularly adapted to Railroad purposes.
W. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.
Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Concometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLEY, Supt of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.
E. H. GILL, Civil Engineer.

German town, February, 1833.
For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
German. and North. Railroads

LIFE INSURANCE.—*Andersonian Soires.*—Last Monday, Dr. Hannay read a paper on the subject of Life Insurance, which excited much interest and considerable discussion, in which Messrs. Faichney, Retty, Professor Watt, and Mr. Smith of Jordanhill, took a part. The Doctor gave a sketch of the origin of insurance, tracing its progress from a very remote period. The Greeks probably, and certainly the Romans, as was shown by the references to Livy, Suetonius, and Cicero, practised a modification of marine insurance, which succeeding ages have perfected.—The practice was lost, with many other useful customs, in the dark ages, and the Doctor showed that early in the 15th century it was probably revived at Barcelona. It was the more necessary to trace the history of marine insurance, as it had the precedence of all other kinds, and is the same in principle as that which has human life for its object. The modifications of the principle in respect to the insurance of human life were next shown and clearly explained. The application of it to different, nay, to all ranks, was next put in so clear a point, (as the President remarked,) as to preclude all discussion. To the wealthy proprietor of an entailed estate, to procure provision for the younger branches of his family, to the man of moderate income, to accomplish in a certain manner what his means could not do by his slow accumulations without much inconvenience; to professional men, whose gains and estate perish with themselves; to the officer and the man of business; and he likewise adverted to its extreme usefulness to the agriculturist, an effect of life insurance of more extended operation and application than is generally believed. The discussion of the evening turned on the question of its being suited to the operative part of the community. The Essayist contended that it was within the reach of a very large proportion of our working men and mechanics, who, by saving one shilling a week when of the age of 25, could secure 100l at death to their heirs, and so defend many a widowed mother and poor orphan from the miseries of unprotected poverty, aggravated by recent bereavement. That half a million of persons contribute to savings banks institutions, which, though highly useful, fall far short of insurance as a means of provision, which last at once makes the provision sure—one from which the person insuring cannot draw back; and he is thus bound as it were to save to pay the premium; whereas he may in a fit of thoughtlessness or extravagance, withdraw his all from a savings bank, and dissipate it, and what is worse, become dissipated himself. The securing of debts and the attainment of a provision in old age, were also adduced as other advantages of the practice; and the facilities afforded by some offices in the way of loans to those who had paid a certain number of premiums was urged as an advantage under certain circumstances to the man in trade. Various arguments against it were combated, and the large meeting to whom it was read seemed to think, satisfactorily. The doctor in conclusion, showed how he was led to the study of the subject by its connexion with the physiological and medical question of the duration of human life; and, urged by his thorough convictions of its

MAN is the minister and interpreter of nature, said a great philosopher; and he ought unquestionably to commence the study of the important science of nature by becoming acquainted with his own species in every form of existence, and in every stage of society, from the erratic savage of the forest to the polished inhabitant of the city. In this country we behold man in every shape and modification of insulated and social being. When we peruse Herodotus' description of the Scythians, Thucydides' of the ancient Grecians, Caesar's of the Gauls and Britons, and Tacitus' of the Germans, we perceive the prototypes of our Indians; but we have it in our power to view man in a savage state with our own eyes, without relying on the reports of others; and it is to be regretted that so much time has transpired, without more attention being bestowed on this interesting subject. Dr. Robertson says, 'almost two centuries elapsed after the discovery of America, before the manners of its inhabitants attracted, in any considerable degree, the attention of philosophers.' This neglect can, perhaps, never be fully retrieved. An intercourse with civilized man has changed our Indians in almost every respect; but there is still a sufficient remnant of their manners, languages, and traditions, left to interest inquiry, and invite investigation. In some very remote quarters, they may still be found in the unsophisticated forms of original barbarism, unaltered by extrinsic intercourse. Many of their languages may still be redeemed from oblivion, their persons may be delineated, and their manners and traditions may be described; and the knowledge which may be obtained, added to what has already been collected, may furnish invaluable illustrations of the human species. The number of languages in Mexico is thirty-five, of which fourteen have grammars and dictionaries. The Bible has been translated by Eliot, the Indian apostle, into the Algonquin language; and two thousand copies of the Mohawk version of St. John's Gospel have been printed by the British and Foreign Bible Society; and we have many collections of words in different Indian languages. Our antiquities are of two kinds, such as relate to the aboriginal and colonial states. We have no Indian monuments or curiosities that can be compared with the forts on the Ohio, or with the temples of the Aztecs. There are some remains of Indian pottery, of weapons, and of rude paintings. Mounds of earth, like the tumuli in Scandinavia, Russia and Tartary, the barrows in England, and the cairns in Scotland and Ireland, may still be seen, and also the outlines of extensive fortifications. But the variegated condition of the white man here exhibits human nature in all its shapes. We behold him in every stage of society, from the semi-savage hunter to the polished citizen; and we perceive every stage of cultivation, from the first tree that was cut to the elegant habitation. 'In North America,' says a distinguished writer, 'a traveller who sets

out from a great town, where the social state has attained to perfection, traverses successively all degrees of civilization and industry, which keep diminishing, till he arrives, in a few days, at the rude and unseemly hut formed of the trunks of trees newly cut down. Such a journey is a sort of practical analysis of the origin of nations and states. We set out from the most complicated union, to arrive at the most simple elements. We travel in retrogression the history of the progress of the human mind, and we find in space what is due only to the succession of time.'—[Scientific Tracts.]

MECHANICS' MAGAZINE, Nos. 1 and 2 of Volume 5, for JANUARY and FEBRUARY, 1835.—The two first numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal in any other of the kind published.

Bound or stitched volumes may be had single, or in complete sets, at the office No. 35 Wall street, of
D. K. MINOR.

RAILROAD AND CANAL MAP.
THIS long promised Map is now ready for those who wish it. Its size is 24 by 40 inches. It is put up in a convenient pocket form, in morocco covers, and accompanied by over 70 pages of letter press, giving a concise description of, or reference to, each Road and Canal delineated on the Map. It will also be put up in *Marble Paper* covers, so as to be forwarded by mail to any part of the country; the postage of which, cannot exceed 44, and probably not 25 cents, of any part of the country.
Published at 35 Wall street, N. Y., by
D. K. MINOR.

AGENTS FOR NEW PUBLICATIONS.
HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications:
The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance.
The American Railroad Journal, Weekly, at \$3.00 per annum.
The Mechanics' Magazine, two volumes a year, at \$3.00 per annum.
The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number.
The Family Magazine, 416 pages a year, at \$1.50 in advance.
The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, now in the 5th volume, bound volumes \$1.95.
The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance.
The Rochester Gem, at \$1.50 in advance.
All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 19, 1834. *W. THORNBURN.*

SUPERIOR GARDEN AND AGRICULTURAL SEEDS.

The Subscriber has now on hand a full supply of Garden and Field Seeds, growth of 1834; among which are all the finest cabbages, cauliflower, broccolis, radishes, peas, &c., that are cultivated in England, France, and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store, I warrant genuine and fresh.

Also, kitchen seeds, potatoe seeds, 44 lb. weight to the bushel, perennial rye grass, white clover, lucerne or French clover, orchard grass, Herd's grass, white mulberry, and yellow locust seeds, spring tares or vetches, genuine mangel wutzels, and ruta bags, and field turnip seeds, well worth the attention of farmers.

Canary, Hemp, Rape and other bird seeds; wholesale dealers supplied on accommodating terms. Price lists by the pound and bushel furnished on application, as also catalogues of whole collection.

The flower seed department embraces the choicest variety to be found in this country, in which are included choice double Dahila seeds, carnation and choice Pinks, German and China Asters, splendid double balsams, with an addition of several new varieties, accompanied with a printed direction for culture and management.

Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money.

W. THORNBURN,
347 N. Market st. (opposite Post Office)

* * Mr. Thornburn is also Agent, and will at all times receive subscriptions, for the NEW YORK FARMER and AMERICAN GARDENER'S MAGAZINE; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. MINOR.

LAFAYETTE.
THE Betsy by JOHN QUINCY ADAMS, on the Life and Services of this Benefactor of Mankind; on a beautiful paper and type; with a spirited medallion *penographic likeness*. Is just published and for sale by
D. K. MINOR, 35 Wall st.
subs

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.
August 15, 1835. *ASD:RM&F*

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 2 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.
HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. L. Brower, 323 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.
1J2am *H. BURDEN.*

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 30, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 18 horse Steam Engine, which could be disengaged with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Cope even, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

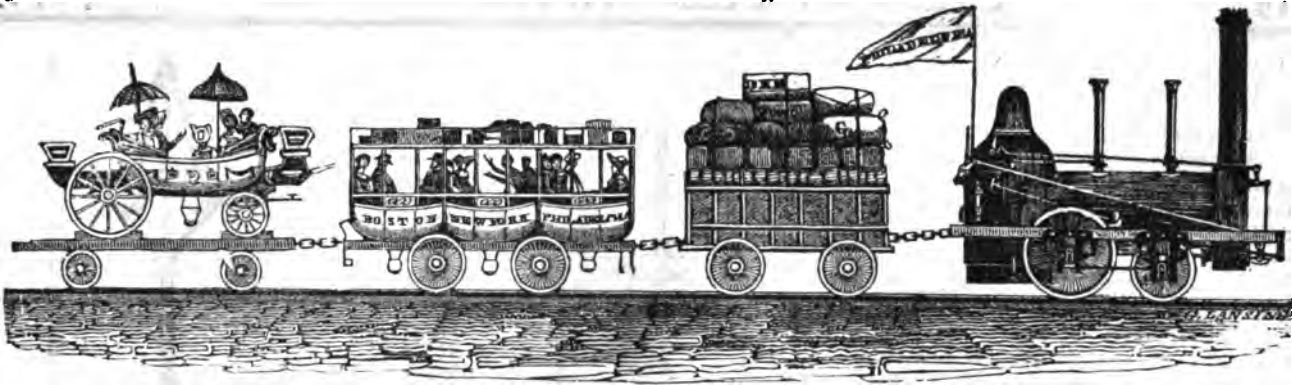
No. 6. A building, 85 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 300 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the Harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOS. J. ECKLEY, Treasr. &c., Boston, or to
ROBERT RALESTON, Jr., Philadelphia.
Boston, Dec. 29, 1834.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM. PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, FEBRUARY 25, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, FEBRUARY 25, 1835.

NEW-YORK AND ERIE RAILROAD.—This subject has been, we perceive, made the special order of the day for Tuesday next. We are gratified to find that this road is becoming one of more interest to the people at large, and especially so to the present legislature. It is truly one on which intelligent and liberal men can hardly disagree. It is one which will serve as a further facility to induce our western neighbors to make the State of New-York the route of their travel, and the city of New-York the great mart for their produce, and the source from whence to derive those immense amounts of merchandise which will be required to supply the millions of inhabitants which will, in a few years, inhabit the Territory between the Lakes, the Ohio river, and the Rocky Mountains—which is, in truth, the garden of the world. We have neither space nor time in this number to enumerate all the advantages to the public in general, and to this city and state in particular, which must result from the early completion of this work. The New-York and Erie Railroad should be made a link in the great thoroughfare to New-Orleans; and by a liberal course on the part of the State towards the company now holding the charter, it must become so. If, however, obstacles should be thrown in its way, and its construction should be delayed until the JAMES RIVER & KENHAWA, (Va.) improvement, the stock of which is, we believe, all taken, and one-fifth of it by the State, shall be constructed, and the NEW-ORLEANS & NASHVILLE RAILROAD, a survey of which is now being made by Mr. Ranney, formerly of the Lexington & Louisville, Ky. Railroad, shall also be completed,—and they will

unquestionably both be speedily accomplished,—when only about 400 miles of road, between Kenhawa and Nashville, Tenn., will be required to complete the great line of communication from New-York to New-Orleans, by the way of Virginia, Kentucky, and Tennessee, instead of, as every New-Yorker would desire, through the state of New-York by the New-York and Erie Railroad, around the corner of Lake Erie to Cleveland and Sandusky, Ohio, and by the Mad river railroad to Dayton; thence through a corner of Indiana and Louisville, Ky., to Nashville, Tenn., there connecting with the road to New-Orleans; we may long look in vain for another opportunity equally favorable to secure the Western trade. The distance from the termination of the New-York and Erie road to Nashville, Tenn., is about 675 miles, mostly through a level country, abounding with cheap materials for a road, and which will furnish abundance of business for the road when completed.

This is but a faint outline of the picture which might be drawn by an abler pen. Absence and other engagements prevent us from enlarging upon it, or filling it up. We shall endeavor, however, to show more clearly in our next number, if possible, the importance of prompt action by our Legislature to aid in the construction of a work, which, to the State, and more especially to the city, of New-York, is of vital importance—one to which, we doubt not, every enlightened representative in her Legislature, or friend of the State at large, will be found friendly and ready to urge its early construction.

NAVIGATION OF THE OHIO.—In the competition for the trade of the great West, every fact relating to the advantages which other States may have over us, by reason of their earlier and more uninterrupted means of communicating with that region, becomes important to be known. In this point of view, we look upon the annexed extract from the Pittsburg (Pa.) Gazette, showing the average period during a series of years, in which navigation on the Ohio was suspended, either by ice in winter, or low water in summer.

Facts such as are here stated, afford the strongest arguments that can be advanced in favor of the New York and Erie Railroad, by which at all seasons the intercourse between this city and

the lake (and, if the road should be constructed to Nashville, Tenn.,—as it most certainly should, and surely will be,—between this city and New-Orleans) could be kept up; and the termination of which at the lake, both by its more southerly position and the peculiar formation of the lake itself, would ensure an earlier and later navigation by some weeks than can be had from Buffalo.

[For the extract above referred to, see p. 117.]

PITTSBURGH, FEB. 19.—*The River.*—Some time during last night the ice in the river was broken up, and is now rapidly disappearing; it gives us pleasure to state that the disruption was very gentle, and that not the slightest injury, except, perhaps, the rubbing off a little paint, was done to any of the steam boats now lying along our shore. Several of the steam boats have already commenced taking in lading, and navigation will commence to-morrow; or at the farthest, next day, the 20th or 21st instant.

PRIMARY GEOLOGY.—Dr. Boase is the author of a work expressly devoted to an examination of the *older formations*, or primary geology. From the few extracts and notices made of it abroad, it is certain of being received favorably by geologists in this country. The world was very slow in its progress towards its present condition; every object on which the philosopher fixes his eye, proves to him by incontrovertible evidence, that all this beautiful apparatus of vegetable and animal organization was a long time in being developed. The globe was in no condition for the present races of animals much longer ago, if any, than six thousand years. Traces of those constructed for existing on the earth in its primitive state are found imbedded in the rocks, to show us what has been. Certainly the forms of animals diminish in complexity of structure and in numbers, as we go back in the series, till they are actually lost in the granites.

A stage driver between Boston and Medford named Joseph Wyman, has just completed thirty years since he commenced running a stage between those two places. During the whole of that time he has never lost a trip by illness; never met with an accident, or lost a horse.

[From the London Repertory of Patent Inventions.]

A Method of Working the Slides and Valves of Steam Engines when using Steam expansively.

A new method of working steam engines of the ordinary construction expansively, in which the time of cutting off the steam is regulated by the governor, is shown in fig. 1, which is a side view, in which some of the parts are seen in section, and in fig. 2, which is an end elevation of the cylinder, and nozzles and the gearing for working the valves. In both figures the same letters are placed beside the same parts.

The brackets into which the gudgeons, *a, a*, of the rocking shaft work, are bolted to the cistern; these brackets, the weights that balance the valves, and some other things are not drawn, in order that the new parts may be seen distinctly. *b, b*, the shaft which works the cut-off valves, moves in two levers, *c, c*, which are keyed on the rocking shaft. The governor makes the same number of revolutions as the crank shaft, and the wiper *d*, and the other parts connected with it, work the cut-off valves in the following way. Part of the governor rod is turned cylindrical, and there is one or more threads of a screw (which makes one revolution in about twenty times its diameter), raised upon it at this place; and the piece *f*, is bored, and it has a thread or threads cut into the hole, so that it may work easily upon the turned part of the governor rod, with the screw raised upon it. The outside of *f* is fitted into a hole bored through the wiper, in the very same way as the governor rod is fitted into the hole in *f*, only the screw should be raised in the eye of the wiper, to allow the collars that are fixed above and below it, to prevent it from rising or falling, to be as small in diameter as possible; as this will diminish the friction on the ends of the wiper, it will be more easily acted on by the governor. *e, e*, are friction rollers, and the parts *g, g*, of the frame that holds them, slide backwards and forwards in brass guides. The rod, *h*, communicates the motions of the frame to the lever, *i*, (shown by dotted lines in the elevation,) which gives motion to the shaft, *b, b*, on which the levers, *l, l*, are fixed; and these levers move the rod which works the cut-off valves, by means of the cross head, *s*, and the side rods, *o, o*. The rods, *n, n*, must have ball and socket joints, to allow their bottom ends to turn round, as they work the part, *f*, up and down.

The screw that connects the inside of *f* to the governor rod, should wind in a different way from the screw that connects the outside of *f* to the wiper. Both screws are drawn on the same side in the elevation, but they should be on opposite sides, as in fig. B, which is a ground section of some of the parts now described.

As the screw cut into the outside of *f* has its lateral direction as it winds downwards, the same as the motion of the wiper, the friction on the under collar will assist the governor to turn the wiper backwards, and the weight of the wiper

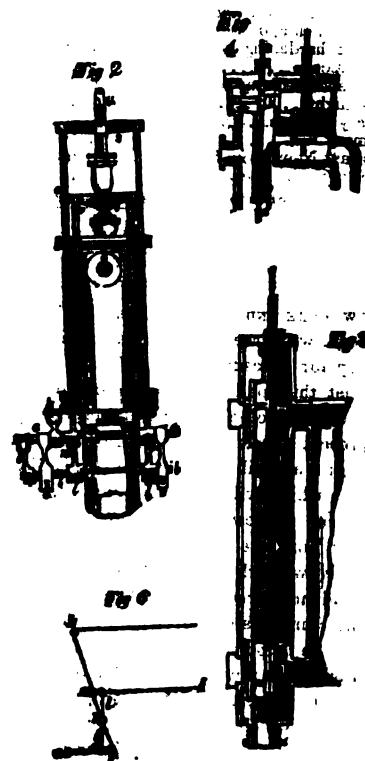
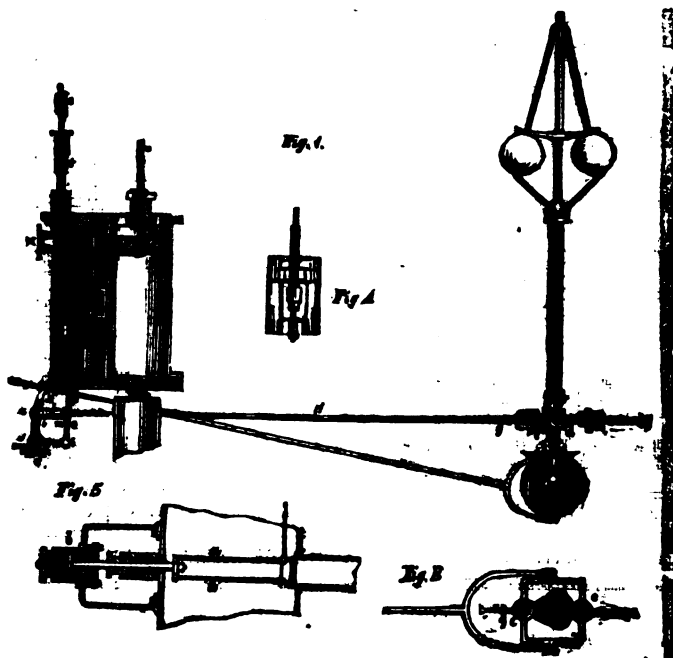
will diminish the friction on the upper collar, when it (the wiper) is turned in the opposite direction. The collars, and the brackets to which they are fixed, are not drawn, as they would have the part *f*.

k is the lever into which the rod from the eccentric works. By following out the remaining letters in both figures, the positions, &c. of the other parts will be known. The levers, *m, m*, are loose on the rocking shaft: their use is to keep away a motion of the cut-off valves that would take place if their side rods were connected immediately to the levers, *l, l*.

By inspecting the section of the valve in fig. 1, and the back view of it in fig. A, it will be seen that the construction is that of the short slide valve, with an additional piece or box without back or front cast on each end, of the same length and breadth as the steam-ways, and it will also be seen, that these additional parts could make no difference whatever in the working of the engine, unless the face of the nozzles on which the valve slides, prevented steam from entering in at the front of the additional box that is next the steam end of the cylinder when one of the small cut-off valves (shown also in the same figures) covered the back part of this box. The rod which works the cut-off valves passes through the centre of the valve rod, which has a stuffing box at the top. In fig. A the two small rods are shown, which connect the two cut-off valves.

The manner in which the governor acts on the wiper so as to regulate the motion of the engine, will be understood from what follows. The wiper, *d*, must be so placed when the engine is working with the governor balls down, that it will work the cut-off valves, so that one of them will cover the additional box through which the steam is passed into the cylinder, exactly at the termination of the stroke of the piston; in this position of the balls, the engine is working slow, and it has the full pressure of steam du-

ring the whole length of the stroke, to bring up its motion. If the screws on the down end of the governor rod, and in the wiper, wind in proper directions when the balls move outwards, the wiper will be turned forward from its aforementioned position, and it will cut off the steam nearer to the commencement of the stroke. This will keep the engine working at about the same velocity, whether the load upon it is great or small, unless it is overburdened. When the wiper has made about half a revolution from its position on the governor rod when the balls are down, the balls are as far up as they can get, and the steam will be cut off at the very commencement of the



stroke, so there is no danger of the engines running away.

There is no pressure of steam, and in consequence of this there is very little friction on the cut-off valves when they are working: because, the box on the end of the slide valve that the cut-off valve is upon, is always so far past the termination of the face on the nozzles, that the steam is admitted to both sides of the cut-off valve that is moving off the box. This will be better understood by inspecting figures 1 and 3, where it will be seen that the terminations of the face on the nozzles are exactly in a line with the inside of the extreme ends of the additional boxes, when both steam-ways are covered by the slide valve; and as the faces on the back of the slide valve on which the cut-off valves work are raised above the back of the valve, there can be no pressure of steam on the valve that is open, to hinder its motion.

The movements of the rocking shaft cannot alter the position on the slide valve that the cut-off valves are put into by the wiper, *d*, on account of the end of the lever, *i*, into which the rod, *h*, from the wiper works, never being very far distant from the centre of motion of the rocking shaft. It would not do to let the shaft, *b*, *b*, work in fixed brackets, because the slide valve is always in motion and the cut-off valves would have no corresponding motion to keep them at their places on the slide valve.

As the extremities of the wiper are composed of circles drawn from the centre of the governor rod, the wiper will be very easily moved by the governor, when the circled parts are passing the friction rollers, for the friction of the wiper on the rollers at that time will be nothing, because the rollers are set just so far apart as not to touch the extreme parts of the wiper.

The stroke of the cut-off valves is very short, and the ruffs on the parts, *g*, *g*, regulate its length. When the shaft that works the cut-off valves is placed (as in figs. 1 and 2) under the rocking shaft, the rod *h* rests upon the top end of the lever, *i*, and its weight keeps the friction rollers from bearing upon the extreme or circular parts of the wiper, by bringing the frame to bear upon two of the ruffs of the parts, *g*, *g*.

As the screw feathers, that form the connection between the governor rod and the wiper, make only one revolution in about twenty times the diameter of the parts screwed, no power applied to the end of the wiper can turn it without taking the governor rod along with it, but the least power from the governor will cause the wiper to revolve on the rod.

If the wiper is made long enough, and its top end connected to the rods, *n*, *n*, there is no use for the intermediate part, *f*. In this case the friction rollers must have no flanches, and the wiper will rise or fall twice the distance that the part, *f*, rises or falls.

In fig. 3 a similar kind of cut-off valve is applied to the common, D, valve, as in

figs. 1 and 2. The end of the top education pipe is shown by the darkened circle, and the flanch branch at the top of the nozzles is under the education pipe. The steam pipe is on the side of the nozzles that is cut away, but its form and position are given by the dotted lines. Only a part of the cylinder is drawn.

Round slide or piston valves may have a smaller piston working inside of each valve to cut off the steam.

In what is termed the leech slide valve, the cut-off valves instead of sliding may work on hinges like a common foot or discharge valve. The cut-off valves in this case will be up or down when they are open, and their position when shut will be nearly a horizontal one.

The diagram (fig. 6) gives a very simple arrangement of the rods and levers for working the slide and cut-off valves in a horizontal engine. In this figure the same letters are placed beside the same parts as in figs. 1 and 2.

By applying the apparatus described in the above plans to a steam engine without a governor, its power may be altered without stopping it, by having a rod and handle connected to the part *f*. When no governor is required, it will be simpler to have the wiper, *d*, upon the crank shaft.

A cut-off valve, placed betwixt the top steam valve, and another one placed betwixt the bottom steam valve and the boiler, if they were wrought by a wiper, as shown in figs. 1 and B, would work well if the pressure of the steam was not upon the valves when they are opening. Valves constructed like the one shown in fig. 4, are well adapted for this and other purposes: the rod that works the valve is seen at *c*; *a*, *a*, are the rods that support the principal part of the pressure, and the rod, *d*, goes down the steam pipe to work the cut-off valve at the bottom. Fig. 5 is a plan of the valve on a large scale: in order to adjust it to its seat, cork, or some other substance that will spring a little, is put into the box *b*. The pressure may be on any side of a valve of this sort; if the pressure is on the same side of the valve with the rods, *a*, *a*, the joints of these rods may be left the least thing loose: in this case the method of adjusting the valve by means of cork is not necessary. The snug on the top of the valve seat, for the end of the valve to rest on, is only wanted in particular cases.

For slide valves, the plans given in figs. 1, 2, and 3, are best adapted, and for conical valves, the plans shown in figs. 4 and 5 may be adopted.

In the plans that are described in this letter for cutting off the steam at any portion of the stroke of the steam engine, the number of motions of the parts are one half less; the action required from the governor to turn the wiper is not so great (as the wiper never moves parallel to the axis of the friction rollers), and it is more uniform; and the steam is cut off nearer to the cylinder than in Messrs. Maudsley and Field's plan. Mr. Tredgold's method of work-

ing, by jerks, heavy slide-valves, that are either firmly packed, or else have a great pressure of steam upon them, is certainly not a good one, even if the time of cutting off the steam could be regulated by the governor. To persons who understand perfectly the old and the new methods, other advantages in the new over old plans, besides those now enumerated, will present themselves.

Shifting a wiper round to any position on its shaft, by means of a screw-feather, may be used to advantage in many mechanical arrangements besides the above.

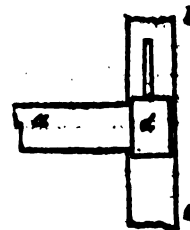
I should have mentioned before, that the smaller of the two circles, which nearly circumscribe the wiper, *d*, must be a semi-circle; and I should also have noticed, that cutting off the steam at one end of the cylinder, opens the cut-off valve at the other end always soon enough to give the engine steam at the beginning of the next half of its stroke.

By giving this letter a place in your valuable journal, you will very much oblige yours, respectfully,

JAMES WHITELAW.

Glasgow, Nov. 12, 1834.

P. S.—A very simple, though perhaps not the best plan of working steam engines expansively, is shown in the annexed sketch, in which *a* is the pipe



leading from the boiler, and the ends, *b*, and *c*, of the pipe *b*, *c*, go, the one to the top, and the other to the bottom steam valve. If a plunger, *d*, which fits the pipe, *b*, *c*, exactly, be wrought up and down past the pipe, *a*, by means of a common eccentric, it (the plunger *d*) will cut off the steam at any portion, of the stroke, by shifting the eccentric round on its shaft. By lengthening the faces of the cut-off valves, or by making a slip joint on the rod that works them, an eccentric may be used in any of the above plans, if it is shifted by hand, to its right position on its shaft.

By a trifling modification of the gearing for working the valves, the plans given in this letter may be applied to almost every form of the steam engine.

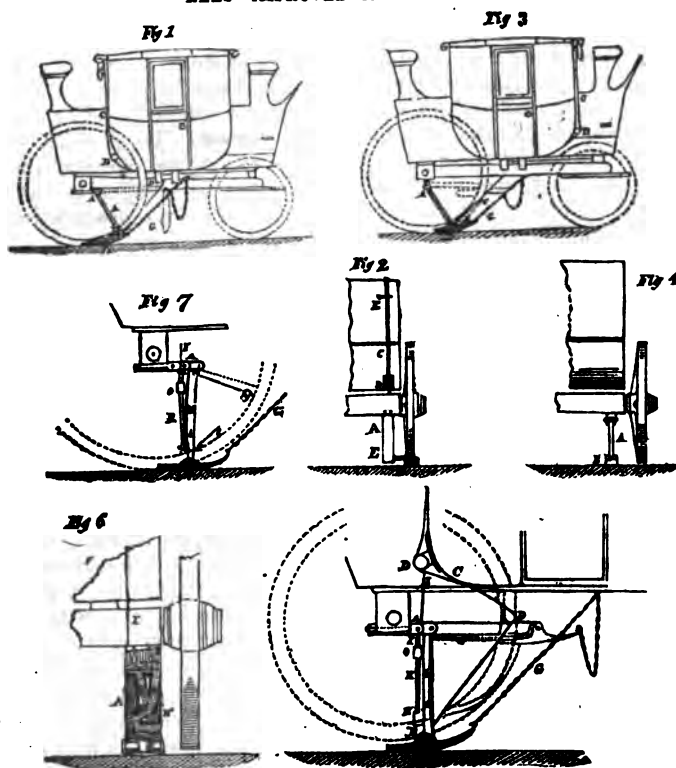
CAMDEN AND AMBOY RAILROAD.

Extract of a letter dated Trenton, Feb. 17th, 1836.

"This afternoon the following resolution was called up in the Council on its final passage, and carried by a vote of 11 to 2:

"Resolved," That the passage of any act by this Legislature, authorizing or recognising any other railroad across this state, which shall be intended or used for the transportation of passengers or merchandise between Philadelphia and New York, would be unjust, impolitic, in violation of the faith of the state, and deeply injurious to its interests.

REES' IMPROVED CARRIAGE-DRAG.



[From the Repository of Patent Inventions.]

Specification of the Patent granted to DAVID REES, of Brecon, South Wales, Woollen Manufacturer, for Improvements on Drags or Apparatus to be applied to Carriages.—Sealed August 7, 1833.

To all to whom these presents shall come, &c. &c.—*Now know ye*, that in compliance with the said proviso, I, the said David Rees, do hereby declare that the nature of my said invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by the following description thereof, reference being had to the drawing hereunto annexed, and to the figures and letters marked thereon, (that is to say):

Figs. 1 and 2 represent a side view, and so much of a carriage as is necessary to exhibit the application of my improved apparatus which consists of a drag. In the side view the drag is attached, in a working position, as having shod the wheel which does not require to have the progress of the vehicle impeded, to render it beneficially useful. A is the frame attached to the axletree of the carriage; B, the shoe; C, the strap, or chain, which is attached to the frame at E, passing over the friction pullies, D, D, to the fixed catch, F, at the back of the carriage, where it is made fast by the coachman or guard; G is the drag-chain. The apparatus when out of use will assume the position under the carriage as shown by the drag and appendages in red color.* To put the apparatus in motion, the driver or guard of the coach has only to slip the strap or chain off the catch, F,

* Shown by dotted lines in the engraving.

and it will of itself fall down into action as represented.

Figs. 3 and 4 are similar views of another construction of drag, intended to raise the wheel and support the carriage, so that it may diminish the speed of the vehicle going down declivities. In all the figures, similar letters distinguish the respective parts. A is the frame; B, the skid; C, the strap or chain which is attached at E, passing over the pullies, D, D, to the fixed catch, F, on the front of the coach, where it is as in the before-described figure made fast by the coachman or guard.

Figs. 5 and 6 are a side and back view of another description of drag, constructed for the purpose of being drawn up whilst the carriage is in motion. These figures are drawn to represent the apparatus in operation in the same manner as before described. The manner of effecting this will be seen on reference to fig. 7, which exhibits a side view of the drag with the catch, H, unlatched; to unlatch this catch, it is only necessary for the driver or guard to pull the strap, I, attached to the eye of the lever, K, as seen in fig. 6, when it becomes sufficiently removed to allow the catch to liberate itself from the latch, L, which is kept down in position by the spring, M. The guard or staple plate, O, is intended to retain the lever in its proper situation. Upon removing the catch by the means described, the wheel of the carriage again comes in contact with the ground to support the vehicle, and the drag may be taken up to the position shown in red color* under the body of the carriage. Now, whereas it is evident by the forego-

* Shown by dotted lines in the engraving. E

ing description, that my improvements on drags or apparatus to be applied to carriages are applicable to every description of wheeled carriages, only varying the length and substance according to the diameter of the wheels, and weight of the carriage; and I therefore claim as my invention the application of the whole of the above combination as herein represented and described, without limiting myself to the use of any particular material.—In witness whereof, &c.

Enrolled January 7, 1834.

[From the Journal of the Franklin Institute.]

Note relating to the hardening of Lime under Water, by the action of Carbonate of Potassa, &c., and to the hardening of Carbonate of Lime in the Air, by Potassa and Soda. By A. D. BACHE, Prof. of Nat. Philos. and Chem., Univ. Penn.

The following experiments were made more than eighteen months since, and were suggested particularly at the time by the article of Professor Emmett, on the solidification of raw gypsum in the air, by the action of the alkali, potassa, and of certain of its salts. They commenced with an examination of the effect of certain salts of potassa and soda, and of caustic soda, on the hardening of carbonate of lime, and of common lime, in the air; and, by a natural transition, to a more interesting subject, the effect of these, and of other materials, on the hardening of lime under water. Not having leisure to prosecute this subject, I am induced to publish the results already obtained, that by attracting the attention of some one who may be favorably situated for carrying out the course of experiment which they suggest, it may be carried forward to completion. The conclusions cannot fail to be of interest, both in a practical and theoretical point of view.

It is well known that certain impure limestones yield, when calcined, a lime which hardens under water, technically called hydraulic lime. Experimenters, who have examined these limestones, with a view to determine the ingredient giving this hydraulic property, have not agreed in their conclusions; the essential ingredient has been in turn supposed to be silica, alumina, oxide of iron, and oxide of manganese. My friend, Col. Totten, informs me that Col. Troussat, in a recent work on mortars, attributes this power of conferring hydraulic properties upon lime, in certain cases, to soda—an ingredient which, before his examination, had not, I believe, been detected in any hydraulic limestones.

The method of ascertaining the effect of the substances experimented upon, in causing lime to harden under water, was similar to that employed by Raucourt, and described in his work on mortars. The mixture having been made, and brought to a paste of a proper consistency, was placed at the bottom of a glass vessel, and water poured gently upon it. A wire stem, terminated at

one extremity by a wooden disk, was placed vertically upon the mixture in the vessel, and the weight ascertained which was required to pierce the mass; the hole thus made being filled up, by tamping the mixture with a blunt stick, it was allowed to remain exposed to the action of the water for any desired length of time, and then subjected again to a similar trial.

As almost all common lime is slightly hydraulic, an examination of that to be used in the experiment was first made; having been slaked, and, when made into a thick paste, placed at the bottom of a wine-glass, and water added, the test stem was applied, the mixture having set, bore 1 oz. troy upon the head of the stem; after an exposure of one day, the mass bore 1½ oz.; and after two days, bore 3½ oz.; it had then been so far disturbed, that it would not resume its cohesion.

This common lime was thus shown to possess feeble hydraulic properties. When mixed with sand and water, so as to form a tolerably rich mortar, the mass, after it had set, bore 5½ oz. on the rod, and, after two days, 7 ounces, which was the maximum weight borne. In its mixture with sand, this lime formed a mortar which was feebly hydraulic.

Some of this lime was mixed with caustic hydrate of soda, which, however, had a portion of adhering carbonate. The proportion of soda added was not particularly attended to; it was, however, much less in weight than the lime. The mass became so soft, that when, after tamping in the bottom of the glass, water was added, the test rod penetrated it freely. After one day, the mixture bore 4 oz. troy, upon the wooden disk at the top of the rod; after another day, 5½ oz., which was the maximum. It recovered this strength twice, by the interval of a day between the times at which it was disturbed by the penetration of the rod. Soda, it then appears, renders lime, to a certain extent, capable of setting under water.

Lime being made into a paste, with soda and water, acquired considerable consistency in the air.

When lime was made into a thick paste, with a solution of carbonate of soda, and exposed to the air, it crumbled into dust; this being mixed again with water, assumed consistency at first, but subsequently crumbled.

Lime did not set in the air, when mixed with a solution of sulphate of soda; the incoherent mass was pulverized, and re-set with water, which increased the cohesion, but not very materially. Under water, the paste of lime and sulphate of soda, four parts of lime by weight, and one of sulphate of soda, bore 9 oz.; but on the very next day lost its cohesion.

Carbonate of potassa, mixed with lime, in the proportion of six, by weight, of the salt, to two of lime, formed a mass which crumbled in the air; but, being re-set with water, assumed considerable cohesion.

This same mixture had hydraulic properties; for 4 oz. of lime, 2 of carb. potassa, and 11 oz. of water, being mixed and placed under water, bore, after two days' exposure, 64 oz., or 5½ lbs., which was all the weight which was at hand. A mass of the same mixture, which had been exposed to the air, and was but slightly coherent, being placed under water, became quite hard.

An attempt was made, by reducing the proportion of carbonate of potassa to about 12 per cent., to harden the lime in the air; but it did not succeed.

A curious effect was produced by soda, and by potassa, on carbonate of lime, reduced to powder, and, after mixture with alkali and water into a paste, exposed to the air. The carbonate became, in one case, harder than the original material, and in another, but little inferior to it in hardness; in the former case, the experiment was made upon chalk; in the latter, upon Carrara marble. The marble had very nearly the appearance of the original material, and a cast taken from it would have had a beautiful appearance, very different from the dull white of plaster of Paris. Neither of these mixtures was hydraulic; and when a mass of chalk and soda, which had hardened in the air, was placed in water, it was completely disintegrated.

I had, at the time of making these experiments, a quantity of silica, which had been prepared by passing fluo-silicic acid into water, and which, never having been heated, was still soluble, though, of course, in a small degree; after repeated washings, it still restored the red color of alkanet, which had been rendered purple by a feeble alkaline action. This silica was mixed with lime and water, so as to form a paste, and being placed under water, would not bear the weight of the test rod; it was exposed for four days, and was softer, at the end of the trial, than at the beginning.

[From the Pittsburgh Gazette of Feb. 20.]

NAVIGATION OF THE OHIO.—The editor of the Philadelphia Commercial Herald, some time since requested us to give some account of the times at which the navigation of the Ohio was usually interrupted by ice and low water, for some years past. We had intended to do so, but other matters have prevented it. The opening of the rivers yesterday has called our attention to it again, and we now perform that duty in part. Messrs. Jacob Forsyth & Co. have politely furnished us with their steamboat reporter, since 1829, from which we collect the following information.

This book commences on the 4th of August, 1829, and gives arrivals and departures from and to Louisville, Cincinnati, throughout August, September, October, November, and December, of that year, and through January, February, March, and the succeeding months of 1830, until the 14th of July.

The last arrival in January was the Talisman, on the 18th, and the last departure, the Lark, on the 19th. Probably about the 20th or 21st, the river was closed by ice, though the book does not state this. Subsequently we find the following note:—"River opened Feb. 20, 1830."—From the 14th of July, and through the month of August, September, and October, there were no arrivals or departures. On the 23d November, 1830, navigation was resumed, and continued open until the 14th January, 1831, when it ceased. Subsequently we find this note:—"River opened 19th Feb., 1831. Boats continued

to arrive and depart until the 27th of September, 1831. The last arrival was the Verchilles, on the 26th, and the same boat departed next day.

From that time, there were no arrivals or departures until the 10th November, when navigation recommenced. Afterwards we find the following note:—"River closed Dec. 4th, 1831." Then the following:—"Ice broke January 7th, 1832." Subsequently the following:—"Navigation again stopped with ice, January 26th, 1832." It continued closed, however, but a short time; for, on the 1st of February, the Talisman departed for Louisville; and, on the 2d, the Herald (a new boat) for Mobile.

From this time, steamboats arrived and departed with ordinary regularity, until the 29th of June—from that day, there was neither an arrival or departure until the 11th of August, when navigation recommenced, and continued until Sept. 4.

From the 4th of September till the 9th of November, navigation was suspended by low water. From the 9th November, 1832, there was an interruption until the 21st day of July, 1833, except from the 14th till the 19th Jan., that being the longest period in which there was no arrival or departure.

On the 21st of July, 1832, departed the steamboats Mount Vernon and Albion, being the last. There was then neither an arrival or departure until the 23d of September. From that day till the 1st of November, there were 13 arrivals and 19 departures. During the months of November, December, and up to the 3d of January, 1834, the navigation was brisk and active. Then we find the following notes:—"Monongahela river closed January 9th, 1834. Alleghany closed same day." Immediately below is the following note:—"Ice broke up, with high flood Jan. 12." From that date, until the 29th of July, navigation was regular and uninterrupted. During August and September, there was neither arrival or departure.

Then comes the following note:—"Navigation commenced for Steam Boats, Oct. 13," and continued until January, 1835, when we noticed the following minute:—"River closed on the night of the 3d of January, 1835." Then—"River opened on the 23d."

Navigation then became quite brisk—but, on the 6th of February, inst., it was again stopped by ice. On the 19th inst., the ice broke up again, which brings us to the present time.

Here, then, we have a faithful account of the interruptions of navigation during five years and a half, by which it appears that—

In 1830, the interruption by ice was about 30 days.			
1831,	do	do	61 do
1832,	do	do	12 do
1833,	do	do	5 do
1834,	do	do	3 do
			119 do

In 1830, interruption by low water about 136 do			
1831,	do	do	44 do
1832,	do	do	109 do
1833,	do	do	64 do
1834,	do	do	76 do
			423 do

Total interruption by ice and low water, 535 days.

It is gratifying to find that the interruption, by ice, during these five years, was less than four months. The obstruction by low water may be remedied.

The following tribute to the talents of Trumbull, as an artist, is just and the more valuable, as coming from an artist. It is an extract from a letter.

I am sorry that Mr. Dunlap should have neglected the old Colonel. Colonel Trumbull's name will endure, and his pictures be valued as memorials of the people of those times. Colonel Trumbull's little pictures at New Haven are gems of art, worth their weight in gold, and had they represented British victories over us, would have filled a conspicuous place in their National Gallery.

[From the New-York Farmer.]

We would ask for the following, which we take from the Genesee Farmer, an attentive perusal. It relates to a subject becoming daily of more importance, and should be better understood. We ask attention also to the able essay read before the Highland and Agricultural Society of Scotland upon the same subject, from the December number of the "Edinburgh Quarterly Journal of Agriculture." We shall, at our convenience, give another from the same work, upon the same subject, which cannot fail to be useful to some of our readers.

LIVE FENCES.—From an article on this subject in the January number of the Cultivator, we select the following:

The subject of live fences is one of increasing importance to the agriculture of our country. We have many champaign districts of choice land, particularly in the west, and independent of prairie tracts, where there is not likely long to be a reservation of much timber ground, and where there is few or no stone to construct fences. In those districts fencing materials will soon become extravagantly high, and the inhabitants seem to be threatened with the alternative of either dispensing with enclosures, as in France, or of resorting to live fences, as in England. The latter is decidedly preferable, not only to open fields, but to dead fences, unless in districts where fencing materials are abundant and cheap.

Caleb Kirk, of the state of Delaware, a man of the highest reputation for veracity and practical knowledge in husbandry, published some years ago, in the American Farmer, several numbers on hedging, in which he gives the result of nearly twenty years' successful experience. In 1819 he states the actual cost of 1,000 feet of an efficient hedge fence, as follows:

1,000 plants, planting and care first year, - - -	\$8 50
Dressing and care of plants 6 years following, - - -	5 00
Expense 7th year for stakes, splashing, &c. - - -	11 25
Expense 6 following years, - - -	4 50

Total expense for 13 years, - - - \$29 25

The posts and rails for 1,000 feet of fence are stated at - - - 75 00

Showing a gain in favor of the live fence of \$45 75 in the 13 years, besides the advantage of the live fence being permanent—as good as new—while the dead fence would have gone to decay, and required a new expenditure to rebuild it. In 1832, when Mr. Kirk's judgment had been corrected by four years' further experience, he says, "I find that thirty cents a rod will complete the raising to a mature age, and one cent a rod will fully maintain forever after, if duly attended to, and applied with judgment. No failure has ever appeared, except some local cause is present; therefore durability is now well established."

If by "hedge thorn" is meant the English hawthorn, (*Crataegus oxyacantha*), our decided opinion is, that it will not answer in Ohio, as it does not do well here in a latitude nearly parallel. We have given it a fair trial, and after patiently nursing it seven years, abandoned the hope of success, and dug up a hedge row of nearly a half a mile of it, and substituted other plants. Neither our summers nor our winters seem suited to its growth and preservation. The yellow locust is wholly unfit for hedges, from the fact that it produces innumerable sprouts from its roots, which would disfigure the

hedge, and seriously encroach upon the fields. Yet we do not know of a tree which it would be more valuable to plant upon the western prairies for wood and timber, than the yellow locust. The growth is rapid, it propagates itself, and it affords a valuable material for fence posts, mill works, and ship building. It will attain a maturity fit for these purposes in twenty-five years from the seed. But the thorns of our country afford excellent materials for live fences, particularly in the districts where they are found growing naturally. This we state as well from personal experience and observation, as from the information of others. In the middle states we have seen good hedges of the Virginia and Newcastle, or cockspur thorns, and we have a promising hedge composed of several indigenous kinds, gathered from the woods and pastures. But the great difficulty is in managing our hedges well. Our own people have as yet but little practical knowledge on the subject, and too many of the foreign laborers, who profess a knowledge on this subject, are mere quacks at the business of managing them. Besides, our climate differs from that of Great Britain, and demands a different culture from that which succeeds there. We have more cold, more heat, more drought. The ditch and bank will not do here, nor is it desirable that it should, as it causes a waste of ground, is unsightly, and is too often a nursery for noxious weeds. A bank and ditch require a width of eight or ten feet, while a simple hedge does not occupy more than two or three feet.

It is believed all the species of native thorn will answer for hedges, as well as many others of our native shrubs and trees. The Bostonians speak well of the buckthorn, though we have never seen it assume anything more than an ornamental appearance—nothing like a barrier to cattle. We have planted the honey locust, (*Gleditsia triacanthos*), as a material to experiment upon; and so far our confidence of success remains unimpaired; though we are not yet prepared to speak with confidence of the result. The best evidence of our confidence in it is furnished by the fact that we have now a mile or two of hedge row of the plants growing, planted in four or five successive years. The principal fear is that it may grow too large, an objection which will not apply so forcibly in Ohio, where land is abundant, and where the level nature of the country renders shelter desirable in winter. Yet we think, from our manner of training, the nearness of the plants, and by careful attention to clipping, when the growth of the hedge requires it, we can keep it within reasonable bounds. The honey locust, when cut in, does not throw out numerous shoots, like the thorn, but the principal growth is confined to a single stem. Our remedy for this defect is, to bend down and lay in the plant at a uniform height, when the stocks are from one to two inches in thickness, and to repeat laying the new growth every second or third year till the horizontal barrier is four to five feet high. The tops are wattled to the right and left alternately of the adjoining plants; and if the top is not depressed below a horizontal position, it continues to live and grow, and sends up shoots from nearly its whole length. The hedge of course becomes firmer and stronger every year.

We will close our remarks by advising Mr. Lockwood and his neighbors to collect, without delay, haws or seeds of the indigenous thorns of their neighborhood, and seeds of the honey locust, which we believe is a native of their forest, and to sow them in the spring in beds of good earth. The

first will not come up till the second year, and many seeds of the latter will not germinate in a shorter time. Keep the seed beds free from weeds, and after two years' growth, the plants will be fit to put in a hedge row. They may also collect in the spring from the woods plants of the thorn, of any moderate size, say from the eighth of an inch to two inches thick, saw off the tops near the roots, and having prepared the ground well, make a trench on the site of a desired fence, and plant the roots one foot apart.

[From the Prize Essays and Transactions of the Highland and Agricultural Society of Scotland.]

ESSAY ON RAISING AND MANAGING HEDGES.—In 1833, the Society, considering the subject of Live Fences as one of much importance, offered a premium for an approved Essay, founded on experience, on the manner of raising and managing hedges, and on the kinds of live fence suited to differences of soil, climate, and situation.

The several candidates were required to detail the manner of forming the mound, ditch, and other parts of the fence; the proper period of planting, the price of the plants, the prime cost of wood for rails, and the expense of sawing and putting up the rails; together with the subsequent management. They were also required to state the different kinds of plants adapted to live fences, and suited to differences of situation, soil, and climate; to explain the advantages and disadvantages of a mixture of plants; and to offer suggestions regarding the means of improving the state of the fences of the country. Three Essays were received, to the authors of which premiums were awarded, and of which a condensed account is here presented. It is unnecessary to offer any remarks on the respective merits of these essays, and the different modes recommended, as each of them is given in a tolerably detailed form.

Essay: By Mr. MONTGOMERY, Buchanan House, near Drymen.—Various plans are in use for raising hedges. The first is, to plant the hedge on an even surface; the second, to place it on a raised surface; the third, to form a ditch, and to plant the hedge at the surface in the side of the ditch; the fourth, to form a mound, and plant the hedge in the middle of it; the fifth, to plant a hedge on each side of the mound, thus forming a double fence; the sixth, to build a sunk wall, or to form a sloping cut, and to plant the hedge at the top of the wall or cut.

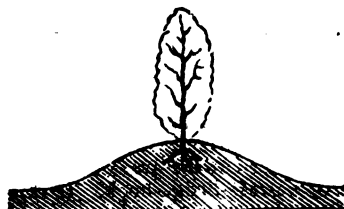
Fig. 1.



The first method, that of planting a hedge on an even surface, is represented by Fig. 1. The line being marked out, the ground should be trenched, one yard and a half wide, and eighteen inches deep; and when of bad quality, it should be improved, by adding good earth. This part of the work may be done at any time of the year. When you are going to plant your hedge, make an even downward cut with the spade the length of the line, along the middle of the trenched ground, and lay it upon one side. When this is done, drop your plants

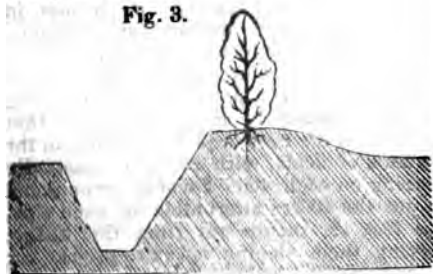
along the line, in the order in which they are to be planted, and plant them neatly to the side of the cut, placing them three or four inches apart, according to their size. When they are fixed along the line, let the mould be properly trodden to their roots; then dress the ground to the hedge. This sort of hedge requires a strong railing to be kept up, until it become effective as a fence.

Fig. 2.



The second method, although similar to the first, is yet, in my opinion, preferable, on account of the surface being raised a foot high in the middle, as shown by Fig. 2. You prepare your ground as in the first plan, but observe to throw as much mould from the sides as will raise it to the height in the middle. Then plant the hedge as above. A four feet hedge will be as good a fence on the raised surface, as one of five feet on even ground, and the expense is nearly the same.

Fig. 3.



The third plan is the usual method of making a ditch along the line, three feet inside at the surface, nine inches at the bottom, and two feet and a half deep, all the earth being thrown on the side of the ditch on which the hedge is to be planted, it being usually placed near the surface of the ground, at the edge of the ditch, as shown by Fig. 3.

Fig. 4.



The fourth plan is to form a mound two feet six inches wide at the top, five feet six inches at the bottom, and three feet high, the hedge being planted in the middle of the mound, as shown by Fig. 4.

In the fifth method there is a mound, with a hedge planted on each side, as shown by Fig. 5, the mound being three feet six inches wide at the top, six feet six inches at the bottom, and three feet high.

The sixth plan, Fig. 6, is to have a sunk wall two feet nine inches in height, two feet wide at the bottom, and ten inches at the top. The wall should be perpendicular in front, having the slope all at the back, from the bottom to the top; the back should be well packed or built, filled with

Fig. 5.

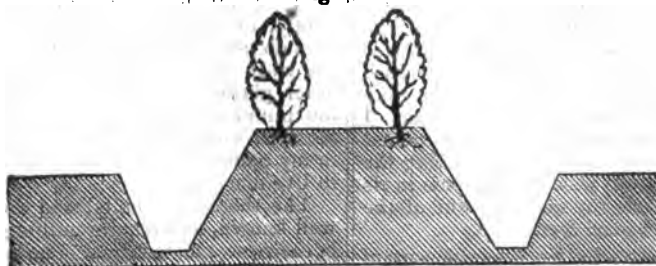


Fig. 6.



good earth, and the hedge planted close to the top of the wall. This, in my opinion, is the most efficient fence, and in the end the cheapest. The hedge should not be allowed to grow higher than two feet and a half. When stones are not easily got, you have only to use turf a foot or nine inches high, if the ground is good, and this turf you can get from the surface you move in making the sloping cut. Where the ground is good, raise the wall or building with turf nine inches above the original surface; when poor, raise it a foot, and fill it well up at the back with the best of the earth for the hedge, which is to be planted a foot back from the front. The cut requires to be only two feet deep if the ground is good, and one foot nine inches deep when it is poor.

The next thing to be considered is the expense of executing the work in the different ways. According to the first two plans, where the ground can be worked with the spade, the expense is nearly equal, as the additional work in raising the surface in the second plan is balanced by the expense of staking being less than in the first, a stab or stake four feet long on the raised surface being equal to one of five feet on the even surface.

Trenching the ground a yard and a half wide, one foot six inches deep, can be done per lineal yard at..... £0 0 11

Taking out the spading along the middle, and planting the hedge..... 0 0 1

Expense of plants, nine or ten to the yard... 0 0 24

Expense of railing, five-foot stakes, two to the yard, rafter and nails..... 0 0 24

Amount per lineal yard..... £0 0 74

In the second plan, the railing requires a stake of only four feet, and, in my opinion, a hedge on the raised surface will become a fence two years sooner than one on the even surface. There is also one-fourth less expense in the annual dressings. The cause of this is obvious, as a hedge on the raised surface is as good a fence three feet high, as a hedge of four feet on the even surface.

Expense of trenching and raising the ground per lineal yard..... £0 0 2

For plants and planting the hedge..... 0 0 34

For four-foot stakes, two to the yard, rafter, nails, and putting up..... 0 0 24

Amount per lineal yard..... £0 0 74

In the third plan, or the common way of a ditch and a hedge on the side, the usual way is, when the ditch is cut on each side,

to take a good turf, and lay it with its grass side downwards, on the side of the ditch where the hedge is to be planted. Lay the turf to fit the slope of the ditch, the slope to be six inches in the foot. Then plant your hedge, nine or ten plants to the yard, with the tops of the plants even with the slope of the ditch, on the top of the turf, putting the good surface-mould to the roots of the plants, and throwing the rest of the earth that is taken out in forming the ditch to the back of the hedge. This method of planting the hedge I do not approve, for the following reasons. The first year the hedge looks likely to succeed, but the second year the frost during the winter loosens the earth about the roots, when much of it falls down into the ditch, and the roots of the hedge become exposed, and are injured by the dry weather in summer, so that the hedge makes little progress, and becomes stunted in its growth.

Expense of forming the ditch, as shown by fig. 3, per lineal yard..... £0 0 2

Expense of plants, and planting the hedge, 9 or 10 to the yard..... 0 0 34

Three-foot stakes, rafter, nails and putting up, 0 0 2

Amount per lineal yard..... £0 0 74

According to the fourth plan, you begin with a surface three feet and a half wide, building up the sides with turf a foot high on each side, and sloping six inches in the foot, which will make the top of the mound two feet six inches wide; and on each side make the sloping cut two feet high, which makes the mound five feet six inches wide at bottom. The good earth moved in making the sloping cut is to be thrown into the mound, in sufficient quantity to allow for subsiding.

Expense of forming the mound per lineal yd. £0 0 24

Do. of plants and planting along the middle of the mound..... 0 0 34

Do. of stakes of two feet six inches, rafters, nails, and putting up..... 0 0 14

Amount per lineal yard..... £0 0 74

The fifth plan being somewhat similar to the fourth, only having a double hedge, will require three feet six inches of width at the top, four feet six inches at the surface, and six inches at the bottom. The sloping cut on each side is shown by fig. 5.

Adding 21d. per lineal yard to the expense by the fourth plan, that of the present will amount, per lineal yard, to..... £0 0 94

I would here observe, that the single hedge planted in the middle is the most ad-

visible, and in my opinion the best fence. I would by no means recommend the mound-fence in dry ground, as in that case the mound will get into a state of aridity, and the plants will not grow. Furze may answer in such a case, but nothing else. I certainly give the preference to the mound with the hedge in the middle, it being the least expensive, the least troublesome in its management, and the more certain of the two to become a good fence.

The plan shown by fig. 6 is the sort of fence which I would particularly recommend as the most substantial and efficient for inclosing ground for planting, and in every respect the most effectual in the shortest time, and attended with the least expense in the management after being planted.

The expense of the first method shown by fig. 6, or when built with stone in front, is as follows:

For building and sloping the ground, per lineal yard.....	£0 0 6½
Expense of plants and planting the hedge.....	0 0 3
Railing stakes two feet, rafters, nails, and putting up.....	0 0 1½

Amount with stone facing, by the sixth plan, £0 0 11

When the side, is built of turf, the expense is as follows:

For building the side, and sloping the ground, per lineal yard.....	£0 0 2
Expense of plants and planting.....	0 0 3
Railing 2-foot stakes, rafters, and putting up.....	0 0 1½
	£0 0 6½

The last plan with turf, as shown by fig. 6, is the cheapest in putting up, but that with the wall in front is the best. The great advantage is the planting of the hedge a foot back from the front, at the top of the building with stone or with turf. This allows the hedge to have a plentiful supply of moisture at the root, without being injured by the changes of the season. The railing is less expensive, as the hedge will become a fence in half the time required for the first and second methods, and the hedge in either of the last two plans being a good fence when two feet high, whereas, by the first two plans, it will require to be four feet high.

The mound-fence, with the hedge in the middle, would, in favorable situations, be a good fence in the same period as by the last methods; but there are few situations that suit this mode of fencing, for the reasons already stated.

I have now to speak of the different sorts of plants used in making fences. The following are the kinds respecting which the society demands information, with their prices per thousand.

Mawthorn, <i>Crataegus oxyacantha</i> , 20 to 24 inches high.....	8s. to 10s.
Beech, <i>Fagus sylvatica</i>	15s. to 20s.
Hornbeam, <i>Ostrya vulgaris</i>	15s. to 20s.
Birch, <i>Betula alba</i>	15s. to 20s.
Holly, <i>Ilex aquifolium</i>	50s.
Furze, <i>Ulex europaeus</i>	15s. to 20s.

To these may be added,

Yew, <i>Taxus baccata</i>	100s.
Evergreen Privet, <i>Ligustrum vulgare</i>	15s.
Elder, <i>Sambucus nigra</i>	30s.

The thorn, hornbeam, holly, and yew, are raised from seed, generally sown in autumn; the beech and whin are sown in spring; the evergreen privet and elder are raised by cuttings four or five inches long, planting them in the ground early in March, in rows of a foot between, and three inches in the row. More sorts might be added, but the above are those most approved of for live fences.

The hazel, birch, and whin, I do not

hold, in much estimation, whether used singly, or mixed with others. The two first do not repel cattle, and sheep destroy the whin in winter, nor would it mix with other plants to advantage. The birch is too pliant when young, the hazel grows too open and large in the leaf to mix, and in my opinion none of these should be used in live fences.

The thorn, the holly, and the yew, are well known, and require nothing to be said in their recommendation. The beech, hornbeam, elder, and evergreen privet, are particularly suitable for mixing in live fences, and are also long-lived plants.

Those which I would most recommend for being generally useful as fences, are the thorn and evergreen privet, the elder and evergreen privet. When the hedge is of the first two, let the proportion be two plants of thorn to one of privet; when of elder and evergreen privet, let the number be equal; when of thorn and beech, let there be two of the thorn to one of the beech; and when of thorn and hornbeam, let them be alternately planted.

The thorn and hornbeam, the thorn and beech, the elder and hornbeam, and the elder and beech, make good hedges, and have a reddish appearance during winter. The evergreen privet, mixed with thorn or elder, makes a very good hedge, and has a beautiful olive green appearance during the winter, when dressed in proper time in summer. Therefore I consider it the best plant to mix with the thorn, or with the elder, as the cattle do not eat it so readily, nor have I seen it infested with any sort of insect. The leaves being small, are not injurious to the hedge; the roots are also very numerous, and soon fix the mould at the surface, so as to prevent it from falling away from the hedge, or tumbling down into the ditch.

Hedges should be cut or dressed in the middle of summer, and the usual way of dressing them only in winter is very objectionable, the growth of the hedge being, as it were, lost; from being allowed to grow at the top all the season, it becomes there luxuriant, while at the bottom very little progress is made, and in a few years it becomes quite naked below. By cutting the hedge in summer, an equal growth is produced all over, from the bottom to the top; and by the second growth its closeness is increased, and the hedge greatly improved. The dressing should take place from the 20th of June to the middle of July, according to the advanced growth of the hedge. By attending to this plan of dressing your hedges twice in the year, you would do them in much less time than would be the case were you to allow them to grow on all the season without cutting.

The season for planting hedges is often too little attended to, such work being left until spring; but the proper time is when the leaf begins to drop from the young thorns. I recommend planting hedges in November and December, and not later than February; for then the juices begin to circulate, and cutting the roots after that period allows the sap to escape, and thus retards the growth of the plant the first season. The hedge ought to be planted, as recommended, with well selected plants, from twenty to twenty-four inches high, and two years transplanted. They are to be cut down to twelve inches, and if properly planted will make fine strong shoots the first year, which should not be cut until winter, when the hedge is to be dressed in the wedge form to 18 inches high. After the first year dress your hedges in sum-

mer, and in the end of the season, increasing them gradually to the height required.

When the hedges are well managed, those at the top of the sunk wall, or building of turf, as shown by fig. 6, will be a good fence the third year; on the raised surface in four years; and on the even surface in six.

On the subject of weeding the hedges and cleaning the ditches, a great deal might be said, were I to follow the ordinary practice; but the method which I recommend is simple, and requires few words. When your hedge is planted, sow on each side of it white clover seed, to the breadth of from two to three feet, as early as you can in spring; and once or twice during summer cut the grass with a short scythe, or a grass hedge-hook. If thistles, docks, or other strong weeds, rise, remove them; but never dig about your hedges, unless you are going to add plants. Let the grass be kept down two or three feet out from the hedges, and dress them as directed.

Ditches require very little cleaning, if made according to the plan recommended above, one in two years being enough, and the expense trifling. When the side your hedge is on is well sloped, there is little falling down, and on the opposite side, sloped away from the bottom of the ditch, there is very little filling up, so that, in most situations, the business may be done for less than a halfpenny per yard.

When you put up your railing to serve as a fence and as a protection for the young hedge, particularly in the case of that planted on the even or raised surface, in the division of fields, with cattle occasionally grazing on each side, I would recommend to put the stakes alternately on each side, one foot six inches out from the hedge, driving them sloping, so as to project six inches over the hedge, they being four feet or four feet and a half long.

For the other fences, stakes two feet or two feet and a half long, are sufficient. Drive them into the ground at the distance of one foot from the hedge; and in putting up the railing, drive the stakes on one side first, nailing the rafters two inches from the end of the stakes, making the rafter to be exactly over the top of the hedge. When this side is finished, drive the stakes on the opposite side, making them to rest on the rafter, and project two inches over it.

When hedges require to be protected on one side only, make your railing accordingly. For the sunk wall or hedge, and building with turf and hedge, use stakes two feet long; drive them into the ground six inches, and four or five feet apart, sloping so that the top-rafter will be even with the outside of the wall or turf, and let another rafter be half-way between the top-rafter and the turf or wall. Such protection for the fence will be found a sufficient fence for repelling sheep or black cattle, on either of the last-mentioned plans, until the hedge is an efficient defence of itself, it being observed to bring the hedges in the cutting, as soon as it can be done, even with the front of the turf building or wall.

ON DRAUGHT, No. 1.—It may be recollected that, while treating upon the qualities and history of the Horse, I alluded not unfrequently to the subject of draught, as being an interesting topic of investigation. More recently I have had occasion to examine the subject with some care, with especial reference to canals and canal transportation. To a superficial observer, the subject promises nothing of interest; and even to more

reflecting minds it is often passed by, as a matter familiar to all, and requiring no special consideration. The application of animal power in the conveyance of property, is indeed an every day occurrence, and we are all constantly in the habit of applying principles and using expedients, for which we can give no more satisfactory reason, than that they answer our present purpose. The slightest reflection, however, will readily convince us, that the use and application of power, in every possible shape, must involve many important principles.

I do not propose, at present, to discuss this topic in all its varied applications, nor to investigate or explain the numerous philosophical principles with which it is connected; but merely to offer some plain reflections upon the result of my inquiries; and if they shall afford any gratification to the readers of the Farmer, they are heartily at their service.

Draught, in the sense I shall here use it, is the moving of any substance, by *dragging*. The subject is usually divided into three parts: first, the power to be applied; second, the substance or vehicle to be moved; and third, the channel of conveyance.

The first of these divisions embraces a wide field of investigation, inasmuch as the application is co-extensive with the works of nature.

Power, in the abstract, is a mysterious and inexplicable principle, and far beyond the reach of our comprehension. Its application, however, in all the varied operations of nature and art, and the laws which govern this application, have been subjects of philosophical investigation from time immemorial. This must ever be the extent of scientific research; for the moment we pass these boundaries, we are lost in the contemplation of Omnipotence.

Aside from Deity, the great author of all power and motion, we know nothing of their origin or cause; and it is curious to notice, how strangely philosophers and sages have argued and reasoned on this subject, until within a few years; simply by mistaking the effect for the cause. If we reflect a moment upon the cause of our own locomotion, we shall at once perceive, that what is usually called *animal power*, and concerning which so much has been written, as a *first cause* of motion, is, after all, something we cannot fathom. When a person, from a state of perfect inaction, sets his body in motion, he exerts great *animal power*; but this is only its effect, and not the cause. Suppose a man throws a cannon ball to any given distance; he exerts great power, and the man is considered as the moving principle, the cause of the motion of the ball. But from whence does he derive this power? There is nothing in bone and muscle to propel a ball any more than in a stick or stone; all are wholly inert, until some moving principle is applied. A mass of flesh exerts no power; nor does spirit apply at all to material matter. Whence, then, comes this moving principle? It is not inherent in flesh and blood; nor is it the consequence of spiritual agency: for beasts, who have no spirit, exert the same power. What, then, is *animal power*? Here we are lost in the infinitude of Omnipotence, and are left to admire and adore that wisdom and goodness which has invested us with such mysterious and wonderful qualities. All we are permitted to do, is to apply this principle in all the various circumstances of our existence, and to investigate its effects, when thus applied.

My present object, however, is only with the application of this principle to draught;

and as there are only two kinds of power, animal and mechanical, which are as yet applied to the common purposes of draught, I shall consider only these two in their various applications.

By *animal power*, as I have before intimated, is simply meant the moving of any given substance by the exertion of animal strength, such as the drawing of a cart by a horse, or an ox. *Mechanical power* is the same principle applied by means of machinery, and usually is the effect of steam.

As much competition has arisen of late between these two agents, by the introduction of railroads, it might be an interesting inquiry to compare their respective merits, with all their attendant advantages and disadvantages; but I have neither time nor inclination for so great a task. Still, it may be well to state a few circumstances connected with their respective operations. And before doing this, I will explain what is meant by "force of traction," a term which is constantly used in speaking on this subject; and for this purpose, I will avail myself of an extract from a foreign work.

"A force is most conveniently measured by the weight which it would be capable of raising; but it is not therefore necessarily applied vertically, in which direction weight or gravity acts.

"If a weight of 100 lbs. be suspended to a rope, it is clearly exerting upon this rope a force of 100 lbs.; but if the rope be passed over a pulley void of friction, and continued horizontally, or in any other direction, and then attached to some fixed point, the weight still acts upon all parts of this rope, and consequently upon the point to which it is fixed, with a force equal to 100 lbs.; and so inversely, if a horse be pulling at a rope with a force which, if the rope were passed over a pulley, would raise 100 lbs., the force of traction of the horse is in this case 100 lbs." Spring steel-yards being now commonly in use, we may be permitted to refer to them as affording another exemplification of our meaning. In pulling at a steel-yard of this description, whether the force be exerted horizontally or vertically, the index will, of course, show the same amount—and, consequently, if the strength of the horse be measured by attaching the traces to one of these steel-yards, the number of pounds indicated on the dial will be the exact measure of the strain the horse exerts, and the amount of strain is called the "force of traction."

In other words: a man may be able to draw or push upon a railway a carriage weighing 2,000 lbs., while at the same time he cannot lift more than 100 lbs. It will readily be seen, that the latter is the measure of his strength, or force of traction, while the former is simply the effect of it.

The force of traction of a horse has been variously estimated by different authors from 80 lbs. to 200 lbs.; but the ordinary average at a slow pace is now rated at 125 lbs., over and above the power necessary to carry his own body.

The comparative merits of horse and steam power, when applied to the conveyance of property, must depend principally upon their practicability and expense. These two points are most conveniently tested upon railways; where both powers are constantly in use, and of course their practicability proved.

The annual expense of a horse depends upon the interest of purchase money, the decrease of value, the hazard of loss, the value of food, harness, shoeing, and farriery, rent of stabling, and expense of attendance. These are estimated in England, by Mr. Tredgold, in his work on Railroads, at about

£80 sterling, or \$266.40, allowing the horse a power of 125 lbs., travelling at the rate of three miles per hour, and the day's work at eighteen miles.

The annual expense of a steam carriage consists of the interest of first cost, the decrease of value, the hazard of accidents, the value of fuel and water, renewals and repairs, and expense of attendance. These are estimated at £51, or \$226.44. This power is equal to a force of traction of 155 lbs., for the same number of miles per day as the horse, and after deducting the power necessary to move the engine. Thus it appears that the expense of the horse is to that of the steam-engine about as 147 to 100; which shows a decided advantage in favor of steam power when used upon railways. If, then, the power of the horse and steam engine could always be applied to draught upon rails, we should be at no loss to determine the preferable agent; but unfortunately we are compelled to use roads as we find them; and under such circumstances, horse power presents a different aspect.

In the ordinary use of horse power upon common roads, the force of traction of the horse and expense of keeping will remain much the same as above stated, while those of the steam carriage, for the same purpose, must undergo considerable change. The carriage must be heavier and stronger, and of course the cost more; the expense of fuel more, and wear and tear greater, because more power will be required to overcome the varied resistance. Under these circumstances, the proportionate expense of horse and steam power is estimated to be about 115 to 100.

If this estimate is correct, there can be no great advantage arising from the use of steam power, even when the roads are good, and approximate towards the smoothness of rails, unless where velocity is required at the expense of power. Ordinarily, it will be found that the horse will adapt himself so perfectly to his work, increasing or diminishing his power, as occasion or resistance may require, that the average effect of his power will be increased, rather than diminished, thereby enhancing his average force of traction. On common roads great obstructions are often presented, and constant changes of ascent and descent occur; and it is on such occasions that horse power is decidedly advantageous.

On the contrary, a steam engine of a given power cannot increase or diminish its force to meet every little variation in the road, and it must consequently come to a dead stand when any resistance occurs beyond its force of traction. "For instance, suppose the carriage to be advancing steadily under the effect of a force of traction of 500 lbs., and that a stone or rut suddenly causes a resistance, which it would require 600 or 800 lbs. to overcome; if the impetus or momentum of the mass be not sufficient to carry it over this obstruction, the machine must stop until some increased power be given to it."

These objections to mechanical power are, however, not insurmountable, but they present such serious difficulties in practice, that some farther discoveries must be made, and some greater inducements offered, before it can come into general use.

Under such circumstances, connected with the numerous other contingencies which seriously affect the practical application of this power, we shall readily be induced to abide by our old friend, the horse; and make his burthen easy, and his labor as effective as possible. *QUESTIONS.*—[Genl Farmer.]

NEW-YORK AMERICAN.

FEBRUARY 21—27, 1835.

LITERARY NOTICES.

THE LIFE OF THE EMPEROR NAPOLEON, with an Appendix, containing an examination of Sir Walter Scott's Life of Napoleon Bonaparte, &c. &c. by H. LEE; Vol. 1: New York, CHAS. DE BEHR. —It is a source of just pride to Americans, that the best life of the great Discoverer of this new world is from the pen of an American. There was a special fitness and beauty in the undertaking, and it was executed in a manner that will convey to future times the name of Irving, as inseparable from that of Columbus.

The life of Napoleon, the Emperor, by an American has no such *prima facie* recommendation—that is—there is no such special fitness that an American should record the acts of a European conqueror, whose career was all European, as of a European navigator whose immortality rests upon his discovery of this quarter of the globe. Yet there are considerations belonging to the position, habits of thinking, and mode of estimating men, of a well educated American, which would seem peculiarly to qualify such a man as the biographer of one, who, like Napoleon was as much the idol of his own nation as he was the object of fear and hatred to others. It was therefore we heard with pleasure, that Major Lee had been employing his time and talents while residing in France, on a history of the life of Napoleon. His capacity and skill as a writer—his patient research and his controversial powers—all which, it was obvious, after the numerous biographies of Bonaparte heretofore written, would be needed—had been abundantly proved to his countrymen by his vindication of his father from the aspersions of Mr. Jefferson.

In the volume now before us, the first of four, through which the work is to extend, we have the exactest that our anticipations were not too sanguine. Mr. Lee enters into his subject with zeal and eloquence—and at the same time, with an elaborate minuteness of refutation in respect of the statements of Sir W. Scott, that, although successful, becomes almost tedious. It is however, to be said here, that by the judicious arrangement of throwing all the controversial matter into an appendix (which in a volume of 586 pp. constitutes 300) the main narrative is unbroken, and given in all cases with the coloring and the statement of facts, which after collating conflicting accounts, and examining all the points for himself, the author conceives to be the true ones.—As to his impartiality, and fitness for the task, the preface has these remarks. "The author, removed from the influence of national or personal feeling in relation to his subject, is sensible of as little disposition to respect the follies of French, as the unfairness of British historians, while he records the actions of a man, whose character, in rising to a level with the noblest examples of any former age, provoked and encountered the vilest prejudices and passions of his own." The narrative in this first volume terminates with 1796, up to which period the ulterior designs, or destinies (as it may have been) of Napoleon, were too little developed, to put the impartiality of an American biographer to the test, and therefore we are not to assume that the open and undisguised admiration everywhere expressed in these pages, for the character and motives of this great man, will not yield to regret and indignation, as

in his future career, the contempt which he displayed for human liberty and human life, when weighed against his own ambitious soarings, was so systematically acted on.

The style of this book has the faults which characterize the previous writings of Major Lee—redundancy, florid exuberance, and magniloquence exceedingly disproportioned, sometimes, to the immediate subject. On the other hand, it has occasional bursts of eloquence and passages of sustained excellence, which carry the reader away; and throughout, the narrative is so skilfully conducted, as to fix and retain attention.

We have said before that the controversial part, though sometimes tedious, was successful; and certainly no one can examine the Appendix without being satisfied that Sir Walter Scott, in his life of Bonaparte, was too little cautious in adopting ill-attested rumors, and not by any means dispassionate, in forming his conclusions respecting the motives and character of his hero.

We must not take leave of this volume without saying how admirably it is printed. A large, clear, open type, on white paper—not covering it from top to bottom with close printed lines—but widely spaced, and with abundant, but not excessive margin, makes it the most readable book for the eyes, that among the many we have to look at, it has lately been our good fortune to meet with.

CHRIST CRUCIFIED—An Epic Poem in twelve books, by WM. ELLIS WALL, M. A. of Trinity College, Oxford. 1 Vol. Oxford.

This volume, handsomely printed, and of which the purpose is to exhibit in a poem in blank verse "the completion of the great scheme of the divine counsels, for effecting the redemption of mankind" is among the books recently imported from London. We have not found a moment since the book was sent to us, to look into it, and can only therefore mention it by its title.

THE MECHANIC'S MAGAZINE.—It affords us real pleasure to state, as a like just to this valuable magazine, and creditable to the parties concerned, that at the *Nonette Iron Works* in this city, conducted by T. B. Stillman, thirty-seven subscribers for this Magazine sent in their names a day or two ago in one list, with the money for a years subscription in advance, amounting in all (payment for three whole sets of back numbers included) to \$130 50. This is the patronage the Magazine aims at and has a right to expect; the patronage of Mechanics, to whose interests and advancement in useful and scientific knowledge, it is specially devoted.

A WINTER IN THE WEST, by A NEW YORKER, 2 vols.: New York, HARPER & BROTHERS.—It is not exaggeration to say, that these volumes—which have been expected with eagerness—fully realize, in the spirit, variety, and interest of the scenes they describe, the highest anticipations.

The writer who, it is no revelation of a secret to say, is Mr. C. F. Hoffman of this city, and who is known to the readers of this paper as the "has," in the letters which fill these two volumes, displayed equal powers and taste as a writer. A portion of these letters appeared in this paper, as they were hurriedly written, sometimes on his knee, sometimes on the head of a barrel, or any other substitute for a desk. Many of them, however, are now first given to the public, and all

have been retouched, so as, without impairing their original freshness as first impressions, to correct errors of haste, and supply those of omission. There are added, too, in the form of notes, many facts and details of value concerning the population, resources, prices of land and living, in the far western region which Mr. H. visited, and which, though part of our own territory, is in truth less known to us than foreign lands.

The circumstance, too, that this was a winter visit, adds to other attractions, that of novelty; for before, what we knew of that region, was dressed out to our imagination in summer flowers, and verdant prairies.

As a whole we may, without fear of disappointing readers, recommend these volumes to them, as combining useful information concerning a fast advancing portion of our common country, with the attraction of varied personal adventures, of many touching reminiscences and incidents of fading Indian races, and of numerous, and some startling, historical anecdotes of our own bold frontiersmen: the whole related in flowing, spirited, and graceful style.

One of these Indian reminiscences is embodied in the following striking extract:

The tribe of "The Bald Eagle" had been long at peace with the whites. The aged sagamore had acquired their language, and become familiar with their manners. He was a frequent visitor at the fort erected at the mouth of the Kanawha; and the soldiers' children would sit upon the blanket of the kind old Indian, while he flung the arrows of reed to their mimic bows for them, and beguiled the sunny hours with some ancient legend of his people; traditions of their fabulous battles with the all-devouring Gitchie-pahokee, that would make young eyes dilate with wonder; and fearful tales of murdered chieftains with, when the baishkwa (night hawk) flitted through the wood, and the bright foot-prints gleamed along The Path of Ghosts, would stalk round the lodges of their kindred, and whisper the story of their fate to the tardy avengers of blood within. Often, at noon tide, or when the ruddy beam of sunset were softened on the bosom of the broad Ohio, his bark canoe would be seen skimming the river, towards the fort, while the urchins ran down to meet the harmless old man, and supplied him with sweetmeats and tobacco, in return for the trifling presents he would bring them from his forest home—baskets of the flexile and delicate-bued Birch, pouches of the variegated and patterned porcupine quills, and fllets woven by the daughters of the chief, from the softest feathers of the mourning dove. Twilight would come, and the whippoorwill commenced his evening call from the hillside, while the garrulous ancient still lingered, with his happy playmates; but night again would come, and his frail shallop driving down the stream, while, ever and anon, the chief would pause as he plied his paddle to return the salute of some friendly pioneer who, in the existing peace upon the border, had ventured to place his cabin on the shore.

Many months had passed away, and still with each returning week the children watched for their swarthy visitor; and never failed at last to see his paddle flashing behind some green promontory, and soon impelling his light canoe up on the beach beside them. But at length the chieftain came no more; the little gifts which they had prepared lost their novelty, and they longed in vain for the old Delaware to strum their bows anew, or to bring them wild plants from the islands, and the rich fruit of the paw-paw from over the river; and still The Bald Eagle came not. The white hunters could tell nothing of him, and the few settlers along the

* The fossil mammoth is thus named by the Indians.

† This is the name of the Milky Way among our northern tribes.

‡ The high-bird or golden-winged woodpecker.

stream declared they had last seen him floating safely past their cabins, with pipe in mouth as usual, and wending his way to the village of his tribe far down the river; but the neighboring Indians no longer brought them venison and wild-honey from the wood, their otter-traps had been withdrawn from the cane-brake, and the light of their torches was no more seen upon the river, guiding them in the favorite sport of spearing the fish that teem in its waters.

The garrison was not dismayed at the ominous silence: yet the sudden cessation of all intercourse between themselves and the Indians threw a gloom over the little community. There was one among their number, who could have unravelled the mystery; it was one who, like the murderer of Logan's family, had forged at least one link in the monstrous chain of injury which was at this moment knitting the neighboring tribes in bitter hostility to the whites,—it was the assassin of The Bald Eagle. This man, as it afterward appeared, had suffered from the Indians in former years, and in compliance with a vow of vengeance against the whole race, he had waylaid the friendly Delaware on his lonely voyage down the river, and murdered him within a short distance of the fort. The superannuated warrior could make but feeble resistance against the athletic and implacable backwoodsman. The fated savage pleaded vainly for a moment, in which to sing his death-song, but the heart of the Indian-hater was steeled against the appeal, and the atrocious violence was consummated with equal secrecy and despatch.

But the blood of the victim was yet to cry from the ground.

The revengeful pioneer had accomplished his first purpose of taking the life of an Indian: he was not contented, however, until he had added insult to injury; and with ingenious cruelty ensured that full knowledge of the outrage should reach the friends of the unhappy subject of it; and thus he proceeded to the accomplishment of his iniquitous purpose—he first scalped the hoary crown of the old Delaware, and next fixing the body in the usual sitting posture in the stern of the canoe, he carefully replaced the pipe in his mouth, and adjusted the steering-paddle to the hand of the corpse, which soon stiffened around it. A dirge was then given to the boat that bore this ghastly burden, and the stream quickly swept it far beyond his view. The abruptness of the river's bank, and the rapidity of the current near the shore, prevented the doomed bark from stopping in its career, and hurried it on the voyage for which it was so fearfully freighted. The settlers on the river's side recognised the well-known canoe and accustomed form of him that steered it, and dreaming not of the fate that had overtaken its master, they saluted him, as usual, from the shore; but when they hailed, no friendly whoop replied to the call; they beckoned, but the grim boatman heeded not; the shallow still went on, for the hand that guided kept it steadily on its way. The wild deer, drinking from the wave, started at the shadow, as it glided before him; the raven snuffed the tainted form, and hovered above its gory head, yet dared not to alight beside that motionless and stern voyager. And still that bark kept on. But now it has neared the home of the murdered sagamore; and, like a thief that knows the dwelling of its master, it seems to be making unerringly for that green headland where the friends of the loved sachem are waiting the wonted hour of his return.

What more is there to add?—the dumb messenger fulfilled his mission. The neighboring bands at once dug up the tomahawk, and runners were instantly despatched to the remoter tribes: the bloody war-belt passed like lightning along the border: the peaceful Mingoes had wrongs of their own to avenge, and needed not to read its mystic wampum; but the red-handled hatchet was shaken alike among the deep forests of Ohio, and the sunny prairies of Illinois, and in the dark glens of Kentucky; while by the thousand links of the warlike bands that haunt those crystal waters clothed with eager and the fearful umbers.

The allotted days of fasting had passed by for the friends of the murdered Delaware; the black

hue of mourning was washed from their indignant brows; and ere the crimson die of battle had dried upon their cheeks, the banks of the Ohio resounded with the war-whoop; while the burning of their cabins, and the massacre of their neighbors, gave the terrified settlers the first intimation of the foul murder of the Kenhawa.

The horrors of the war of retaliation thus commenced, continued to rage until Lord Dunmore's expedition put a period to the strife; and the dwellers on the shore that was coasted by the dead boatman would long after shudder when they remembered *The last errand of the Bald Eagle*.

We will not take leave of these volumes without stating that the writer of them, Mr. Hoffman, has become the proprietor of the *American Monthly Magazine*—a periodical which has already attained deserved celebrity in our city, by the taste and talent with which it has been conducted, and which, retaining the services and abilities heretofore enlisted in its support, will receive the accession of those of the author of *A Winter in the West*.

We hope, as we believe confidently, in Mr. H's full success in this career.

A SERMON ON WAR, delivered January 25, 1835. By WM. E. CHAMBERLAIN. Boston: Houghton & Palmer.—Again we are about to quote a Sermon,—an eloquent and well-timed Sermon,—on the evils, the wickedness, and the desolation of wanton and unnecessary War.

The reputation of the preacher,—the topic it treats of, now, alas! not of distant and speculative interest to us, but one that is near, imminent, and coming home to the business and bosoms of us all,—together with the eloquent and just views expressed, render this discourse valuable, as it is well-timed.

The subject is thus introduced:

I ask your attention to the subject of public war. I am aware, that to some this topic may seem to have political bearings, which render it unfit for the pulpit; but to me it is eminently a moral and religious subject. In approaching it, political parties and interest vanish from my mind. They are forgotten amidst the numerous miseries and crimes of war. To bring war to an end, was one of the purposes of Christ, and his ministers are bound to coöperate with him in the work. The great difficulty on the present occasion is, to select some point of view from the vast field which opens before us. After some general remarks, I shall confine myself to a single topic, which at present demands peculiar attention.

Public war is not an evil, which stands alone or has nothing in common with other evils. It belongs, as the text intimates, to a great family. It may be said, that society, through its whole extent, is deformed by war. Even in families we see jarring interests and passions, invasions of rights, resistance of authority, violence, force; and in common life, how continually do we see men struggling with one another for property or distinction, injuring one another in word or deed, exasperated against one another by jealousies, neglects and mutual reproach. All this is essentially war, but war restrained, hemmed in, disarmed by the opinions and institutions of society. To limit its ravages, to guard reputation, property and life, society has instituted government, erected the tribunal of justice, clothed the legislator with the power of enacting equal laws, put the sword into the hand of the magistrate, and pledged its whole force to his support. Human wisdom has been manifested in nothing more conspicuously, than in civil institutions for repressing war, retaliation, and passionate resort to force among the citizens of the same State. But here it has stopped. Government, which is ever at work to restrain the citizen at home, often lets him loose and arms him with fire and sword against other communities, sends out hosts for desolation and slaughter, and concentrates the whole energies of a people in the work of spreading misery and death. Government, the

peace officer at home, breathes war abroad, organizes it into a science, reduces it to a system, makes it a trade, and applauds it as if it were the most honorable work of nations. Strange that the wisdom, which has so successfully put down the wars of individuals, has never been inspired and emboldened to engage in bringing to an end the more gigantic crimes and miseries of public war. But this universal pacification, until of late, has hardly been thought of, and in reading history, we are almost tempted to believe, that the chief end of government, in promoting internal quiet, has been to accumulate greater resources for foreign hostilities. Bloodshed is the staple of history, and men have been butchered, and countries ravaged, as if the human frame had been constructed with such exquisite skill only to be mangled; and the earth covered with fertility only to attract the spoiler.

Passing, then, in review the pretenses under which wars are generally undertaken, and arriving at that called "sensibility to national honor," the preacher thus examines what constitutes this honor.

The first element of a nation's honor is undoubtedly Justice. A people, to deserve respect, must lay down the maxim, as the foundation of its intercourse with other communities, that justice, a strict regard to the rights of other States, shall take rank of its interests. A nation, without reverence for right, can never plead in defence of war, that this is needed to maintain its honor; for it has no honor to maintain. It bears a brand of infamy, which oceans of human blood cannot wash away. With these views, we cannot be too much shocked by the language of a chief magistrate recently addressed to a legislative body in this country. "No community of men" (he says) "in any age or nation, under any dispensation, political or religious, has been governed by justice in its negotiations or conflicts with other States. It is not justice and magnanimity, but interest and ambition dignified under the name of State policy, that has governed and ever will govern masses of men acting as political communities. Individuals may be actuated by a sense of justice; but what citizen in any country would venture to contend for justice to a foreign and rival community in opposition to the prevailing policy of his State, without forfeiting the character of a patriot." Now if this be true of our country, and to our country it was applied, then I say we have no honor to fight for. A people, systematically sacrificing justice to its interests, is essentially a band of robbers, and receives but the just punishment of its profligacy in the assaults of other nations. But it is not true that nations are so dead to moral principles. The voice of justice is not always drowned by the importunities of interest; nor ought we, as citizens, to acquiesce in an injurious act, on the part of our rulers, towards other States, as if it were a matter of course, a necessary working of human selfishness. It ought to be reprobated as indignantly as the wrongs of private men. A people strictly just has an honor independent of opinion, and to which opinion must pay homage. Its glory is purer and more enduring than that of a thousand victories. Let not him, who prefers for his country the renown of military spirit and acquiescence to that of justice, talk of his zeal for its honor. He does not know the meaning of the word. He belongs to a barbarous age, and desires for his country no higher praise than has been gained by many a savage horde.

The next great element of a nation's honor is a spirit of Philanthropy. A people ought to regard itself as a member of the human family, and as bound to bear part in the work of human improvement and happiness. The obligation of benevolence, belonging to men as individuals, belongs to them in their associated capacities. We have indeed no right to form an association of whatever kind, which reverts us from the human race. I care not, though men of loose principles scoff at the idea of a nation respecting the claims of humanity. Duty is eternal, and too high for human mockery; and this duty in particular, so far from being a dream, has been reduced to practice. Our own country, in framing its constitutions, proposed to insert an article prohibiting private

teering; and this it did in the spirit of humanity, to diminish the crimes and miseries of war.—England from philanthropy abolished the slave trade and slavery. No nation stands alone; and each is bound to consecrate its influence to the promotion of equitable, pacific and beneficent relations among all countries, and to the diffusion of more liberal principles of intercourse and national law. This country is entrusted by God with a mission for humanity. Its office is to commend to all nations free institutions as the sources of public prosperity and personal dignity, and I trust we desire to earn the thanks and honor of nations by fidelity to our trust. A people, reckless of the interests of the world, and profligately selfish in its policy, incurs far deeper disgrace than by submission to wrongs; and whenever it is precipitated into war by its cupidity, its very victories become monuments of its guilt, and deserve the execration of present and coming times.

I now come to another essential element of a nation's honor, and that is, the existence of Institutions which tend and are designed to elevate all classes of its citizens. As it is the improved character of a people which alone gives it an honorable place in the world, its dignity is to be measured chiefly by the extent and efficiency of its provisions and establishments for national improvement, for spreading education far and wide, for purifying morals and refining manners, for enlightening the ignorant and succoring the miserable, for building up intellectual and moral power and breathing the spirit of true religion. The degree of aid given to the individual in every condition for unfolding his best powers, determines the rank of a nation. Mere wealth adds nothing to a people's glory. It is the nation's soul which constitutes its greatness. Nor is it enough for a country to possess a select class of educated, cultivated men; for the nation consists of the many not the few; and where the mass are sunk in ignorance and sensuality, there you see a degraded community, even though an aristocracy of science be lodged in its bosom. It is the moral and intellectual progress of the people, to which the patriot should devote himself as the only dignity and safeguard of the State. How needed this truth! In all ages, nations have imagined, that they were glorifying themselves by triumphing over foreign foes, whilst at home they have been denied every ennobling institution, have been trodden under foot by tyranny, defrauded of the most sacred rights of humanity, enslaved by superstition, buried in ignorance, and cut off from all the means of rising to the dignity of men. They have thought that they were exalting themselves, in fighting for the very despots who ground them in the dust. Such has been the common notion of national honor; nor is it yet effaced. How many among ourselves are unable to stifle their zeal for our honor as a people, who never spent a thought on the institutions and improvements which ennoble a community, and whose character and examples degrade and taint their country, as far as their influence extends.

I have now given you the chief elements of national honor; and a people cherishing these can hardly be compelled to resort to war.

SUMMARY.

The anniversary of Washington's birth is celebrated to-day. The Artillery Corps, under Gen. Morton, paraded and fired a salute at 12 o'clock. The French brig of war *d'Assas*, lying off the Battery, is dressed out in her colors, and also fired a feerdal salute of 24 guns, in honor of the occasion.

After the salute from the Brig which was returned by loud Hurrahs from the shore, the Commandant and his officers landed and were received at the pier by the Mayor of the city and General Morton, and escorted amid cheer to the residence of Gen. Morton, where a collation was prepared.

The 23d February falling on Sunday, was celebrated yesterday, in various becoming ways—but in no one more tastefully or with more enthusiasm, than at the ball given by the 3d Regiment,

New York State Artillery, under the command of Col. George P. Morris, at Niblo's. The large saloon was festooned with drapery, so as to resemble a vast tent, under the canopy of which, flaunting banners, and burnished arms, and bright lights, and brighter eyes, were glancing,

A thousand hearts beat happily,—and when
Music arose with its voluptuous swell,
Soft eyes looked love, to eyes which spake again,
And all went merry as a marriage bell.

Among the guests of the occasion we were glad to perceive the officers of the French brig of war *d'Assas*, who, accompanied by the Mayor and General Morton, were received with every mark of kindness and consideration. Altogether, the scene was a very brilliant one, and the dance was kept up with spirit till a late, or rather early, hour.

OLD IRONSIDES.—We are happy, says the Boston Atlas, to hear that the veteran Commodore Rodgers is to take command of the frigate Constitution after her arrival at New York, and will proceed in her to the Mediterranean. On his arrival there he will assume the command of the squadron.

The Philadelphia Gazette states that orders have been received for the immediate completion of the two vessels of war on the stocks at the Navy Yard.

SMALL NOTES CIRCULATION.—The bill, as reported by the committee, and as it has finally passed the senate, prohibits the circulation of these notes after a period of eighteen months—six months for each denomination under \$5.

The proposed amendment of the constitution, restoring the salt and auction duties to the general fund, whenever the entire amount of the canal debt shall be collected and invested, passed the house yesterday by the strong constitutional vote of 91 to 26. Having previously passed the Senate, it now only wants the Governor's signature to become a law.

MELANCHOLY ACCIDENT.—Death of Lieut. W. S. Chandler, of the U. S. Army.—On the 25th ult. Lieutenant Walter S. Chandler, an estimable and intelligent officer in the U. S. Army, left Mobile in a small boat, with a Sergeant and four soldiers, for Fort Morgan, where he was stationed. The boat was seized on a gale, about two miles below the Choctow Point light house, and all on board perished, except one soldier who clung to the bottom of the boat, and was taken off the following morning by Capt. Prior, of the steamboat Watchman, from New Orleans. The name of the soldier saved is Clarke. Those in the boat was Sergeant Grant, and soldiers Wise, Finn and Stevens.

Clarke states that Lieut. Chandler, as each man relaxed his hold and was swept off from the boat by the current, swam immediately to his relief, and with encouraging words and actions, endeavored to sustain and save him. As Lieut. Chandler was a tall and athletic young man, and an expert swimmer, it is more than probable that he would have escaped with his life, had not his strength been exhausted by these humane efforts. It is also said by Clarke, that Lieut. Chandler, who was the last to sink, a few moments before he descended in the struggle of death, told Clarke, to exert every nerve to preserve his own life—that he himself could not endure it much longer; but if they must die they would die like men. These were his last words, and soon after they were uttered, his lips were forever sealed. Lieut. Chandler was a native of the district of Columbia, and graduated at West Point in 1830.

We learn, (says the Mobile Register) that Lieut. Chandler was accompanied by a young gentleman, a stranger in the city, whose name we have been unable to ascertain, who was also drowned.—[Charleston Courier.]

SAVANNAH, Feb. 10.—A rare sight.—We were presented yesterday with a lump of ice taken

from a hogsheed in the city, which, was by measurement, three and a quarter inches thick.—Our readers may be assured we had no use for it, while the mercury in our Thermometer was playing about the freezing point. We learn that on Sunday last, the Canal near the River was almost thick enough to admit of Skating.—We fear the indigent have suffered during this severe weather.

SHIPWRECK WITH LOSS OF LIFE.—We regret to record the shipwreck of the splendid and valuable ship Sovereign, Capt. C. Griewold, on Squam Beach, about 40 miles south of Sandy Hook.—The Sovereign sailed on the 8th of January from Portsmouth, with a full and valuable cargo, and about thirty passengers. She made the back side of Long Island on Monday, and on Tuesday morning about 4 o'clock, struck on Squam Beach, where she now lies—the weather very severe, cold and rainy. Mr. Cook, a respectable inhabitant residing on the spot, left yesterday, (Thursday) morning, and reached here via Amboy last evening. He states that all the crew and passengers, about fifty in number, were not able to land until Wednesday night. One of the cabin passengers, name not known, a young man without family, in attempting to swim on shore, drowned in the surf. The ship had bilged and was full of water. The masts were cut away, and the sails, rigging and spars were on the Beach in a mass nearly destroyed. The ship is lost.—Her cargo, which is very valuable, will, should the weather prove favorable, be saved, in a very damaged state. Should a storm come on, the whole will be lost. The owners have no manifest of her cargo, but the freight lost is over eight hundred pounds. The vessel and cargo will be worth at least two hundred thousand dollars, which being principally insured, will fall heavily on Wall street. There is a large amount of gold on board, which no doubt will be saved.

It will be remembered that Brevet Brig. Gen. D. L. CLINCH was assigned, a few months since, to the command of the United States troops in Florida, and six companies of infantry and artillery were placed under his orders. This force, it was thought, would be sufficient to preserve the peace of the Territory, and enforce the stipulations of the treaty entered into by the Seminole Indians, for their removal west of the Mississippi.

Recent demonstration on the part of those Indians, aided by the renegade negroes, who find a refuge and shelter among them, have induced an augmentation of the force previously assembled in Florida. Four companies of artillery, under the command of Lieut. Col. FANNING, have just been ordered from Fort Monroe to Fort King, and, if it should be found necessary, General CLINCH is authorized to order the company of infantry now stationed at Key West.

This force, consisting of ten or eleven companies, will be ample, and must convince the Indians that the execution of the treaty on their part will be required of them.—[Army and Navy Chronicle.]

BATTLE BETWEEN THE INDIANS AND POLES.—It appears from a letter received this week from a respectable Polish emigrant, at New Orleans, that about 20 of his countrymen, not meeting with any means of support, and totally without funds, departed from New Orleans for Mexico, by land, through the Texas country. Having no guide, nor knowledge of the wilderness route, they became utterly lost, when they were fiercely attacked by a numerous body of Indians. The Poles had but few guns, but maintained a long and bloody conflict, until they had killed a large number of their enemy. They, however, suffered severely, having had two of their number slain, and the remainder wounded. Only one, Pole was able to reach New Orleans.—[Louisville Journal.]

Theatre turned into a Church.—For several years past the proprietors of the Tremont Theatre at Boston have been lessees of the Federal Street Theatre, at an annual rent of \$3,500! These lessees have recently under let the building to several gentlemen at \$1500, on condition that they shall not use it as a Theatre, but as a Church.—[Journal of Commerce.]

CHARLESTON, FEB. 16.—Rail Road Accident.—We regret to learn that on Sunday night last, an accident of a serious nature occurred on the Rail Road. We understand, from an official source, that the *Horry*, with a train of freight Cars, with Cotton, on her way down, having met with an impediment, from breaking a joint, which could not be repaired until morning, the Engineer Mr. John McCandles, went to sleep in the rear Car, while on the main line of Road. The *Columbia*, with another train from above, at a later hour, came down after her, and from there being no light on the train of the *Horry*, they were unable to distinguish her, until the two trains came into collision, breaking four freight cars and throwing the whole load on Mr. McCandles, who was killed by the weight falling upon him, and the *Columbia* considerably injured. About 50 feet of the Road was also broken, which was repaired yesterday, and the Cars will pass up and down this day.

The accident occurred solely from not having fires kindled on both ends of the train of the *Horry*, agreeably to directions.—[Courier.]

FROM CANTON.—Letters to 1st October have been received in this city, which render very doubtful, the account published yesterday on the authority of Cape of Good Hope papers, about the British frigate's having forced the Chinese batteries and thus compelled a restoration of the trade. Lord Napier instead of triumphing over the Chinese is said to have left Canton for Whampoo on 21st September, where he was required by the Chinese authorities to reside.—After that, on 1st October, the trade with the English was re-established.

[From the Journal of Commerce.]

LATEST FROM SMYRNA AND EGYPT.—By an arrival at Boston we have received Smyrna papers to Dec. 13th.

The English squadron still remained at Vourla. The *Talavera*, *Tribune*, and *Columbine*, entered Smyrna roads on Dec. 7th.

The news of the change in the British Ministry, which reached Constantinople on the 10th, and Smyrna on the 12th, created a strong sensation.

News from Alexandria to the 30th November, announces that the plague was raging there to an alarming extent. On the 28th it invaded the arsenal, where 8000 workmen were assembled.—Five Egyptian vessels of war had the disease on board, and measures were taking to cut off all communication between them and others.

The new steamboat Nile left Alexandria Nov. 26th, it was said to convey Ibrahim Pacha from Tripoli, in Syria, to Alexandria, from whence he would proceed to Cairo, to be present at a Grand Council, after which he would return immediately to Syria. Artillery and munitions of war continued to be sent daily to the latter Province.

The Cholera was reported to have made its appearance at Hedjias and Yemen, in Arabia.

Revolution and Massacre at Para.

Correspondence of the Journal of Commerce.

PARA, JAN. 21.

On the 7th inst. at 3 o'clock A. M. a revolution broke out in this place. The town was assailed by armed country people, who were joined by the regular troops, and after having killed the President, the commander of the troops, the Captain (Ingles) of the port, and a great number of inhabitants both natives and foreigners, they declared new authorities. Since then every thing has been in a gloomy state, and all sort of business at a stand; the greater number of the merchants being still on board the vessels in the port for safety. The new President has issued an order that one-third only of the duties shall be received in paper. This measure has put a stop to the circulation of paper, so that it will be impossible to purchase country produce with that medium.—There is no settled price for any thing, and it will be some days before any thing can be effected. Our market is glutted with American produce. The Orrel arrived on the 4th and is partly discharged. An offer has been made to her consignee, and she will run to Maranham with passengers fleeing from the dangers of this place. The

Fredonian has arrived from Maranham, where she was unable to dispose of her cargo, and the Curlew is daily expected from that place.

P. S. The town is all in arms again. There is some misunderstanding between the two first authorities.

LATE & IMPORTANT FROM FRANCE.

The town was thrown into commotion last evening by the arrival from Brest of a French brig of war in a short passage. She brings despatches for *M. Serrurier*, but is not, as we hear, destined to take him home. The Brig *Le Dassas* sailed from Brest on the 20th, but brings no papers—having received by Telegraph, orders to prepare for sailing, six hours only, before the messenger with despatches reached her, when she put to sea forthwith.

The Sully, however, from *Havre* is arrived, bringing us *Havre* papers of the 17th ult., and Paris of the 16th. We consider the accounts by this vessel are on the whole pacific, that is—if, as we hope, the decision in the Chamber be delayed, till after the Senate's proceedings on the message should reach France.

One thing is certain, Mr. Livingston had not left Paris, and had intimated to the French government that he would not take upon himself the responsibility of doing so, unless positively ordered away by it. In this we think Mr. L. has made a just and patriotic sacrifice of personal feeling, to the interest of the country and the duties of his station.

The decision to recall *M. Serurier* was a sudden one, and wholly unexpected alike to Mr. Livingston and the Americans generally, in Paris. There is no ground for the surmise of the *Tribune* that *M. Serurier* is recalled from dissatisfaction with his conduct—that recall was put as we are informed, expressly upon the ground, that "the King could no longer suffer his Minister in the United States to remain exposed to hear such language as that contained in the Message of the President of the United States."

We have every reason to believe that *M. Serurier*, so far from diminishing the effect of our claims upon France by representing that they might be liquidated for half the sum stipulated in the treaty, has urgently recommended the ratification of that treaty.

Extract of a letter from Paris, 15th Jan., 1835

Mr. Livingston has decided, since yesterday, before asking for his passports to request an explanation from the Minister of Foreign Affairs here, upon the communication made to him—that is—whether it was the intention of the Government here to leave his taking his passports to his own decision, in which case he will remain until he receives instructions from his own Government, or whether this intention was to request him to take his passports, in which case he should ask for them. Our opinion is now, under these circumstances, that he will remain at his station for the present.

The law for granting the 25 millions for the American indemnity, has been proposed to the Chamber of Deputies to-day by the Minister of Finance, with the reserve that this money should be deposited in the *Caisse de Consignation* until it should be ascertained that no reprisals had been made by the authority of the American Government upon French property. This was immediately sent to a Committee to report thereon.

Extract of a letter from an American in Paris, of the 15th January.

"From all I have been able to hear to-day, it would appear that the Chamber of Deputies is

more favorably inclined to vote the indemnity than it was. The public opinion is decidedly against it. Unhappily it will be made a party question in the House, to defeat the present Ministry. Dupin and his party will make a desperate struggle to obtain admission to power by opposing the proposition, without any regard to its merits; in this the *Coté gauche* will aid and assist, and it may be that the government will be left in a minority. My opinion is, however, that this will not happen."

By the Independence, we have our London papers to the 26th January, inclusive, with Paris dates of the 24th, inclusive.

Our Treaty had not been touched in the Chamber—but a serious and now overt claim had been made by the Emperor of Russia, as King of Poland, for a debt due him, acknowledged to be at least 20,000,000*fr.*, which it is feared will be greatly in our way. The *Paris Constitutionnel* of 23d asserts that, though the Ministers will leave no means untied to carry the bill for the payment of the 25,000,000*fr.*, they do not intend to make its adoption a Cabinet question, and that, should the Chamber of Deputies resolve to reject that measure, they will still retain their places. The same journal intimates that the supporters of Ministers need not be deterred from voting against the bill by the fear of endangering the existence of the present Administration.

The London Times of the 26th publishes a letter from its Paris correspondent of the 24th, of which the following is an extract:

The claim advanced by the Emperor of Russia, as King of Poland, in the name of the Grand Duchy of Warsaw, against the present Government of France, in virtue of a convention for the reciprocal adjustment of claims and counter claims between the two countries, concluded on the 27th of September, 1816, is likely to become a stumbling block in the way of the settlement of the American question, from the fear that is entertained lest the recognition of the one debt should be regarded as a precedent for the acknowledgment of the other.

M. Dupin, the President of the Chamber of Deputies, has been heard within these few days to express himself very strongly against the ratification of the Washington treaty by the Chamber; and the idea seems to gain ground among the members generally that a second refusal may be hazarded without any serious risk of a rupture with the Government of the United States. However erroneous this view of the matter may be, after the attitude assumed by the American President in his late message to Congress, the fact of its being so generally entertained may possibly lead to very inconvenient results.

On a question of this nature the opposition is likely to gain, as formerly, a considerable accession of votes from among the habitual adherents of Ministers. In the mean time, the Carlists and the Republicans are equally zealous in their endeavors to embroil the affair still further by the suggestion of claims from other quarters, to an indefinite and extravagant amount, which the sanction of the American treaty would call into being. Of all the opposition journals, the *National* declares itself strenuously against the proposed recognition, and, as usual, its arguments are conducted in such a manner as to give expression to the bitterness of its private rancor against the person of the King.

There would on the whole seem less certainty that the action of the Chambers will be decisive in our favor.

The Tories had acquired so much strength in the elections, as to make it doubtful whether the Peel ministry would not be sustained, and almost certain at any rate that *Manners Sutton* would be re-elected Speaker of the House.

MISCELLANY.

CLAUDE LORRAIN.—He made it his study to be acquainted with the varying aspects of nature; the changing hues of the sky in sunshine or in storm; the shifting colors of a field of grass as the wind sweeps over and dishevels it; the light and shade of the forest, nay, the hues of the individual trees which compose it; and the fleeting beauty of the evening clouds, when

"They turn their silvery linings on the night," were all matters to him of curious thought.—[Major's Cabinet Gallery.]

A petition was presented to the Chamber of Deputies on the 10th of January, from the ship-owners of Marseilles, Nantes, and Havre, praying that the commercial navy (or merchant service) be separated from that of the King—in short, and in other words, that impressment be prohibited for the future. Mr. Tupinier, (who is Director of the Harbors of France,) opposed the petition, on the ground of the inexpediency of altering the present system "at a moment like the present, when France might have to contend with a great maritime Power," (alluding to the point at issue with the United States of America.) Admiral Dupine followed, stating his surprise that the petitioners should have selected "such a time as this" for making such a demand. The petition was, of course, rejected.

We regret to state that the fine steamer *St. Winifrede*, which pried between Marseilles and Naples, has been destroyed by fire. The *Garde National* of Marseilles of the 7th inst. contains the following particulars of this disaster:—"The vessel arrived at Naples on Christmas-day, at half-past 4, and was admitted into port at 5. The passengers landed, but, on account of the solemnity of the day, the disembarkation of their effects was deferred until the following morning, and three men were left on board to guard them. At 8 o'clock a fire broke out in the vessel, and the ships of war in the port towed her into the roads, but she was burnt down to the water's edge. Of 67 ingots of gold or silver which were on board, two only were missing, and it is still hoped they will be recovered. Coupons of Neapolitan rentes, in value from 35,000 to 40,000 ducats, have been lost. The same securities, amounting to from 15,000 to 20,000 ducats, were saved. A packet, containing to the value of 3,000 ducats, was found floating about two miles from the place of the disaster." It is said that many of the lost coupons belonged to the Paris house of Hagerman and Odier.—[Paris paper.]

The Duke of LEUCHTENBERG, the husband of Donna MARIA, now called Prince AUGUSTUS of PORTUGAL, will leave town on Sunday; he will dine at Salisbury the same evening, be at Exeter on Monday, and embark for Lisbon on Tuesday, on board the *Monarch* steam-vessel, prepared for his reception at Falmouth. His departure from England would have taken place earlier, but for the desire he entertained of returning in a proper manner the hospitable and distinguished attentions which have been paid him, and of making himself acquainted with the leading men of a country which he hopes to attach to a still closer union with Portugal, the country of his adoption. The strength of these motives may be judged by the natural impatience the Prince feels to proceed to Lisbon. The impression he has made here on all to whom he has been introduced has been decidedly favorable, both from his amiable manners and the knowledge and just principles which he has displayed on political subjects. This is important, as the known attachment which subsists between him and the Queen, so unusual in Royal marriages, will probably give him great weight and influence in the councils of the Government. The Prince dined on Wednesday with the Duke of WELLINGTON, and yesterday went to Brighton on a visit to the King.—[Times of 16th.]

A FUNNY MAN—Fun is to me what ale was to Boniface. I sleep upon fun—I drink for fun—I live upon fun, hence our dear funny friends just quit me—they do nothing but laugh; they laugh with one when present, and at one when absent—but to me that is the fun—I admit myself fond of practical joking, I don't mean in one's own particular circle; there it is dangerous; people are not always in the same humor; what they think uncommonly good fun one day, they will seriously resent as an insult the next. There's no judging with certainty a man's temper of mind, and it is not easy to ascertain how much melted butter a gentleman would like to have poured into his coat pocket without kicking; I avoid that sort of thing, but on the great scale I confess my addiction. Coming here yesterday evening, I stopped the chaise at the corner of Egham, in order to turn the finger-post at the corner, half round; sent all the people bound for London to Chertsey, all the people destined for Egham to Windsor, and all the people destined for Wind-

sor to London—that's my way. I've wipped off ever knocker in Sloan street three nights running—a hundred and ninety-four, exclusive of shops; and if ever the project of lighting London with smoke should be brought to bear, I flatter myself you will hear of my darkening the whole parish of Pancras, by grinding a gimlet through a gas pipe! These frolics cost something occasionally, but what of that? Every man has his pursuits—I have mine.—[Theodory Hook.]

SWISS CONFEDERATION.—It is affirmed that the Note of the Germanic Diet will contain categorical demands, 1st, that the Confederation shall force the Cantons to submit themselves to the resolutions of the Helvetic Diet, and that it shall not be allowable for any minority to make a declaration, or protest of reserve; 2d, that the Helvetic Diet shall watch over the execution of the resolutions of the Vorort; 3d, that the Confederation shall pronounce a formal censure as to the affair of the workmen of Berne.—[Republican Suisse.]

The opening of the new year has been marked by the removal of the Vorort to Berne, to the great joy of the inhabitants of Zurich; the archives of the Diet have also been removed thither. The Burgomaster Hirzel will rejoice at being at length delivered from the annoyance he experienced from the affairs of the Diet.—[Svabian Mercury.]

GERMANY.—Two Congresses are preparing for the month of April next. The one to consist merely of Ministers of the Germanic States, is to assemble at Vienna; the other, of the great crowned heads of Europe, will be held at Berlin.

The meeting at Vienna would have for its special object, to examine into the situation of Germany, and respecting the results obtained from the repressive institutions that the alarmed Holy Alliance has imposed upon the Germanic people. Afterwards it will be endeavored to counterbalance the immense advantages which Prussia derives from her system of customs; and Austria will endeavor to seize again upon that influence over the destinies of the Germanic Constitution, which is escaping from her hands. These are said to be the reasons why there is to be, once more, a conference at Vienna.

The object of the Congress at Berlin, will, it is said, be of greater importance—namely, to examine into the state of Europe. This examination could not be completely gone into at the time of the late visit of the Czar at Berlin. The Tory Administration was not constituted at that period.—[Messager des Chambres.]

BERLIN, Dec. 26.—The *Times* gives a letter from Alexandria, which says that Marshal Marmont had arrived there on a mission from the Russian Court, to effect a reconciliation between Mehemet Ali and the Porte, and that it is possible that the French Marshal may take the command of the Egyptian army. A correspondent of the *Allgemeine Zeitung* writes to the same effect from Constantinople. There appears to be a great error here. In the first place, it is not probable that Marshal Marmont has received any commission from Russia. No one can possibly affirm that he has not; but then, even were this really so, it might be difficult to explain how the Marshal could appear in Alexandria at the same time as mediator, and with a view of commander-in-chief the army of Mehemet, who is the adversary of the Porte. If he really wished to offer his services to the Pasha, it must certainly be in the view of being useful to him either in the field, or by the organization of his army in time of peace. But neither would be compatible with the part of a mediator, and it would be very strange for the Marshal to perform it in such a manner; for if he went to Alexandria as a messenger of peace, it would be doing the Porte an ill service if he should at the same time offer his talents and experience to the Pasha, and suggest to him the means of more effectually making war on the Sultan either now or at some future time. This would by no means harmonize with the prudent conduct of the Russian Cabinet. The able journal in question seems on this occasion to show but little tact, and by no means to be acquainted with the views of the late English Cabinet respecting the

affairs of the East, in which views, so far as is known here, the Duke of Wellington participates. The East no longer affords any reason for apprehension respecting the preservation of general peace in Europe; and if some misunderstandingings still prevail, if there is still some want of cordiality between the Porte and Mehemet Ali, this will soon be remedied by the joint efforts of all the Cabinets.—[Allgemeine Zeitung, Jan. 4.]

Coldridge made prodigious efforts to relieve himself from the thralldom of opium-eating, and he went so far at one time in Bristol, to my knowledge, as to hire a man for the express purpose, and armed with the power, of resolutely interposing between himself and the door of any druggist's shop.—[De Quincey in *Tait's Magazine*.]

NEW YEAR'S DAY IN PARIS.—The usual quantities and variety of *bons bons* are displayed in the shops, and crowds of idlers lounge about them at all hours of the day and night. It is a most critical day for all the *bons Parisiens* this *annee* *de l'an*. Many a reluctant giver is forced to great straits and savings for the last month or two of the year, in order to be able to give what is expected of him at every house he is in the habit of frequenting. Even ladies of the higher and highest classes of society expect or accept a present of some kind from each of their acquaintances. A *nosegay* (they are made very elegant for the occasion) is the smallest offering where money is not to be given, and nosegays on that day are not to be had for less than four or five francs apiece. It is calculated that the sums laid out in Paris only in *bons* and in nosegays on New Year's day amount altogether to somewhere about five millions of francs (£200,000.) Let your political economists decide whether this money is lost to the community, or promotes its prosperity.

PREPARING DEATH FROM COLD.—The long continued action of snow or cold on the animal frame is a painful death, and that of the most pleasing kind. At first a degree of languor is felt; to this succeeds an irremediable drowsiness, which if indulged in, is surely fatal—the sufferer passing, without motion or pain, from the slumber of life into the cold sleep of death, leaving the countenance as calm and placid as if the pulse of existence still vibrated through the frame, while voluntary muscular power was quiescent under the delightful enjoyment of profound repose. Those who feel the pleasurable moments which intervene between the state of consciousness and unconsciousness on approaching sleep, when indistinct visions, and indescribable emotions are experienced by the *guileless*, may readily conceive the exquisite mode in which the terrific influence of frost softens the iron grasp of the grim tyrant.—[Martin's History of the British Colonies.]

HOW TO PRESERVE GAME.—Where the grouse are found in the hollows, and the soil is boggy, and consequently fall into puddles or swampy ground when shot, they should be carefully wiped dry with a towel or handkerchief; this applies to all kinds of birds, but more especially to snipe.—Half of the snipe that are killed fall into water, and in this state are poked into a game bag, and in a few hours become a mass of carrion. The delicate long-bill should be swung backwards and forwards until the moisture is shaken off, and then wiped quite dry, and hung by the legs to the strap around the attendant's waist. On arriving at home they should be laid in a warm dry place, and if any of these dainty birds be intended for a present, and to be sent to any distance, the following recipe will be found an excellent preservative; this wrinkle was afforded me by my excellent friend and gnostic sportsman, Major B. When your snipe are dry, imbricate a pepper-corn in each eye, one in the bill, and another in the vent, and sprinkle them under the feathers with fine white pepper; they should be rolled up in netles or fine paper, separately, and they will keep, though closely packed, for a long time.—Every bird of game, in fact, is the better for this precaution, and the satisfaction that must accrue to the receiver, as well as the donor, must pay the additional pains bestowed upon the preservation of the gift. Hares even may be spiced in this way.—[The Sportsman.]

AMERICAN LITERATURE.—The scornful question in the *Quarterly*, "Who reads an American book?" drew forth the ire of every reviewer and newspaper in the United States. A more sensible question would have been, "Who reads an American book, in America?" The good people of the United States are the greatest readers (of every thing except their own books) in the world; they "eat paper, as it were, and drink ink." A novel of Bulwer's is republished in three days after it arrives in the *Swift* packet from Liverpool; and in three weeks it is read in every settlement and cabin in Louisiana, and criticised in every one of the thousand or two newspapers between the Atlantic and Mississippi. And from Bulwer downwards,—the most still-born or unheard-of romance, poem, or what not, comes forth as instantly, in a cheap edition, and is bought up, and solemnly nounced and praised in every corner of that immense country. Nothing is more common in England than to hear small authors talking of their "American reputation;" it consoles them for their neglect at home.—They see their names in the *Chillicothe Banner*, or the *Kentucky Champion*, with four columns of extract, and an editorial critique—and say to themselves, like Byron, when he heard that a volume of his poems had been seen in Albany, "This is fame!" There are American books, however, which the Americans read—those which have been praised in England. Fenimore Cooper's admirable novels; Washington Irving's works; Miss Sedgwick's womanly and clever tales; and Bryant's poems, (edited by Irving, and published in London,) are all very popular—since stamped with English approbation. Even the great Channing, though always revered for his piety and eloquence by the immediate circle of his sect, was never generally known and admired in America, as the most powerful writer of his time, until the echo came back from England. Then, indeed, his essays were reprinted, and his works collected into a volume, and all the newspapers mentioned the fact that they "had been favorably noticed in England." Words could convey no more.—[Athenæum.]

A medal has been struck at the Hague in commemoration of the choice of His Majesty the King of the Netherlands as arbitrator of the territorial differences between England and North America. The medal represents the bust of the King, and the inscription (in Latin) "William I., King of the Netherlands, Grand Duke of Luxembourg;" on the reverse, with an oak wreath, "Chosen by the English and North Americans as arbitrator of their territorial differences, 1829." [Dutch paper.]

It appears that the present constituency of Scotland amounts to 72,985—viz., 36,823 for counties, and 36,162 for burghs.

The attention of the public is at this moment attracted to the construction of a steamboat, by M. Segulier, jun., at his yard in the Rue des Magasins, Faubourg Poissonnière, upon the plan of M. Burdon, in America, and which is employed on all the rivers of that country. According to this principle, instead of the bottom of the boat being in the water, it is floated upon two cylinders, one on each side, the diameters of which are greatest in the middle, and tapering gradually towards each end till they terminate in a point. Upon these cylinders, lying parallel to each other, is placed the deck, or body of the boat. The steam engine is fixed in the middle, having but one paddle, which works between the two cylinders, the points of which are always above the surface of the water—the entire weight of the vessel is so calculated that the water-mark never rises above one-half of the diameter at the widest part or centre of the cylinders, so that the friction of the water is rendered as trifling as possible, and the vessel moves with an almost wonderful degree of velocity. The boat building by M. Segulier is, we believe, only intended as a model; the cylinders are 100 feet long, and their greatest diameter 3 feet. The engine is to be of eight horse-power, and the width of the paddle is 6 feet. It is calculated to carry between thirty and forty passengers. We understand that if, on trial, the experiment is found to succeed, a company will have a certain number of boats built in the spring, upon the

same construction, to ply upon the Seine between Paris and Rouen. There are vessels upon this construction on some of the rivers of America of sufficient magnitude to convey 600 and even 800 passengers.

TASTE OF THE GYPSIES.—The upper part of the wood (in a picture of Gainsborough's) is tenanted by a horde of gypsies; their asses are grazing among the glades; the party-colored coverings of their wandering camp are visible among the shafts of the trees, and a thin and scarcely distinguished smoke curls slowly away amid the boughs of the forest. This is one of the painter's marks to indicate great and natural beauty of scene; he knew that the taste of that roving people was, as far as regarded a feeling for the charms of external nature, essentially poetic. If a lovely spot lies within their line of march, there they will fix their tents and make their abode for the night; were landscape painters to follow their footsteps, and paint the scenes in which they establish themselves—they would not fail to produce a series of fine poetic compositions.—[Major's Cabinet Gallery.]

GAUCHOS OF THE PAMPAS.—The gaucha does every thing with his horse, and seems to be a mere nobody without him. He is forever on horseback, which may in some degree account for these animals being exempt from drawing their carts. If they want any thing from the most trifling distance, they mount their horses for it: they sow their grain on horseback, they carry their dead to the burying ground on horseback, and they have been even known to go begging on horseback. It may be readily imagined from this, that they are good horsemen, and really deserve the good character they bear in this particular; but they are by no means so careful of their animals as might also be supposed. The Arab is proud of his horse, but the gaucha of Monte Video has no such feeling. When he stops at any resting place on a journey, he ties his fore legs together and lets him shift for himself as well as he can, knowing that in this condition he can always catch him by means of his "merriag lasso." The gaucha wraps himself in his poncho, and lays himself on the ground with his saddle for a pillow. He is regardless of laying in a store of provision, for with his lasso he can at any time take a bullock and satisfy himself with his flesh. He cares not for bread—animal food is all he requires. I have been informed from high authority, that, in order to cook the bullock after he has been killed, a part of the animal is used as fuel, so great is the deficiency of this article in the extensive plains called Pampas. The dress of the gaucha is becoming. His complexion is a swarthy brown, his hair is generally black and long, sometimes platted and surmounted by a small-brimmed, neat-looking hat. His shoulders and body are concealed by his poncho, which hangs gracefully around him, and by the variety and mixture of its colors, in which bright scarlet and yellow are sometimes particularly conspicuous, adds much to its general effect. It descends only low enough to leave the fringe of his white trousers conspicuous over his feet, which frequently are uncovered either with shoe or stocking. Thus attired he makes an odd appearance on his horse, sometimes with his *Dalcinea* behind him, a favorite madrigal with his guitar in the true spirit of chivalry and romance.—[Voyage of the Chanticleer.]

SOCIETY AT CALCUTTA.—People do not come here to live, and enjoy life; they come—and this is the case in all states of society here—in order to gain something to enjoy life elsewhere. There is no such a thing as a man of leisure at Calcutta. The Governor-General has the most to do; next to him the Chief Justice; and, after these, the Advocate-General, and so on. It is almost wholly among this class of men that some are to be found whose taste for study can enable them to steal a few moments of leisure amid the duties of their station. All who are not men of highly-gifted intellect soon lose their energy, and yield to disgraceful indolence. Immediately below the high ranks you find the most vulgar and common rabble; yet, for a truly small number of Europeans, there are journals without number, both political and literary; there are learned societies, or societies calling themselves such, of every de-

nomination—craniological, phrenological, horticultural, literary, medical, Wetherian, and I know not how many besides—whose members scarcely yield either in science or appetite to similar institutions in the United States.—[Jacquesmont's Journey to India.]

The *ex-ducant* King of Sweden has just published a pamphlet in French, entitled "The Thirteenth of March, or Essential Facts of the Revolution of 1809; by Colonel Gustafson."—"The author," says a *Hamburg* paper, which gives an account of the pamphlet, is still an absolute Legitimist. He cannot conceive how, under any circumstances, Governments can capitulate with Revolutionists. Having inherited from Gustavus III. an implacable hatred of the French Revolution, as well as a profound aversion for the liberties enjoyed by the States-General, he saw in Bonaparte nothing but a child of that revolution, an upstart, who set up the pretension of taking rank with kings, and even of imposing laws upon them. Col. Gustafson cannot conceive how a King could deign to treat with Napoleon. The old King of England and young King of Sweden, says the *ex-King*, constantly and energetically opposed the omnipotence of Napoleon. The writer confesses, however, that the King of Sweden in a fit of ill humor caused the arrest of Sir John Moore, an English General, who was charged with an important negotiation, but who did not proceed with sufficient dispatch. This was neither diplomatic nor conformable to the law of nations, and he regrets of having taken this step; but this was not the only act that ruined him—it was the successive abandonment of all his Allies, caused by his attachment to legitimacy, and his hatred to Bonaparte. The *ex-King* proves, what by-the-by was well known, that his abdication was not voluntary. He gives an account of the violence exercised against him, how he was arrested in his palace, and how, after having attempted to escape by a secret stair case, he had thrown the keys in the face of Gen. Aldercreutz. Comparing the revolutions of other countries with that of which his *ex-ducant* Majesty was a victim, he concludes his pamphlet by the following prophecy:—"If Divine Providence does not interpose in a direct manner, we shall soon see treason, perjury, and usurpation take the places of loyalty, fidelity, and legitimacy."

A LARGE SPIDER.—At the end of last week, as some sawyers at the Molyneux logwood mill, Prestwich, Lancashire, were engaged in rasping a small block of logwood, they came to a hole in it, from which a large spider crawled. It was at first supposed to be a tarantula spider and its extraordinary dimensions somewhat alarmed the workmen, who were little prepared to meet with so unwelcome a visitor, but this opinion was soon borne out by that of the scientific gentleman who have examined it. Its body is about two inches and a half long, and one thick. Its color dark brown: has ten legs of great length, and eight eyes, the nippers are black, horny, and sharp, but not serrated; they were hardly discernible until a piece of quill was inserted, and then they were found to contain a small house fly, which it must have caught after its liberation. There are no antennæ visible. The body is covered partly with long red hair. Its weight is half an ounce within a few grains. It will be evident from the description that it little resembles the tarantula, which is besides seldom found but in Italy (Apulia), Cyprus, Barbary, and occasionally in the East Indies. Logwood is brought almost exclusively from Campeachy and the West Indies. It is probably the great American Spider spoken of by Buffon, with the description of which it very nearly corresponds. The hole which the spider occupied is about six inches and a half in length and rather more than two in diameter, and in the very heart of the tree. The tree from which the block was sawed was not a large one, and is supposed to be under twenty years' growth. It is conjectured that an egg from which this spider has sprung was deposited in some little hole of the tree when a sapling, and was thus closed up in his cell for so long a period. Since its release it has become very torpid, and it appears doubtful whether it will live. It is to be placed in the Museum of the Natural Society at Manchester.

RAILROAD AND CANAL MAP.
T HIS long promised Map is now ready for those who wish it. Its size is 24 by 40 inches. It is put up in a convenient pocket form, in morocco cover, and accompanied by over 70 pages of letter press, giving a concise description of, or reference to, each Road and Canal delineated on the Map. It will also be put up in *Marble Paper* covers, so as to be forwarded by mail to any part of the country; the postage of which, cannot exceed 44, and probably not 35 cents, out of any part of the country.
 Published at 35 Wall street, N. Y., by
 D. K. MINOR.

MECHANICS' MAGAZINE, Nos. 1 and 2 of **VOLUME 5**, FOR JANUARY AND FEBRUARY, 1835.—The two first numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal to any other of the kind published.
 Bound or stitched volumes may be had single, or in complete sets, at the office No. 35 Wall street, of
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AGENTS FOR NEW PUBLICATIONS.
HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications: The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance. The American Railroad Journal, Weekly, at \$3.00 per annum. The Mechanics' Magazine, two volumes a year, at \$2.00 per annum. The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number. The Family Magazine, 416 pages a year, at \$1.50 in advance. The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, now in the 5th volume, bound volumes \$1.25. The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance. The Rochester Gem, at \$1.50 in advance. All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 10, 1834. H. G. W.

TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of *Duffee, May & Co.* offer to supply Rope of any required length (with-out splices) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jarvis, Eng. M. & H. B. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania. Hudson, Columbia county, New York, January 29, 1835.

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. **ERASTUS CORNING & CO.**, Albany, or to **THOMAS TURNER**, at the Factory, Troy, N. Y. sept. 12-1 y

SUPERIOR GARDEN AND AGRICULTURAL SEEDS.

The Subscriber has now on hand a full supply of Garden and Field Seeds, growth of 1834; among which are all the finest cabbages, cauliflower, broccolis, radishes, peas, &c., that are cultivated in England, France, and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store, I warrant genuine and fresh.

Also, skinless oats, potatoe oats, 44 lb. weight to the bushel, perennial rye grass, white clover, lucerne or French clover, orchard grass, Herd's grass, white mulberry, and yellow locust seeds, spring tares or vetches, genuine mangel wutzel, and ruta baga, and field turnip seeds, well worth the attention of farmers.

Canary, Hemp, Rape and other bird seeds; wholesale dealers supplied on accommodating terms. Price lists by the pound and bushel furnished on application, as also catalogues of whole collection.

The flower seed department embraces the choicest variety to be found in this country, in which are included choice double Dahlia seed, carnation and choice Pinks, German and China Asters, splendid double balsams, with an addition of several new varieties, accompanied with a printed direction for culture and management.

Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money.

W. THORNBURN.
 247 N. Market st. (opposite Post Office.)
 * * Mr. Thornburn is also Agent, and will at all times receive subscriptions, for the New York Farmer and American Gardener's Magazine; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. Minor. F—feb 11

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-17 feb 14

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 18, 1835. A29 C RM & F

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent), are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by 1. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; B. Grand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. L12sam H. BURDEN.

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease, their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 30, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 35, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 45, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 14 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 35, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 35, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbor of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for drying the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggon, could be made per annum.

For terms, apply to
THOMAS ECKLEY, Treas. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia. Boston, Dec. 20, 1834.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bloeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25 C

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, **AXLES** furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, **CAR SPRINGS.**

Also, **Flange Tires** turned complete.

J. B. ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

95 tons of 1 inch by 1 inch,	Flat Bars in lengths of
300 do. 1 1/2 do. 1 1/2 do.	14 to 16 feet, counter sunk
40 do. 1 1/2 do. 1 1/2 do.	holes, ends cut at an angle
300 do. 2 do. 2 do.	of 45 degrees, with appling
300 do. 2 1/2 do. 2 1/2 do.	plates and nails to suit.

3250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 32, 34, 36, and 38 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to state Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. dtlmcw,

SURVEYOR'S INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 134 Water street, corner of Maiden lane. J31 C

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principle of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1834.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a leveling telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLE, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully commend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

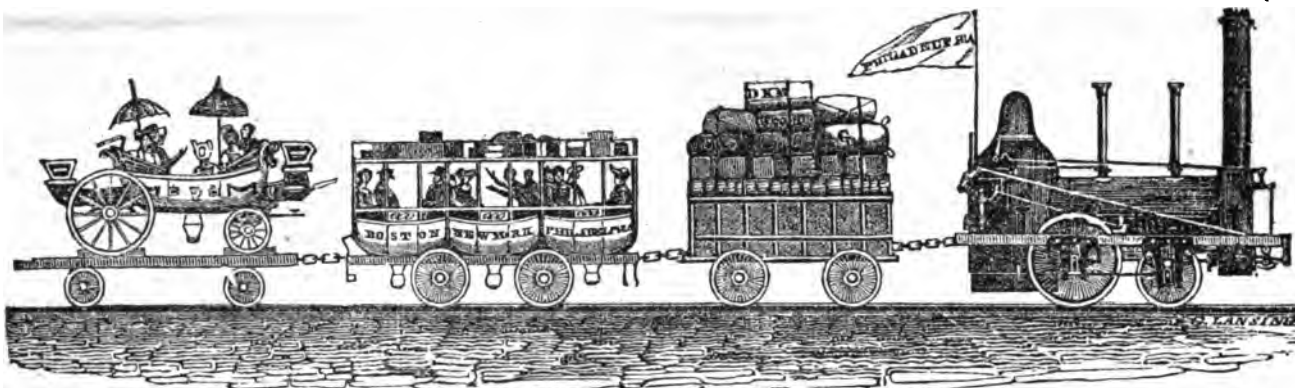
Germanstown, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

ml 1 y Germant. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, MARCH 7, 1835.

[VOLUME IV.—No. 9.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MARCH 7, 1835.

We have this week devoted more than our usual space to local, or our own State works. We shall give early attention to several reports relative to other works, now on our table.

We ask attention to the article in this number from the Oswego Palladium, relative to a ship canal, and the communication with the Canadas—it will be found of interest.

Also to the article from "Cincinnatus," on page 138, relative to the Black River Canal, State appropriations, &c.

The Editor of the Railroad Journal presents his compliments to the merchants of New-York, and requests them to furnish him with a statement of the amount of merchandize, or the number of boxes, sold to merchants and others residing southwest, and beyond Pittsburgh and Lake Erie—which have found their way through other States, but would probably have passed through our own State, if a convenient and expeditious mode of conveyance was in operation. The object of the above request is to show the importance of an additional and more expeditious mode of conveyance through the State of New-York—and the high interest our merchants have in an early construction of the Erie Railroad, and of its ultimate connexion with the railroad from Nashville to New-Orleans.

We ask attention to the subject of our Western trade, and the importance of the adoption of such measures as will insure the early construction of the New-York and Erie Railroad—and also desire our readers to look at the four great routes from the Atlantic towards Nashville—with a view of determining which ought to be adopted and constructed, to facilitate the intercourse between the Atlantic States and New-Orleans, and the southwest.

We shall endeavor to give in our next number an account of the amount of merchandize sold in this city during the winter months, and requiring a means of conveyance beyond Pittsburgh and Lake Erie, which now finds way to its place of destination either through Pennsylvania, Maryland, or New-Orleans, to the interior of the Western States—and which would, if there was a railroad, pass through our own State, between the closing and opening of our canals.

We ask particular attention to the able and very important speech of Alderman STILLWELL, of the Common Council of New-York, upon the importance of increasing the channels of communication with the West.

We highly approve of the suggestion to establish an "Internal Improvement Department," and hope such a measure may find friends in all parts of the State.

HUDSON AND ONTARIO SHIP CANAL.—We have received, through the politeness of J. E. Bloomfield, Esq., a copy of the report of Mr. E. F. Johnson, who recently surveyed that part of the route between Utica and Oswego. It came too late for this week, but we hope to give some further account of it, and several others which have been received.

QUERY.—What elevation, per mile, may be considered, with locomotive power, equivalent to an additional mile on a level road?

Will some of our railroad friends, who have more leisure than we, please answer the above query?

TRADE OF THE GREAT WEST.—This is a subject in which every citizen of New-York, as well of the State, as the city, has a direct interest. Every owner of the soil, and every practical business man, as well as every day laborer, is, in one way or another, directly benefitted by the transit of produce and merchandize through our territory; and it is therefore the duty of every man to use his best exertions to secure, by all honorable means, the trade of the great West—and we should naturally suppose that every honorable and liberal minded citizen of the State would exert himself to extend, and perfect, such works of internal improvement, as will most effectually secure to our State a transit duty upon the products of the West; and merchandize in return; and to our cities the immense business resulting from such an exchange.

There are few persons, that have not watched closely for fifteen years past, or examined documents with much care, who can appreciate the value of our present works of internal improvement, or estimate with accuracy the rapid increase of business upon those works.

Within our recollection the entire business between the east and west was carried on by teams. The surplus produce was brought down, and the necessities and luxuries of life were taken into the interior, and the far West, by the aid of waggons and sleighs. How, we would ask, could the business of the present day, be conducted by teams? Where would teams be found, and when found, how accommodated on the road? Assuming the tonnage of the Erie canal, for 1834, to be equal to 700,000 tons, it would require 12,963 teams, of six horses each, constantly on the road, to perform the business;—supposing the entire trade to pass from Albany to Buffalo, and each team to take 3 tons at a load, to perform the trip out and in, 600 miles, in 40 days, including Sundays and delays for loading, on an average of 12 miles per day,

for 365 days in the year; and were they to be in one continued column, they would extend, allowing each team 100 feet space, more than 245 miles, and keep in constant use 77,778 horses, besides at least 10,000 supernumeraries to supply losses, &c. This shows the subject in a light more easily comprehended. If we look for a moment at this statement, and estimate the cost of transportation, which could not be put at less than \$2.00 per cwt., or \$40 per ton, for 300 miles, which would amount to *twenty-eight millions* of dollars a year, simply for transporting, we shall appreciate more correctly the value of the present canals, which have been accomplished by the enlightened foresight and liberal policy of our statesmen.

If such, then, are the results of enlightened legislation, and liberal policy—and no one, we apprehend, will deny the fact—or that those residing near the route of these works have been much benefited by them—private property having increased in value *three times* at least the cost of the canals, more than it would have done had the canals never been built—why not continue to *pursue* that policy? It is now satisfactorily ascertained that the income of the Erie Canal will liquidate its debt in a few years, even if the other sources of revenue, pledged to it, were diverted to new works—then why not *pursue* a course of policy which, under the administration of CLINTON, placed New-York at the head of the Union? Why do we see gentlemen residing within the influence of other improvements, constructed entirely by the State, and who have been so much benefited by them, as well in a political as a pecuniary point of view, opposed to all new improvements which do not pass *their* doors? Such a course indicates a contracted and selfish mind—a mind which should never be possessed by men who aspire to be legislators and statesmen. Have we not arrived at our present state of prosperity by our works of internal improvement? Do we not owe to our canal system in a great measure the present highly prosperous condition as a State? If so—and we presume no man will deny it—why not, in a spirit of honorable reciprocity, say to those sections of the state which have not heretofore participated directly in these improvements, we will aid in placing you on equal terms with ourselves, and we will then strive together to improve every avenue of which the country is susceptible, that we may secure the prize for which our neighboring States are now striving. It would seem that, with half an eye, any one might see and appreciate the importance of securing the western trade.

By the annexed map, the prominent routes, or lines of communication with the west and south-west will be seen. NEW-YORK, PENNSYLVANIA, MARYLAND, and VIRGINIA, are competitors. It is often remarked, that "the race is not to the swift." In

this case, however, it will be found that the prize will fall to those who first enter, and *leave the field last*. The battle is to be fought by us, with steamboats on canals, and locomotive power on railroads, against *stationary* power on railroads, with numerous inclined planes.

Those States have the advantage of us both in climate and distance, but New-York can reach the Ohio river with less than one-third the elevation which they must surmount. This will, probably, place us on very nearly equal ground; and success depends almost entirely upon who first obtains the trade.

By way of illustration, and to show how wholly inadequate are our means for transportation, to meet the views and wishes of western merchants, it may be in point to say, that, during the month of February and the first five days of March, inst., more than 350 boxes of dry goods have been put up by one house alone, in this city, amounting in value to more than \$100,000, for merchants in Ohio, Kentucky, Tennessee, and the adjoining States, by the way of Philadelphia and Pittsburg; and they will undoubtedly reach their place of destination long before our Canals are navigable.

If one house, and that one not in Pearl st., has sent this amount of goods to Western merchants during the last 39 days of extreme cold weather, who will pretend to estimate the amount *sent from this city* during the same period? or the amount purchased in Philadelphia, *which would have been purchased in New-York*, if we could also have furnished an easy and cheap mode of transportation direct to Lake Erie, and through Ohio, by Railroad. No one, except intelligent merchants here, and in Philadelphia, would credit the statement. It would appear altogether incredible.

We are informed that merchants come here, but on finding that they can purchase many articles as cheap in Philadelphia, return and purchase there, to avoid the expense and risk of transportation.

We do not envy our neighbors for possessing the facilities which draw from us this trade, nor for improving them; far from it. We give them all praise for their enterprize, and wish them all possible success, which can arise from honorable competition. Yet we cannot, we frankly admit, pass the door of the enterprising house referred to, and see their numerous boxes marked "Ohio," "Ky.," and "Tenn.," without regretting that that noble enthusiasm—that spirit of liberal and prophetic foresight which guided the councils of our State in '16, '17 and '18, and *onward*, until the completion of our *main* canals—should be *entirely* extinct; nor without a more fixed resolve and determination to do all that is possible, with our means, to arouse once more those whose voice and wishes no one will pretend or dare to dispute—the *people*—to a just appreciation of the advantages they possess,

as well as of the prize for which we contend, and the competitors with whom we have to contend.

By a reference to the map it will be seen that railroads are made, making, or in contemplation, from New-York; Philadelphia, Baltimore, and Richmond, Va.—all tending to one point, namely, NEW-ORLEANS; and it is a matter of no small moment to either city, that it should have the termination, or at least the *Atlantic* termination of this *great mail route and thoroughfare*. One or more of these routes will probably connect, at Nashville, with the Nashville and New-Orleans Railroad, which is now under survey, and will, beyond all question, as we are informed by the engineer, be constructed with all possible despatch; and it therefore becomes a matter of vast consequence to the people of this State, that the Legislature of this State should act *wisely, liberally, and promptly*, in the measure now before them—that the New-York and Erie Railroad may become the *eastern* termination of the line. The intermediate parts, in the different states, will be constructed, without difficulty, when it is known where the termination is to be.

That we may better understand the matter, let us suppose that the road from New-Orleans to Nashville, Tennessee, was completed, and also that the Virginia railroad, from Richmond to the mouth of the Kenawha, or to Abingdon, Va., the Baltimore and Ohio Railroad to Wheeling, the Philadelphia Railroad to Pittsburg, and the New-York and Erie Railroad to Lake Erie, *were all completed*; leaving a distance between Nashville and the different terminations something like the following, namely, to Abingdon, Va., about 250 to 300; to the mouth of the Great Kenawha, 400 to 450; to Wheeling, of 500 to 550; to Pittsburg, of about 600; and to the New-York and Erie, of 650 to 700 miles, to complete the chain to New-Orleans. The question naturally arises, which of these routes would be most like to become the *great thoroughfare for travel, trade, and the mail*?—From Richmond the Abingdon route, probably; but when all interests are considered, another route would most likely be selected. In coming to a just conclusion, it is necessary to understand the character of the country through which the different roads must pass; and when the necessary information shall be obtained, the longest and the shortest will most probably be found the most feasible; but, on the Virginia route, should it be completed, the traveller, on his arrival at Richmond, will then be near 400 miles from *the great mart*, as we of New-York consider our city. The northern route will, therefore, probably be considered the most eligible on account of the comparatively level country through which it will pass, from its termination at lake Erie, by the way of Cleveland, Sandusky, the Mad river Railroad, to Dayton, and thence

through a corner of Indiana to Louisville, Ky., and thence to Nashville. Now, we ask, is not this a measure of great promise to our State, and especially to our city. It is a measure which will secure to the State of New-York a transit duty on the removal, as well as her citizens a profit on the sale, of her goods. It will also secure to New-York the main travel and mail to New-Orleans, which is of great interest to her; although it has become the fashion of the day to receive mails from New-Orleans at very long intervals—which proves a serious obstruction to business.

The following very appropriate remarks, and extract from a "Report on the Welland canal," are from the Oswego Palladium of 11th February. The remark that "the New-York canals have as yet felt *absolutely nothing* of the Western trade," is true, almost to the letter; as more than nine-tenths of all the business is from our own State, and yet the canal is not capable, at the busy season, to accommodate the business without great delays and hindrance to business men. Yet with this important fact in full view, "the State should not mingle its funds with a private company, nor have any thing to do with a railroad." So says the gentleman who is accommodated to a T, by canals, living as he does where the Oswego canal connects with the Erie canal.

Trade of the West.—By reference to the Report on the Welland Canal, it will be perceived it is the opinion of the Directors, that on the completion of the ship navigation from Lake Ontario to the Ocean, merchandize from London may be conveyed to Cleveland, Ohio, for ten dollars a ton. That the present cost of transportation from Montreal to Prescott, on the St. Lawrence, a distance of only 130 miles, is from twelve to sixteen dollars a ton.

We suppose the above estimate of the future price of transportation between London and Cleveland, to be not very far from the truth. But suppose it is utterly extravagant, will it not awaken those whose duty it is to guard the interests of the city of New-York, to inquire at least into the possibility of her being almost totally deprived of a participation in the great trade of the West—a trade, the future magnitude of which is so vast that we scarcely yet perceive the falling of the great drops which denote the overcharge of this cloud. The New-York Canals have as yet felt absolutely nothing of the Western trade. Ninety-nine hundredths of the vast amount of property transported on the canals is as yet the produce of our own state, or the demands of its consumption. We ought not to shut our eyes to the fact that the great improvements in Pennsylvania, Maryland, and Virginia, will secure to those States the transportation to and from the middle and southern parts of the great North Western States. If New-York can secure the trade of the northern parts, she will gain enough to satisfy the most ambitious hopes of commercial empire. Let us not then sleep upon our posts while our northern rival is upon the march. It is only by a great navigation corresponding to the works of nature—a navigation which requires no transshipments from the ports of lading, to her own wharves,—that can secure to New-York an equal participation in a trade to which, in

a short period, such extraordinary inducements will be presented to descend the St. Lawrence. Was the British Government ever known to sleep when the interests of British commerce required vigilance? An act of Parliament, or perhaps an order in Council, making a difference of 25 or 50 cents a barrel in favor of flour arriving in Liverpool, or any other British port, from the St. Lawrence, over that arriving from ports of the United States, would at once deprive New-York of almost the whole of the great staple of the West—a mere immunity granted to flour from the St. Lawrence, (such as would violate none of the reciprocities now existing between the two countries,) would accomplish the object. Nay, might not a part of the great internal trade of our own State be withdrawn from her, and the mills of Rochester and Oswego be made directly tributary to British commerce, without the intervention of the Port of New-York. What measure of advantage, then, will the British have over us, when, added to the political accidents alluded to, she will possess a navigation in which the works of art are made to correspond with the grand operations of nature? The period is not distant when a British ship of 300 tons can appear in the harbors of the Genesee and of the Oswego. With this prospect a-head, our citizens are discussing the propriety of making our canals two feet deeper, and some ten or twenty feet wider; and this, too, while it is in the power of the State to construct a navigation by which steamboats may be passed from the lakes to the Hudson, at a much less cost than the proposed enlargement of the canals. Let the canals be enlarged if necessary. It is pretty clear they are hardly now equal to the business of our own State; but the great navigation from the Hudson to the lakes must be made at last, or the Western trade is lost to New York.

We recommend the following passages of the Report to the particular attention of those interested in the navigation of the Lakes:—

"Contracts are entered into for extending the lock at Port Colborne to 125 feet in length—widening the canal from thence to the rock six feet—and cutting a basin for vessels to pass or turn, on the north side of the lock, at the harbor—for deepening the rock excavation at the curve, on the new route, twelve inches—widening the canal from the junction to Port Robinson—making a guard-gate at Port Colborne, and one at the junction—a culvert at Hall Davis's level—and deepening the canal from one foot to eighteen inches, from Campbell's lock to Davis's basin, and the cut from Marlatt's level to lock No. 35 in Thorold—and for extending the west pier at Port Dalhousie in a line with the east.

"Also for deepening and widening the feeder from the junction to the curve, and cutting basins every half mile for the passage of steamboats—making a culvert at Broad Creek, and extending the Berm bank from thence to Cranberry Creek—all of which are now in a rapid state of progress.

"To effect these objects, great sacrifices were indispensable. The canal had to be closed as early as the 15th November, of which due notice was given; and consequently the loss of the greater part of the fall business has been unavoidable.

"It was gratifying to the Directors to witness the readiness with which those interested in the trade entered into their views, and relinquished the remaining bu-

siness of the present year, to insure an early transit the ensuing season.

"The public are generally aware, that one of the most prominent features in this canal is the opening of the navigation before the lower part of Lake Erie is clear of ice; an advantage which, up to the present moment, for want of means, has never been realized, though the nature of the work decidedly admits of it.

"The Directors have named the first day of April of the ensuing season for opening the canal—and they are resolved that the improvements now in operation shall not interfere with that determination. To encourage emulation for an early transit, the Board have offered a premium of one hundred dollars to the captain of the first vessel, over fifty tons burthen, which may arrive at Port Dalhousie, laden with merchandize from New-York, destined for any port on the upper Lakes—and one hundred dollars to the captain of the first vessel, over fifty tons burthen, which may arrive at Dunnville, on Grand River, with produce from Cleveland, or any port above it, destined for New-York market; as they believe an interchange of commodities may take place between New-York and ports on the upper Lakes, by this channel, in ordinary seasons, one month earlier than by way of Buffalo. They will also give the same premiums to the first vessel, over fifty tons burthen, which may arrive at Port Dalhousie, from either Prescott, Brockville, or Kingston, laden with merchandize from Montreal market, destined for the British ports on Lake Erie; or at Dunnville, from Port Stanley or above it.

"The uninterrupted navigation of the canal, throughout several months of the past season, has afforded the utmost confidence to all those interested in it; and owners and masters of vessels are now fully satisfied, that both a profitable and certain business may be transacted through it. In proof of this, the Directors are advised of *twenty new vessels of the largest class being in course of building, on the American side, purposely for this trade.*

"There is also a degree of activity prevailing in the ports on our own side, not heretofore witnessed. Vessels are building, suited to the double voyage, which cannot fail to give an impulse to the western parts of this province, where it has been much required."

The whole expenditures on account of the canal somewhat exceeds \$1,600,000. There has passed through it, during the late season, 570 schooners, 334 boats and scows, and 66 rafts, amounting to about 38,000 tons.

The amount of toll in 1832 was £2,432

" 1833 3,618

" 1834 4,300

¶ The Report states that although the income of the canal during the late season does not present the same ratio of increase as the former, the difference is chiefly to be ascribed to the early close of the navigation, [made requisite on account of repairs,] and the decrease of business in the months of June and July, owing to the total interruption of the navigation of the Ohio Canal. Notwithstanding, there has been a great increase in the transportation through the canal of the principal staple articles which are particularly detailed.

The remainder of the report, being of ex-

tre interest to all New-York readers, we give verbatim.

"By a report of Mr. Mercer, Chairman of the committee on railroads and canals, published the 24th of June last, the construction of a ship canal between Lake Michigan and the Mississippi, by the Illinois river, is strongly recommended to the consideration of Congress. As this is a project in which the whole continent of America must feel a mutual interest, we copy the report of C. Gratiot, Esq. chief engineer.

"It may not be generally known that it requires a canal of only 37 miles to connect the ocean with Lake Ontario, 28 miles to connect Lake Ontario to Lake Erie, and 92 miles to connect Lake Michigan with Illinois river, (the summit of which is but 27 miles,) requiring only artificial ship or steam navigation of only 147 miles to connect the gulphs of Mexico and St. Lawrence, through the interior of this continent. We also insert an extract from the report of B. Wright, Esq. on the St. Lawrence, which cannot fail to impress on the minds of those concerned the decided advantages which must arise to the public by constructing a canal at this point on the enlarged dimensions.

"Although the inhabitants of these Provinces have witnessed the entire loss of the Western Trade, with a degree of supineness not to be satisfactorily accounted for, it is cheering to know that the Legislature of this Province has commenced the improvement of the St. Lawrence on a scale commensurate to the object. The locks are 200 x 55 feet, with nine feet depth of water. It is to be hoped measures will be adopted, the ensuing session, to continue this scale through the Lower Province, which will in effect make those interior waters a sea coast, and extend the commerce of the St. Lawrence beyond the most sanguine expectations of those who may now be considered enthusiasts.

"The difficulties and expense of navigating the St. Lawrence are far greater than is generally supposed. The amount of trade or commerce through that channel is a mere bagatelle, compared with what is directed to the New-York market. It appears that 264,919 bushels of wheat were conveyed through the Welland canal last season; of which only 18,464 bushels came from our ports on Lake Erie, and 22,170 from American ports destined for Montreal market; and the remaining 224,285 were conveyed to Oswego; whereas, if the St. Lawrence was made navigable, it would be difficult prescribing bounds to the quantity which will be diverted by this channel to foreign markets, or the quantity of merchandize in return for the supply of the Western country. It is supposed that merchandize from London would be conveyed to Cleveland for 2l. 10s. per ton, which now costs 3l. to 4l. from Montreal to Prescott, a distance of 130 miles."

NEW-YORK, vs. PHILADELPHIA, BALTIMORE, AND RICHMOND, VA.—NOT IN LAW, BUT IN WORKS OF INTERNAL IMPROVEMENT.—The period has arrived when a statement of facts is necessary to show the importance of an early and decided movement on the part of the State of New-York, if she would retain what she has, and obtain more, of the trade of the far and fertile west.

By a reference to the following outline of

a map, it will be perceived that there are four great lines of communication, all tending to the same point.

Virginia will now push her *James River and Kenawha Improvement*. If this work should, as it certainly will not, terminate at the Ohio river, it will then only require about 400 miles of road to connect at Nashville with the road chartered, and now under survey, from New-Orleans to Nashville. Will Virginia now permit her favorite work to sleep? She will not surely be so unwise, nor will she be satisfied until she connects, either through Kentucky, or by the way of Abingdon, Va., and down the Holston to Knoxville, and thence to Nashville—most likely the latter—that she may secure to herself a share of the trade of those States, and also endeavor to make that the main travelled mail route from New-Orleans to New-York. Maryland and the District of Columbia, also, are training for the same prize; and well they may, for even a *share* of the products of the millions of fertile acres and rich mines west of the Alleghanies, is worthy of all the efforts that are being made for it. The Chesapeake and Ohio Canal, notwithstanding the obstructions thus far encountered, will eventually tap the Ohio; and the Baltimore and Ohio Railroad has been completed too far to be permitted to terminate east of the Ohio River, or some other point equally favorable, to secure her a share of the western trade. It would be unwise to flatter ourselves that these works will not ultimately reach the point of their early destination. The nature of things ensures it; the genius of our country demands it; and the wind or the waves may as well be stayed.

What Maryland and Virginia have resolved, PENNSYLVANIA has accomplished. She was slow to engage; but, once aroused, she drank deep of the spirit of enthusiasm on the subject of internal improvements, which once, more than in any other, pervaded *this State*; and hesitated not to pledge her credit, to almost an unlimited amount, for the benefit and prosperity of her agricultural, mechanical, and commercial community. She has constructed canals and railroads in almost every direction from her capital; she has not only passed, but *penetrated* her mountains, and *reached* the Ohio; thereby opened a direct communication with the Mississippi. Not satisfied with that, however, she is now pushing her canals, in different places, to the line of our own State, as well as the State of Ohio. Her people do not insist upon concentrating *all* their works in *one* neighborhood; but with a liberality highly commendable to them, strive to spread wide, even to the very extremes of the State, their works of improvement. They do not say to those sections, hitherto excluded,—who now ask aid,—as our worthy friend of the Syracuse Standard says to the southern

counties: "*If the work will pay the interest on its cost, you need no help; if it will not pay the interest, the people for whose benefit it is to be made, must defer their demands until it will.*" Indeed, Sir! is *this* the way you intend to reciprocate the favors which you have so long enjoyed? Is it indeed so, when, for more than *sixteen years*, the inhabitants of the southern counties have not even been permitted to *salt their porridge* without paying a *direct tax* to promote your interest; and, to our own certain and personal knowledge, have aided in elevating the place in which you live, since 1810, from three *houses*, and a *horse-shed*, surrounded by marshes, and pools of stagnant water, inhabited by frogs and reptiles, to be one of the most enterprising, prosperous, and respectable villages—we might almost say cities—in the State? As an evidence of the correctness of this statement, we refer to sales of State lands in 1822, in and about the village of Syracuse, that were made at \$7 to \$20 per acre, which could not now be purchased at \$1500 to \$5000 per acre; yet those directly interested in the construction of a railroad, which will not pass through that, almost city, are told by the editor of the Syracuse Standard, that he has "*on several occasions experienced no small degree of surprise at the apparent zeal and earnestness with which the New-York journals have urged, in particular, the proposed railroad through the southern counties.*" —"Nor can he account for their manifestations of good will towards every visionary scheme which radiates from their city, except on a *principle of such loose morality* that he shall not desire to specify," &c.;—and then goes on to say:

"We have remarked, that whenever the enlargement of the Erie canal has been recommended, the measure met with but a cool response, or a silent negative, from the commercial emporium, but if the said railroad, or the aforesaid *steam ship canal*, was introduced into discussion, all Manhattan was alive to the importance of creating new communications through the State with the far west, to secure its trade and prevent Pennsylvania and Maryland from taking a share in the grand prize held out for Atlantic competition. We say this disposition wears a strange, and almost unaccountable aspect."

There must surely be more than meets the eye—that the City of New-York, dependent as she is upon the prosperity of the *whole interior*, should desire to have the works of internal improvement pervade *all parts* of the country, instead of running *side by side* through any particular part, and especially that which is by many times the most wealthy section of the State! It is, indeed, "unaccountable." It is not, however, a fact, that the "commercial emporium" receives with a "cool response, or silent negative," the proposition to "enlarge the Erie Canal"—altho' it is true, as the liberal minded editor admits, in another place, that its inhabitants "are alive to the importance of creating new communications through



the State with the far West;" and they are equally alive to the improving those already made, and to extending them into every part of the State.

"The expense of enlarging the capacity of the Erie canal would be from six to eight millions of dollars. For this sum it can be made to admit vessels of one hundred or more tons, which may navigate the Lake and the Hudson river—receiving and discharging their cargoes, at New-York, and at the ports on the Western Lakes. The consequence would be, that but half of the present number of boats would be required to run on the canal, whilst the capacity of the canal would receive four times as many—thus, when the new description of boats should be exclusively employed, being enabled to bear eight times the amount of tonnage transported upon it during the last season. This would be making provision for a distant period of time, and it might be safely left to future generations to prosecute new enterprises for the security of any greater portion of trade which should fall to our share from the west. The superiority of this mode of improving our navigation is too plain and palpable, to admit of question or dispute. It is the mode which nature has marked out, and art never succeeds but where she treads in her sister's footsteps."

Now we have always supposed that "art" and enterprise strayed most strangely, at times, from nature's path. It would at least appear that they were either designed to improve nature's work in many parts of the country, or they have been woefully misapplied by our enterprising neighbors of Pennsylvania and Maryland—where great inequalities of surface are overcome.

The friends of the New-York and Erie Railroad, it would seem, are not the *only visionaries* in such matters—as the following extract establishes:

"The project of a *steam ship canal* is almost too 'sublimely ridiculous' to demand serious attention, and it would certainly pass without attracting much notice, if we did not see a city engaged in surveying its route, and grave chambers of commerce employed in descanting upon its manifold advantages. It is but little less than a proposition to throw away the Erie canal, the proud monument of our public spirit and enterprise, and to hazard 25 millions in opening a new channel, whereupon to transport the same merchandise and produce which finds such an easy transit upon our present communications. Some reasons must be urged in favor of a change of such magnitude, and so we are told, with a becoming affectation of gravity, that the western trade will seek an outlet by the St. Lawrence river, unless we provide new facilities for its transmission to our own seaboard. Every one will perceive the peculiar force of this argument. Another is, that the Erie canal will not do the increased business which will naturally flow upon it. Hence the sage inference is drawn, that, although six or eight millions would place it in a condition to ensure the full purpose of its construction, twenty-five millions should be expended instead, to open a new route by its side, which, when completed, will do no more. But it is not necessary for us to pursue this subject further, for the scheme is not yet sufficiently matured or familiar to convey alarm to sober minded people, nor do we now ima-

gine that it can be ripened into that degree of importance, that will invite more than a casual notice to its impracticable and useless magnificence."

It may not be distinctly recollected by all of our readers, but we recollect as though it were but yesterday, the sage prophecies of the wise men of the same region, relative to the Erie Canal, in 1817 and 1818—they "desired *only* to live until Clinton's 'big ditch' should be completed"—the wisecracks of the present day may be as much disappointed.—We will not reply to the *insidious* insinuation, that it is the desire of any friend of other improvements to "throw away the Erie Canal, the proud monument of our public spirit and enterprise, and to hazard *twenty-five millions* to open a new channel whereupon to transport the same merchandize and produce." It is an unmanly charge, and could only have been dictated by an illiberal and contracted mind.

"At first glance," says the Editor, "the construction of a road through the southern counties is calculated to awaken the jealousy of northern interests. The friends of the canal, and the local interest identified with it, might apprehend a division of trade and travel to an injurious extent, and be roused to an opposition to the southern road on fallacious grounds, if not from a wrong principle. That the southern counties should, if possible, be brought into a participation of the advantages developed by public improvements, will not be denied, nor indeed has it been, for the state has liberally extended its branches from the Erie canal into that region at all the most feasible points, and would undoubtedly continue to do so, if its policy be not suddenly and violently changed. The state ought not, however, to be called on to mingle its funds with a private company—to loan its credit upon doubtful security—or to interest itself, in short, in a railroad at all."

Indeed! "ought not to be called on to mingle its funds with a private company." Very well; from which we should infer that the editor would recommend the State to build the road entirely, but for the next sentence, in which he puts his *veto* upon the granting of aid to these counties by the State, by saying, "the State ought not to loan its credit upon doubtful security"—very doubtful security, that where the company pledges four millions to secure *two*—"or to *interest itself in a Railroad at all*." How, we would ask, were the "Erie and Champlain" canals built? Was it without the aid of the State, because it would pay an *interest* upon its capital? Or was it by pledging the credit of the State, and by taxing the salt with which the day laborer seasoned his scanty meal? and for the benefit, too, mainly, of those who now, because they have grown rich, and hope to grow richer, by the improvements caused by the canal, are exceedingly cautious how they consent to an appropriation for any improvement—shall we be so uncharitable as to say—*unless they are to be immediately benefitted thereby?*

What unbounded liberality must that

heart possess which dictated the following!

"Though we believe the true interests of the southern counties should lead them to perfect their connexion with the grand canal, yet we would not lay a straw in their way, in their accomplishing, by their own means, the work for which they are soliciting the assistance of the state. On the contrary, we would grant them every facility, and bespeak for them the countenance of their northern neighbors—at least, we would deprecate their disfavor."

Would you, indeed, grant them every facility? and bespeak the *countenance* of your Northern neighbors?

Even if the assertion that "*the Southern road is beset with acclivities, and dangerous crossings, and inclined places*," to the extent here designed to be understood, were true,—which we take the liberty to deny,—it would not be sufficient reason why the road should not be made; as it is well known to every intelligent reader in the country, that the Pennsylvania and Maryland roads overcome much *greater* and more frequent elevations; and that both of them have already done a great, and are now ready to do a much greater, business; and will, we predict, become successful rivals of the works in our own State, unless more liberal and prompt measures are adopted.

But the Editor may rest assured, that the people of the remote and unimproved parts of the State will not be satisfied with the "*countenance*" only of their fellow-citizens who are reaping a rich harvest from the canals. They look for something more *substantial*; at last, less likely to be affected by a *self-interest*.

They ask only an *equal* share of public improvements, and will not be satisfied with less.

"The southern road is beset with acclivities, dangerous crossings, and inclined planes, which will preclude the transportation of heavy articles over it. In consequence, it will not divert the business of the canal. Again, the elevation of this road at the highest point is nearly 1700 feet, and the whole course of the road is very undulating. A road on the line of the canal would have less than 360 feet of elevation to overcome after leaving Schenectady, and but 250 west of Utica. Beyond doubt, then, the railroads, now constructing and being chartered, on the line of the canal, would engross the principal travel from the west. There can be no room, therefore, for the collision of rival interests, on the subject of the 'New-York and Erie Railroad,' and we hope none will be imagined where none exists. If our southern brethren decline any closer connexion with the Erie canal, they should be left free to their own choice. If their New-York friends are generous enough to make the road for them, we may admire their spirit, however we may wonder at the occasion. But when they come to the legislature for aid, we must ask leave respectfully to decline any beyond our good wishes. It can never be made the interest or policy of the state to meddle with railroads, to become a partner in joint stock companies, to

loan money out of its impoverished treasury to build up a local interest incapable of sustaining itself, or to shoulder every unprofitable work that may be pointed out, in the general rage for speculation. We hope the legislature will take up the subject calmly and deliberately, and that, if the result should be adverse, as we anticipate, to the people of the southern counties, so far as the application for aid is concerned, the conclusion will be seen, by those interested, to be the dictate of sober reasoning, sound policy, and correct principles."

"Our Southern brethren" do not decline connexion with the Erie Canal—they desire *all possible* connexion with the canal—they do not, however, "desire" to be *compelled* to transport their produce and merchandize 50 to 100 miles *directly* from market, and the same distance on the Hudson River, merely to accommodate gentlemen residing on the canal—when, with a railroad through the southern tier of counties, they might go direct to market, and be again on their farms, or in their stores, before they could reach the Hudson River by the canals.

It is, indeed, to be regretted that the Editor "*respectfully begs leave to decline any beyond his good wishes, when the PEOPLE come to the Legislature.*" It has not been generally understood *here*, so far as we can learn, or in other parts of the State in which we are acquainted, that the LEGISLATURE of the State of New-York is under the immediate guardianship of the Editor of the *Onondago Standard*!

We also hope the Legislature will take up the subject; and all we desire is, that the subject may be disposed of upon "*CORRECT PRINCIPLES.*"

Proceedings in the Board of Aldermen 17th Feb., 1835. Reported for the New-York Daily Advertiser.

ERIE RAILROAD.

The Report of the Special Committee of both Boards in respect of the New-York and Erie Railroad, was taken up. The Report was of great length, and closes with a resolution, That the members of Assembly and Congress, at Albany and Washington, be directed to use their best efforts to promote the success of the petition.

Previous to its adoption, Alderman STILLWELL rose and delivered the following speech, which was taken down at the time:—

I rejoice, Mr. President, that the Councils of the City of New-York have at last aroused from the lethargy which has enthralled them, and resolved to express the opinions of the people of this great city, on the subject of internal improvement.

I rejoice, sir, because I see in it the harbinger of better times and wiser counsels; because I know, that it requires but a knowledge of the true interests of our country, to induce the people to demand from their representatives the earnest prosecution of such measures as will promote the welfare of this great country.

More especially do I appreciate the feeling now evident among the members of the Board and the inhabitants of this city, when I remember that, when the application for the Grand Canal—a work which has benefitted this city more than any portion of the State—was pending before the Legislature, it did not meet with that cordial and united support from us which a clear perception

of its advantages would have insured to it. Nay, sir, a portion of our delegation in the Legislature, so far from appreciating the enlarged views and prophetic wisdom of one of the greatest minds which this country has ever known, viewed the project as unworthy the serious consideration of the State. But that mighty mind, which only saw difficulties to encounter and overcome them, met the various obstacles which were presented by those for whose benefit the work was designed; and the waters of the Erie were mingled with the Hudson.

The State owes little to our city for that great work; and I rejoice that an opportunity is now offered to prove, that the lessons of time and experience are not lost upon us—that we now know our own interests, and are prepared to say to the North and West, "Go on, and your commercial metropolis will join hand and hand with you for the accomplishment of every work of improvement which will redound to the common interest and glory of our State!"

The report and resolutions now before the Board, recommending the immediate construction of a railroad by the company already formed, and urging upon the Legislature the necessity and propriety of making such loan of the credit of the State as may be required for the successful prosecution of the work, have been prepared with great care, and distinctly point out the practicability and expediency of opening a railroad communication through the Southwestern tier of counties from the Hudson river to Lake Erie. And I rise, sir, with no ordinary pleasure, to answer the call for such general information as I may possess on this subject.

I am not, sir, of the number of those who suppose that an expression of the popular will on this subject would come more appropriately from our representatives at Albany. Sir, it is the imperative duty of the representatives of the city here, to express their opinion on any and every subject affecting the pecuniary interests of this city. Standing here, in my place, I have on no occasion felt myself acting more closely within the scope of my delegated duties, than in urging the adoption of the resolutions on your table. What measure, tending to facilitate the intercommunication of the interior, does not address itself to the direct immediate and pecuniary interests of the City of New-York. Let it be remembered, sir, that this city contains a population greater than that of either of the States of Rhode Island, Delaware, Mississippi, Louisiana, Illinois, or Missouri; and more numerous than the combined population of the Territories of Michigan, Florida, and Arkansas, together with the District of Columbia. She is equal to one-ninth of the population of the State, and her taxable property amounts this year to 180 millions of dollars, while the state does not exceed 430 millions,—making her liabilities, in case of a direct tax, more than equal to one third of the whole State.

New-York city, in a commercial point of view, is more deeply interested than all the State besides. You will recollect, sir, that the inter-commercial trade of this city is supposed to exceed four hundred millions of dollars, and that her foreign and coasting tonnage exceeds all the other cities in the Union. If this fact should create surprise, with what astonishment do we learn, that the tonnage passed during the canal season, through one lock at Utica, has exceeded the whole amount of our foreign tonnage! Does not this prove, sir, that this city, of all other portions of the State, is deeply interested; and shall she be silent when the subject of discussion is *internal improvements*? Sir, we are bound to express our opinions; we are the guardians of the interests of a city, the revenue of which exceeds the income of any five States of the Union. Our responsibilities are great, and our duties arduous; and while we do not shrink from the one, we will not fail faithfully to discharge the other. It is our duty, then, to use every exertion to inform the public mind, and push forward the consummation of the great interests that appertain to us as the first commercial city of this nation, and of this continent.

The route, sir, which has lately been designated for the great railroad avenue, was long since under contemplation for the purposes of a canal or turnpike. It has attracted the attention of

many of our most distinguished men, and in many instances has been warmly advocated. To every individual of intelligence, who casts his eyes upon the map of this State, and is acquainted with the quality of the soil, it becomes a matter of astonishment that this route has never been occupied—that the resources we possess have not been applied to connect the city of New-York more immediately with the great lakes. Although, until recently, our trade with the west has been very much confined to the State of New-York, yet the want of avenues has been seriously felt, through which to transport the products of the interior; and no time should be lost in opening an intercourse with the west, which shall not be obstructed by the frosts of winter, or the drought of summer—which will be sufficiently rapid to secure the conveyance of the public mail, and give to our merchants and traders, both in the city and country, a speedy, certain and safe mode of communication.

A railroad through this region is particularly necessary, in consequence of the great and increasing trade on the waters of the Delaware, Susquehanna, and Alleghany rivers. These rivers are early open in the spring, and float to market beyond our State an amount of property exceeding the computation of all who have preceded us. These rivers run through a section of the State but little known to a portion of the citizens of our country; and yet that region contains a population of more than three hundred thousand of as intelligent, independent, and enterprising citizens as can be found in any State in the Union.

I am not disposed to enter into a minute calculation of the amount of trade which can be diverted by a railroad from our southern neighbors, but I may be permitted to say that, from the known fertility of the soil, the amenity of the climate, and the difficulties and dangers of the navigation of the streams referred to, there can be no doubt that the travel and products from the interior, together with the additional merchandize sent from this city to the section lying adjacent to the route proposed, will insure a revenue sufficiently large to cover the interest and expenses of this great projected work.

But, Sir, it is not my purpose to confine my views to the south-western counties of this State. To appreciate fully this magnificent undertaking, we must extend our view over the great waters of the mighty West. In that far country, which is watered by the tributaries of the Mississippi and the Lakes, where, but a short time since, lay an interminable forest, States have sprung into being, and are now densely populating with a race of men, well known for enterprise, and remarkable for intelligence. These States will soon send to market an illimitable amount of the products of the earth, and receive in return the fabrics from the manufactories of the East and of Europe. The intercourse with the great West is without obstruction, after passing the boundaries of this State. We have a lake shore equal to the seaboard of the United States, and open to navigation at all seasons of the year. The only obstacle to a steamboat passage from the Lakes to New-Orleans, lies between the waters of the Michigan and the Illinois, a distance of only 94 miles. And to remove this only difficulty, the General Government have already appropriated every second section of land which lies between the two points to be connected. With an enterprise and intelligence worthy of the State, Illinois is making provision to construct a steamboat canal between Chicago and the Illinois River, of a depth of 15 feet, and a surface of 90.

The State will find very little difficulty in uniting the waters contemplated.

The streams which run into the lake, and those which empty in the river, are known at one point to be closely connected; and it is not unfrequent during the high freshets in the spring to find the waters mingling, and boats of ten tons burthen have been floated from the lake to the river.

When this communication shall be completed, a continuous steamboat navigation will be opened, of more than twenty-five thousand miles, on our western waters.

In addition to this, a canal will soon be completed between the Maumee of the Lakes and the Wabash; and it is also made manifest, that

there is an easy and short cut from the Maumee to the St. Joseph's. This last river empties into the southern part of Lake Michigan, and is said to be navigable more than 130 miles by steamboats drawing 3 feet water. We have also the extended Lake navigation to the north through Lake Superior and Huron, and, returning around the southern side of Erie, we find the Ohio Canals, which open a communication with an immense region of country above and below their junction with the river. To contemplate this boundless country, brought within the water range of these great Lakes, and not feel a desire to secure to our favored city its rich commerce, is to be indifferent to every desire which stimulate men to active exertion. It is unnecessary, sir, for me to dwell upon the value or importance of this great interior trade—a trade destined to surpass that of any country on the face of the globe—swollen by the contribution of our hundred lakes and thousand rivers, which fertilize a soil ere long to sustain one hundred millions of freemen. The commerce of such a country, with such a population, by the unerring rules of arithmetic, would require and sustain a commercial metropolis of five millions of inhabitants. Yes, sir; I assert that this city will have its numbers increased to that size, if its enterprise shall keep pace with its interests, in giving facilities to its interior trade. But, sir, we must be up and doing; we must leave nothing undone, which intelligence, enterprise, and means, can accomplish, to secure as speedily as possible this immense prize. Already have we rivals in the field—competitors of no ordinary consequence. The great state of Pennsylvania, with a perseverance unexampled, and a boldness of purpose which elevates even her high character, has, after years of toil and millions of expense, pushed her improvements to the borders of her State. The supposed impracticable barrier of the Alleghany has been overcome: her canals from the east have moved on slowly, but surely, and now touch the base of the mountain, from which a railroad is thrown over the ridge, and unites at the base on the western side with another canal, which already extends to within seven miles of the line of Ohio, and about 84 miles from the great Ohio canal which empties into Lake Erie. This communication, it is said, when completed, will afford to the merchants of the west, a shorter and cheaper route to market than any we now offer them. We all know that these two considerations have a preponderating influence in commerce, and must give a preference to Pennsylvania; especially, when we add to these the further fact, that the Ohio and Pennsylvania canals are open one month earlier in the spring, and continue open more than a month later in the fall. Upon referring to the several reports of the committees of the States of Ohio and Pennsylvania, it will be seen that there is a fixed determination to unite these canals, within the coming year. If this rich trade should be once diverted from our own to any other city, we may then bid farewell to all our dreams of greatness.

It is also said that Pennsylvania, true to her own interests, has increased her already large debt of more than twenty millions, by an appropriation for a canal up to our State on the Susquehanna. She has set apart one million for this purpose; and will bring her works within seven or eight miles of the southern termination of the Chemung canal. This improvement will draw down to that State a great portion of the Susquehanna trade, and be of great advantage to the citizens of our State in that section. And while our own resources are not applied to develop the trade of that region, I can truly say, I congratulate the inhabitants that they find the authorities of Pennsylvania more ready to promote the interests of our country, by wise and judicious improvements, than the legislators of our own State.

Mr. President, the southern tier of counties have heretofore asked in vain. Year after year have they wearied the State with unceasing supplication. Coaxed, flattered, and threatened, by turns, their hopes and fears have been made the sport of political excitement and individual ambition.

Who can look to that region, and view her beautiful valleys and wheat-crowned hills—her mountains and her streams—the great variety of

her soil and productions—her numerous, intelligent, and enterprising population—and not admire the enduring patriotism which induces such a people to remain subject to a control which compels them to be, not only lookers on, but actual contributors, to the welfare of other more favored sections of the State.

They are not only responsible for the payment of the debts incurred for the construction of our works of internal improvements, but they are pressed with a double burthen, and are compelled to contribute to the very works which impoverish themselves, by enabling their fortunate neighbors to undersell them in the market. This devoted region has been repeatedly told by the State, "that her mountains were impassable, and her soil unproductive, and that as nature had not been bountiful, the State would not assist in bettering her condition." Sir, destiny cannot be cheated of her own; and I now predict, that the region through which the Erie Railroad is to pass, will, within twenty years, be the most densely populated and wealthy section in this State. But, Sir, what is now asked for this neglected portion of our State? Not money, Sir! No, Sir; that has been asked until delay has sickened the hearts of her citizens. They now require the State to advance her credit to the extent of two or three millions, *after the work is commenced*; and take a mortgage on the road. With this the Company will be content to proceed, and will prosecute the work with vigor. It is true it is a small request; but having been so often refused, this is all that the friends of this devoted region at present demand; and this, Sir, they do demand, and they call for the judgment of their old associates, and those who are aware of the wrongs and privations which for many long and tedious years they have endured. They are wearied with delay, and have ceased to look to the State for full justice. They have turned their eyes to the enterprise of individuals, and they have not been mistaken. Sir, warmly and sincerely do I congratulate that section of the State that their interests and those of the country are committed to the hands into which they have fallen. The charter granted by the Legislature has been preserved; the stock, to a certain extent, subscribed; and the Company organized. A President and Directors have been selected, equal to any other body of men in talent, energy, resources, and enterprise. In addition to which, they are governed more by a sense of public good than individual gain; and know well the great duty and responsibility which the situation they occupy imposes upon them. Mr. President, if it had been left to myself to single out, in this great State, the individuals into whose hands a work like this should be committed, I could not have found those who would have more fully met my approbation. These men, Sir, are deserving of the full confidence of the public; and their characters give evidence that the work will be completed in the shortest period their means will admit.

A survey of this route has been made, and laid before the Legislature. The result to which the Engineer has arrived is so entirely at variance with all the established and received opinions on the subject, both as to grade and cost, that the obstacles would seem to have been entirely overcome. The objection which has so long existed to the improvement of this country, has vanished into thin air before the researches and report of the Engineer. Late experience has proved that railroads may be undulating; that, instead of 20 feet elevation to the mile, steam cars will overcome 176 feet; and that they can also traverse, without danger, serpentine roads of 500 feet radius. The practicability of this route is placed beyond doubt; and the estimate of about five millions is so far within the supposed cost, that we can no longer doubt the construction of the work.

Its importance and revenue must be immense. Not only will it intercept all the trade going down the Susquehanna, Delaware, and Alleghany, but it will bring the products of the far West to our navigable waters at all seasons. We say all, because railroads, we know, are very little impeded by snow and ice. It will, therefore, have a twelve months' trade; and from this, together with the rapidity with which the cars will move,

it will be able to transport a larger quantity of goods annually than now passes the Erie Canal. We may also add the transportation of the mail and passengers, because it is confidently asserted that the passage through being a distance of 483 miles, can be accomplished in the short period of 48 hours. That the road will prove a very profitable concern, when completed, cannot admit of doubt: the great difficulty consists in procuring so large an amount of money for any purpose, in a country where enterprise is only limited by the want of means.

The cost of a work above the actual value of the labor, is of immense consequence to our people, whether the money be expended by the State or individuals; for if a good work be constructed at a fair expense, the tolls will be much less than if the same work had cost more than its value. This is the great point: and therefore, we should be ever careful that good officers and servants be employed. Individuals are much more likely to economize, and procure the construction of a work for a small sum of money, than the public; therefore, it is generally better to *assist* individuals in a public enterprise, when they will undertake it—than become the sole proprietor only in cases where individuals do not desire to assume the responsibility.

The people are not interested in the ownership of a canal or railroad. The great object with them is to have them constructed. What is an expense of one, two, or ten millions of dollars, to the advantages of a regular, certain, speedy, and cheap intercourse? When the convenience of a whole people is advanced, how can you compute the value? Can you say what amount of benefit is derived to a particular county or town? But, above all, can you tell how much this city is to be the gainer, by the proposed improvement? In 1820, when only a few miles of the Erie Canal was completed, and one thousand dollars of tolls had been received, the population of this city was 123,000, and her taxable property 69 millions: in 1834, her population was near 260,000, and her taxable property 180 millions, thus showing that, in fourteen years, this city more than doubled the one, and trebled the other. This is not the only instance: look to your numerous cities and villages, which have sprung into existence since the termination of the last war with Great Britain; the immense appreciation of the lands and products of the country; and the thousands that have grown rich by the mere force of the prevailing causes. Buffalo, which was laid waste by the enemy during the war, has risen like a Phoenix from her ashes, and now numbers more than twelve thousand of as intelligent, independent, and enterprising a population, as ever engaged in agriculture or commerce. She was, at the gloomy period to which I refer, destitute of commerce, or means; one schooner only was left to navigate that great inland ocean. She has now a trade equal to many of our Atlantic cities: no less than 34 steamboats enter her harbor, and more than 250 schooners are engaged in her commerce. It were useless to refer to individual examples of the prosperity which pervades the regions within the influence of the Erie Canal: we have grown populous and rich beyond precedent; and it is not an extravagant estimate to say, that the internal improvements already completed in this State have added three hundred millions to the public and private resources of the country. May we not well say, that the people interest themselves little in the mere ownership of these great works? What are the eight or ten millions expended in the construction of our public improvements, to the two or three hundred millions which have been added to the general account? We may well say, then, that the people should urge the construction of railroads or canals, wherever they can be made, regardless of the amount of debt, or the hands into which the works may be placed. All that should be required is, that the general supervisory power be retained in the possession of the State. There are a number of reasons why railroads should not be owned by the State, which it is not necessary to allude to at this time, and which do not apply to canals; out the fact, that the cars and transportation of property should, to a great extent, be committed to the owners of the road, and the consequently

Recent numbers of agents and servants, is of itself to my mind conclusive.

Every work, sir, that individuals can be induced to construct, may be safely and properly committed to their hands—not only for the reasons which have been presented, but because the state has enough, and more than enough, to do, for the next coming ten years, and because it is her bounden duty to allow no time to elapse before again commencing an active career.

The first step should be the establishment of an internal improvement department, and a fund to be called the internal improvement fund,—upon which all expenses should be charged, and into which all the revenue from our public works should flow. Make this fund sacred for the objects to which it shall be devoted. Let it form a *system*—let it be complete in itself—let accounts be stated between the canals and the state, and settled, issuing certificates of stock (redeemable out of this fund,) having not less than twenty or thirty years to run. Then let it be declared by law that the tolls on our works of internal improvement shall not be allowed to exceed the interest and expenses on the works for the next ten years. Make your system complete, by declaring that the channels of intercourse shall never be taxed as a source of revenue beyond what may be necessary for paying the principal, interest and expenses, which may be caused by the system itself.

If this course be once adopted, the State will be enabled to construct all the canals that may be needed, and to subscribe to works in which individuals may have engaged, without any fear of imposing a tax upon the people. This will be an "Internal Improvement System," perfect in itself, looking to no other fund for a supply, and apprehending no imposition for general purposes. By establishing this system, and postponing the payment of all debts for twenty or thirty years, we shall be enabled to accomplish every object we may desire, within one-half the period which any other plan can present.

To any person conversant with the extent of country to which we are now looking for an augmentation of our trade, it will be unnecessary to say that our present canals are entirely inadequate to the increasing intercourse beyond our own State, and that we cannot be too expeditious in meeting the exigency which is approaching. We must not only increase the capacity of our canals, but we must reduce our tolls. The reduction of tolls tends to increase the amount of trade, and will continue to do so, until our canals can no longer accommodate the products which are seeking a market in our city. The debt that now binds our tolls will soon be redeemed, and we shall be left free to adopt that course in relation to the tolls that the wisdom of the State may devise.

It is not, however, necessary, and has not been, to await the extinction of this debt before incurring another: the canals, it is well known, are not sufficient for the wants of trade, and the difficulties encountered during the business seasons are beginning to be seriously felt. Last year a law was passed with a view to some improvement in the navigation of the Erie Canal—I understand, for the purpose of adding to the width of the canal, and creating double locks. I have taken some pains to inquire into this subject, and with great deference to the opinion of the commissioners, I am compelled to say that I have arrived at conclusions different from those supposed to be entertained by the State officers.

It is well known that it is now necessary to cheapen the cost of transportation, that we may enter into a more close competition with our neighbors on our northern and southern boundaries. By deepening the canals about 3 feet, and adding to the locks so as to meet the increased depth, an immense gain would be the consequence. If the canal were 3 feet deeper, the same boats that are made for our small lake trade could be loaded with twice the amount of products they now carry, and could be propelled by the same power, abating one half mile per hour in the speed—that is to say, a boat carrying double the quantity could be propelled at the rate of 2 miles the hour. The effect of this arrangement would be to enable the canal to float double the amount of goods on the same surface, in the

same time, and at about the same expense. This would be an enormous gain for a very small cost. The two things most needed are at once obtained—quantity and cost; to make our canals competent to do the business required, and reduce the cost, is of the greatest consequence. To place the two modes of improvement side by side, will easily test the question. Suppose you widen the canals fifteen feet, is it not evident that you must add to the number of boats or greatly increase their width—that the present locks would have to be altered and doubled, to meet the change in the canal,—and that no corresponding reduction can take place in the cost of transportation? Double time will be required for passing the same quantity of products, and consequently double expense and inconvenience to the State officers and the transporters. In the one case, an addition of surface to the canal, with additional locks, at great expense, without affecting the cost of transportation—in the other, a small expense, whereby the same boats, the same boatmen, and the same horses, in nearly the same time, will transport double the tonnage—the cost to the boatmen is reduced nearly one half—the expense of passing one boat, instead of two, should have the same effect on the tolls—so that we can with great propriety say, that this simple improvement, which will require very little additional water, will actually double the capacity of the canal and reduce the cost of transportation nearly one half. The great importance of this change must be evident from two prominent facts: first, that our canal is already crowded, and, second, that our neighbors afford a cheaper and more expeditious route to market. We have powerful and determined rivals for the trade which we desire to possess; and we cannot shut our eyes to the fact that they are already "going ahead" of us. Our neighbors have aroused, and are preparing to put forth all their strength. The current is already setting with some force towards the Canadian market, and it will be well for us to look in that direction for some information.

The cost of transporting a barrel of flour from Ogdensburg and Oswego, in this State, and from Prescott, on the Canada side, to Montreal, is 30 cents. To take the same from Rochester, about 40 cents; from Buffalo or Cleveland, through the Welland Canal, about 55 cents. This is the present cost; the toll on a barrel of flour from Buffalo to Albany is 33 cents, and the cost of transportation from 65 to 80 cents. The difference in this article alone is more than fifty per cent. in favor of the Montreal market. The cost on every article is of course in about the same proportion. It will be perceived, that if the tolls were entirely removed, the cost to our market would still be greater than to Montreal; it is therefore apparent, that every improvement should be made with a view to a reduction of the expense of transportation. The tolls we can change, as circumstances require, but the labor of our people must have its just reward. The expense to the Montreal market, as stated above, will not long be the standard. The Canadas are awake to their interests; already has the Government of Great Britain expended near £600,000 sterling on the Rideau Canal—and the Provinces are now engaged in improving the navigation of the St. Lawrence. They employed Judge Wright to survey the route of the river; and having ascertained that an improvement is practicable, they are preparing to make such improvements on the borders of the river as will enable them to pass vessels of the largest class to Prescott, and from thence to any of the towns on Lake Ontario. They are also about to purchase the Welland Canal, and improve it by stone locks. So that, within a few years, the navigation will be complete for a square-rigged vessel, from the Ocean to any part of either of our great inland seas. This will enable them to open the navigation with Montreal one month earlier than on the Erie Canal. It will also reduce the cost of transportation to about 25 cents from Cleveland to Montreal, on each barrel of flour; and will have the same effect upon the ascending trade. Competition is becoming formidable; and it will require an extra exertion to maintain the ascendancy of New York. We must provide means to communicate with the great route at all seasons

of the year, and with great facility; and also increase the capacity of our canals, and reduce the charge.

And now, sir, having taken this general survey, let us again turn to our own State. I would now ask, is not the course of policy we are to pursue clearly indicated by this investigation?

That a ship canal must be opened between the waters of the Hudson, and the great lakes, is so evident, that I can hardly believe a difference of opinion exists on the subject. After the survey we have made of the immense West,—of the thirty thousand miles of steamboat navigation, and the extended minor tributaries,—we have only to ask, *should not the trunk be greater than the branches?* If we wish to secure the trade of the great West,—if we wish to put our superiority beyond reach,—then, there can be no doubt, that in a commercial point of view, a ship and steamboat canal is indispensable: and as we have already by the Erie and Oswego Canals a water communication, it cannot be doubted that the object can be accomplished. Judge Wright entertains the opinion that it is practicable, and that it can be accomplished at a very moderate cost.

This latter question should have no weight in deciding this important point. The object itself is beyond price; it is too magnificent to permit a few millions to have the least influence. It cannot for a moment compare with its great utility.

Allow me, gentlemen, to direct your attention to the magnitude of the object. Consider the height to which we shall elevate the character of the State. Imagine our own city connected by a steamboat communication with our inland seas, and the thousand rivers of the mighty Mississippi. Look forward ten years, when you shall see all this,—when your wharfs shall be crowded with steamers from the ports of twenty inland States,—when your internal commerce shall have reached a point which will exceed that of all the cities of Europe,—you can then appreciate the feelings which compel me to say, look not to the cost of this great work.

Sir, this question of dollars and cents, this fear of debt, is constantly involving us in errors. It was the great obstacle to the accomplishment of the projects of the great Clinton. He, sir, found more difficulty in overcoming this than every other prejudice. But he persevered, and subdued every enemy to the propriety of his beloved country. His mighty mind embraced the compass of the continent. He predicted the importance of the commerce of the West. His ambition was the happiness and glory of his country. And with an integrity of purpose and firmness of decision never surpassed, he was at last enabled to subdue the two greatest enemies to the prosperity of a country—*ignorance and sloth*.

It was he,

— "Whose comprehensive view
The past, the present, and the future, knew."

The name of Clinton is identified with the best interests of a great country. He taught us that intelligence, enterprise, and industry, are the wealth of our nation. And that in a field so wide there can be no room for jealousy or mimical rivalry. He directed our ambition to the improvement of the minds of our youth, and the development of the resources of our country, and through him we have a practical illustration that "knowledge is power."

To accomplish the last great objects to which I have called your attention, a large amount of money will necessarily be required. It is supposed that five millions may be needed; and I am aware that notwithstanding the evidence which has been presented of the immense appreciation of the value of the taxable property in this State, that this will be the great obstacle to the attainment of our wishes. Fear of debt is sometimes prudence, and frequently commendable; but had our people acted upon the plan of owing nothing, what would have been the condition of our country? Sir, debt in a new and improving country like ours is the *aliment* of its prosperity. Where the people are enterprising and prosperous, interest will always be high; and where ignorance and sloth prevail, or there is no field for exertion, as in many parts of the old world, interest will be low. When a people have the rich resources of a new country to develop, then the means must be of

inestimable value. Let us incur debt, and press forward with every improvement the country is susceptible of—deferring the payment of the principal some twenty or thirty years. *It is our duty.* Defer the payment of debts until the country has become strong—until our immense forests have receded before the strong arm and enterprising spirit of our people—until the Far West shall be throwing off from her bosom the rich fruits of her prolific soil—until our city shall be the depot of the whole continent—until the trade shall have been secured to our enterprise—and until the people can afford to pay no more for the use of money, in their private business, than is paid by the State. Before this time shall arrive, then, an imposition of 3 cents per barrel toll on flour will pay your debt as rapidly as the present rate of 33 cents. Your trade by this course will be more than twenty times the present amount. Your facilities will be greatly increased, and the cost by transportation become almost nominal. An over anxiety to pay debt by imposing heavy tolls, in a country like ours, is the greatest curse that can befall us. Do not, therefore, gentlemen, allow yourselves to be led away by the representation that it is prudent. It is the height of imprudence. Money in our country, when expended in works of internal improvement, in many instances, is worth one hundred per cent. If any one doubt it, let him turn to the country that is traversed by our grand canal, and inquire whether property has not advanced more than two hundred per cent. in consequence of this work. Go where you will, sir, you cannot place an estimate upon the advantages which debt has, and will yield, to our country. Let us then press forward in the noble race which is before us, regardless of the cost, except so far as to prevent all useless or profuse expenditure; and depend upon the development of the resources of the country for our reward.

There is yet another point of view in which this question of a ship canal is to be considered, and which is of immense importance. It will have been observed, that the British government have it in contemplation to so perfect the navigation of the St. Lawrence, and the Welland Canal, as to admit of the passage of an armed vessel from the Ocean to the Lakes. This, it is supposed, can be done at an expense of about a million of pounds sterling. The communication between Kingston and Montreal, by the Rideau Canal and Grand river, is now completed, at an expense of near three millions of dollars.

It was intended as a medium of military intercourse, and was suggested by the difficulties which that government encountered during the war in procuring supplies from below. It is sufficiently large to pass small steamboats; and a communication of this kind is now kept up between the two cities. The proposed canal along the river St. Lawrence is now being constructed, and will afford in a few years the facilities required. It will be an immense saving to the nation. The British government will have no further use for military or armed vessels on the lakes, in times of peace. Ships can be sent from the ocean to any part of the lakes during the casual navigation; and this fact is of immense importance in a military point of view. Without any armament on the lakes, they will always be ready to defend their frontier; and with no actual cost they will always be ready for war. They will be able at any time to cover the lakes with armed vessels, and outnumber us at every point. It becomes our interest, as well as duty, to provide against such an emergency—not by lining our shores with fortifications, or filling the lakes with armed ships, but by following the example of our neighbor, and constructing a communication that would pass any of our armed vessels in ballast. This will be a ready and sufficient security. It will be doing no more than our citizens on the lakes have a right to demand. It may be said, that the general government ought to construct every work which is so essentially national in its character.—I answer, that the Empire State is able to take care of her own interest; and if she had no pride, still she has an interest to consult. This canal will be the grand conduit through which her commerce with the great West must pass. It is therefore proper, that she should hold the key—that the treasures, which are rightly hers, should not be under the control of another. It is

properly her own, and she would be unworthy of her character for foresight and enterprise, if she should allow any second party to participate in a work which is so worthy of herself.

And now, sir, may we not with great propriety say, *the State has enough to do*; that there is no want of objects to which to direct her attention; and that every work which individual enterprise will undertake, should be committed to their hands. Stimulate, sir, by every means that may be required, this laudable ambition of individuals. Depend upon it, too much cannot be done. Too many improvements will not be made. Dispense on all occasions the munificence of the State in such shape as will subserve to the greatest extent the interests of the people.

When all that I have pressed upon your attention is completed, we shall be on an eminence which the proudest empire on the globe might envy. And, sir, all that is now demanded of the State can be effected. This great channel of steamboat communication can be opened. The railroad of which the one under consideration is only the *beginning*, can be completed. And a ready, cheap, and certain communication will be opened *throughout the year* with the whole of our interior. The cars shall be pouring into our city in an interminable current—pressing down through its centre, and filling the stores, and warehouses, and ships with the produce of the West—infusing a life into every department of industry, and driving far from us the lethargy of our present inactive winters. Your island shall be one great warehouse for this mighty continent—and your docks and slips, from Fort Washington to the Battery, and from Whitehall to Harlem, shall be filled with the thousand steamers that will navigate the waters of the Mississippi. Your harbors shall be crowded with the ships of every nation, and this island will be the mere centre of a city which shall spring up on the shores of Long Island and New Jersey. Is all this fiction, or is it fact? Is it the offspring of an over-heated imagination, or is it only the result of a knowledge of the resources of our country? Sir, it is true. And I am glad to have the opportunity to predict, that if our State is true to her interest, all will be accomplished.

When our State shall once more be governed by the counsels of the mighty dead—when the mind of a Clinton shall be again the leading star in our councils—then will every consideration give place to the honor, the glory, and the welfare of our country—then the name of New York shall convey the idea of superiority, and her sons shall be proud of her character, and rejoice in her prosperity. Every one should participate in the honor and glory of his country. Every true son of New York will be alive to her every interest, and while witnessing her splendor and the triumphs of genius and enterprise, will involuntarily exclaim,

"Lives there a man with soul so dead
That to himself hath never said,
This is my own, my native land?"

BLACK RIVER CANAL.—This is a work which has been long agitated, yet notwithstanding its great importance, to restore a *just equilibrium* to the trade of the State, and to confer equal benefits upon all its citizens, very little progress has been made. The people in the Northwest section of the State, like those in the Southern counties, have contributed to those works which were designed, commenced, and completed, and which should always be considered *only* as the great *arteries*, into which the lesser channels should flow from every extreme part of the State, lying north of, and contiguous to, the main works.

We have heretofore devoted very little space to this contemplated work from a lack of information, but having, through the politeness of friends, received a report upon

the subject, we shall endeavor to make extracts from it, which may be interesting to our readers.

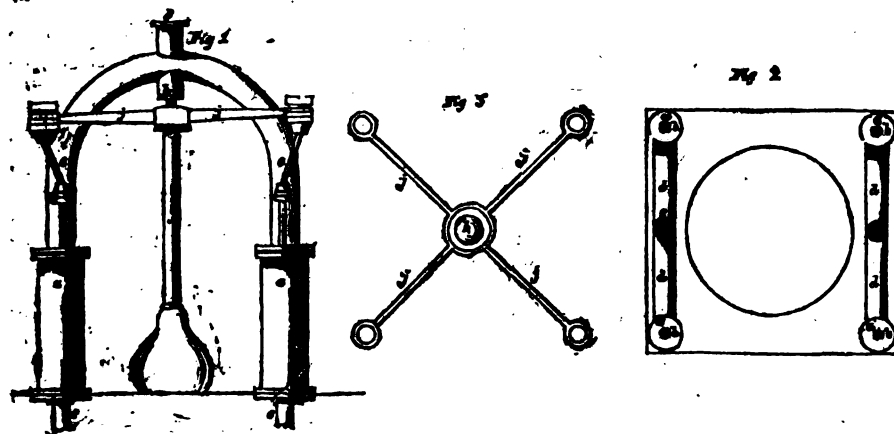
The following extract from a communication signed "CINCINNATUS," and published in the Jefferson county papers in December last, is a well-written, plain, honest statement of facts, and applies to other sections with equal truth as to the Black river section. We shall endeavor to find room for more of the communication, and should like to hear directly from its writer, for the Journal.

"Let the faith of the state be pledged for the amount necessary to be drawn, the purse strings of the capitalists unloosed, the hand and foot of the honest laborers put upon the spade; let the improvement no longer be merely talked of as 'a project,' a fruitful source of debate; let the ground be broken—the waters of two streams united for a valuable purpose; bid the forests recede—agriculture, manufactures, the arts and sciences, flourish; let us have no more of that *cold calculating policy* designed to determine *what amount the state may speculate out of our trade within a given number of years*—through the medium of tolls;—we say emphatically, do unto us as you have done unto yourselves and others, aided by means derived from the whole, and for which the faith and honor of the state stand pledged; we will then be upon an even footing, realizing advantages extended to others, but *heretofore withheld from us*, vastly increasing our means to assist in paying off our increased indebtedness. Our claims being just—the practicability of construction admitted—the consequent increased prosperity of the country in view, the credit of the state 'equal to any emergency'—where, we repeat, are to be found tenable objections to making an *immediate* grant for the work? The time has gone by when to talk about the subject will satisfy us—*effective measures* are now demanded. Do we say demanded? Yes! demanded, as well by that sense of justice, due from one portion of a community to another portion of the same community, as between man and man.

"Maintaining that it is the duty of the Legislature to *divide* the bounties of the state, as equally as their judgment and the rights to which they have access may enable them, the same rule applies to loans on the credit of the whole which should not be appropriated for the benefit of but a part, and deny to a remaining part the like facilities. Unnecessarily to procrastinate in its effects equal to a denial."

Specification of the Patent granted to JOHN BARTON, of Goswell Road, in the County of Middlesex, Engineer, for Improvements in the Construction and Application of Pumps and Machinery for raising Fluids and other Purposes.—Sealed June 1, 1833.

To all to whom these presents shall come, &c. &c.—Now know ye, that in compliance with the said proviso, I, the said John Barton, do hereby declare the nature of my invention, and the manner in which the same is to be performed and carried into effect, are fully described and ascertained in and by the following description thereof, reference being had to the drawings hereunto annexed, and to



the figures and letters marked thereon, (that is to say):

My invention consists in certain arrangements of apparatus and machinery, whereby I am enabled to take advantage of any vibration which may be produced to the body or apparatus or vessel, in which my improvements are placed, and thereby produce to the pump or pumps a constant working action; thus, for instance, in a ship or vessel, the motion caused whilst sailing or lying at anchor will at all times be producing more or less action to the pumps on board, when constructed and applied according to my improvements. And my invention consists in so suspending or connecting a weight or weights to the piston-rods of pumps, that in whatever direction an inclination may take place, such weight or weights, from their being able to act in any direction, will cause a working motion to the pumps, and it is the giving a universal power to such weights to turn to their work, in whatever direction the inclination or oscillation may take place, which constitute my present improvements. But in order that my invention may be most fully understood, I will describe the drawings hereunto annexed, which represent an arrangement or combination having four pumps, by which it will be evident that other numbers of pumps may be worked in like manner by my improvements. But I conceive that it will not be necessary for me to describe more than these arrangements, as any competent workman will from these be able to apply my improvements to other numbers of pumps. And I would observe, that my invention does not relate to the ordinary parts of pumps, the constructions of which are well known.

Fig. 1 represents an elevation; fig. 2, a plan; and fig. 3 is also a plan of the cross-arms and handles by which the four pumps are worked. By these three figures my invention is represented as applied and arranged for working four pumps; *a, a*, being four ordinary pump-barrels or cylinders; *b, b*, their piston rods; *c, c*, their induction or suction pipes; and *d, d*, their eduction-pipes, which discharge themselves into the pipes, *e, e*, from whence the water may be conveyed to any direction from the point, *f*, by connecting proper pipes thereto; *g* is a rod suspended from above

at *h*, where the rod, *g*, has a spherical ball at its end, which works within a spherical socket formed at *h*, and thus producing a universal joint, as is well understood by mechanics, by which the rod is capable of oscillating in any direction. On to this rod, *g*, is affixed the cross-arms, *j*, which arms are at right angles to each other, and work the four piston-rods, as will be evident on inspecting the three figures of the drawings, the piston-rods being connected by connecting rods, working by universal joints, in like manner to that before described. Now it will be evident, that if a weight be suspended to the rod, *g*, sufficiently heavy to work the four pistons, and the quantity of this weight will vary even for the same sized pump-barrels, depending on the perpendicular height of the lift, it will not be necessary to give any particular dimensions; all that it will be desirable to observe is, that whatever be the pressure of the water to be lifted, the weight in falling from side to side shall be sufficient to overcome the resistance.

Having now described the nature of my invention, and the manner of combining and using the same, I would have it understood that I am aware that a weighted pendulum has been already used for actuating pumps, but has only been capable of swinging or vibrating in one direction, consequently was of no use in situations where the vibration, or oscillation, is continually changing its direction; I do not, therefore, lay any claim to a weighted pendulum working in such manner, but I claim the giving a universal property to turn, in any required direction, to a weighted pendulum actuating pumps, whereby, in whatever direction the vibration or inclination may take place, the said weighted pendulum, or other similar apparatus, may be able to turn in that direction, and work the pump or pumps; for I would observe, that although I have only described an arrangement of four pumps, it will be evident that similar effects may be produced to one or more pumps.—In witness whereof, &c.

Enrolled November 30, 1833.

REVENUE OF NEW-YORK.—The amount of duties accruing from importations in this city for the year 1834, is ascertained to be TEN MILLIONS ONE HUNDRED AND EIGHTY FOUR THOUSAND DOLLARS!!!

Anchor Ice. By JACK FROST. [For the New-York Farmer and American Gardener's Magazine.]

There is perhaps no operation in nature which occurs so frequently, and yet is so little understood by people in general, as what is commonly called *anchor ice*; or the formation of ice, either adhering to the bottom, or to stones and other solid bodies below the surface of the water, and which is generally considered a prognostic of an approaching thaw.

It has been said by an ingenious writer, that "a mystery explained is a mystery destroyed," and nothing could exemplify this saying better than the wonderful mystery of anchor ice, which a very little explanation will render no mystery at all.

It is a constant law of nature, that every substance is expanded by heat and contracted by cold. And it is another law, that any substance immersed in a fluid or liquid, will float at the top or sink to the bottom, in proportion as it is specifically lighter or heavier than the medium in which it is placed. Hence, if any particles of water are colder than the rest, those particles will be condensed and become specifically heavier, and will therefore sink to the bottom. Thus, as the particles of water give off their heat to the superincumbent atmosphere, which is colder, they sink to the bottom, giving place to others, which are cooled and sink in like manner; and the particles thus cooling and sinking, receive fresh heat from the surrounding particles, which are warmer, and of course rise again, giving place to the colder ones behind them; thereby keeping up a constant action of the particles of water from top to bottom and from bottom to top, which is more or less active, according to the difference of temperature between the water and the atmosphere above it.

From these facts it is evident, that, as the coldest water will always be at the bottom, no water can ever become frozen at the surface until the whole body of water becomes cooled down to near the freezing temperature; and this explains the cause why deep waters do not freeze as soon as shallow, and why the ocean never freezes at all.* And from the same causes, were it not for a counteracting principle, showing an equal display of infinite wisdom, water would always begin to freeze at the bottom, and we should know no ice but anchor ice.

When the water has given off that portion of caloric, which was necessary, under the atmospheric pressure, to sustain it in a liquid state—in other words, when it is cooled down near to the temperature of — Fahrenheit—the change commences, from the liquid to the solid state; in which change, as the operation of chrysalization begins to take place, the frozen particles, instead of farther condensation, begin to expand, and becoming specifically lighter, float on the surface, and this process continuing for a time,

* Except in shallow places round the edges, and within the polar circles.

the water becomes covered with a body of ice.

Along near the middle of the temperate zone the water is seldom covered with ice more than from 12 to 18 inches thick. Below this the water still remains above freezing temperature. The ground, uncovered with water, probably, at times, and in exposed places, freezes a little deeper.

If from a pond or lake which is frozen over, the water discharges itself by a short and pretty rapid stream, into another, which is also frozen, the water in passing will not perhaps cool sufficiently to freeze in its passage; and if the stream is of considerable depth, it will protect the ground from freezing below. But where the stream is shallow, if the cold weather continues long and severe, the ground at the bottom becomes frozen, and the water passing over it freezes to it; and every stone or other substance, lying upon the bottom, becomes the nucleus to a body of ice.

In like manner, where the water is raised by a dam, and the pond frozen over, if the weather continues very cold for a long time; and especially if the dam is long, and consequently the sheet of water which passes over it very thin, and therefore not sufficient to protect the dam from frost, the dam in that case will become so cold that the water will form ice in passing over it, which adhering to the dam as a nucleus, the whole dam will become covered with ice, which will continue to increase in thickness, till the obstructed water rises and breaks away, unless it finds an outlet somewhere else.

In common streams, when the cold commences suddenly, the surface becomes frozen, before the ground at the bottom is cooled to freezing point. But when the cold becomes intense and continues long, the ground and stones at the bottom are often cooled far below freezing, and though, perhaps, already frozen at the top, freezes to the bottom and to the stones, and frequently so interrupts its own passage as to force its way over the ice above, or if the surface was not frequently frozen, the bottom will be covered with ice and the water will run over it.

With respect to its indicating a thaw, there can be no doubt but it is just as sure a token as a long spell of severe cold weather, for one can scarcely happen without the other, and as one extreme of weather generally follows another, when the weather has been very cold for as long a period as usual, it is a pretty sure sign it will not continue so much longer, and of course there will be a thaw; just as after a long season of dry weather we expect rain.

JACK FROST.

Lansingburgh, 17 Jan., 1835.

Political Agriculture. By H. C. [For the Quarterly Journal of Agriculture, Mechanics, and Manufactures.]

What should the Government of the United States do for Agriculture? This is an important inquiry. Agriculture is essentially the great interest of the country. The just protection of commerce, the

fostering of our manufactures, and all internal improvements, the widening and deepening of our rivers, the forming of canals the laying of railroads, and all the various facilities and forms of mutual intercourse and exchange, are indissolubly connected with the agriculture of the country, and have a favorable bearing upon its prosperity; but our particular inquiry is, what ought the Government to do to promote the art and science itself; to make its principles better known; to improve its practice; to excite and encourage a stronger emulation; and to increase those means and facilities for its advancement which are within the power of the government alone.

The British Government has been most wise in their concern and liberal in their expenditures for this object. They appointed a Board of Agriculture, at the head of which was placed that enlightened and indefatigable friend of the cause, Sir John Sinclair. Under their direction, an exact and complete survey was made of the several counties of England and Scotland, the reports of which surveys were printed at the expense of the Board. They embody an immense mass of valuable information, and contributed in an effectual manner to the improvement of the agriculture of the United Kingdom.

General Washington, himself passionately devoted to agriculture, familiar, even amidst all his various concerns, with its practical details, and aware of its importance to the country, in some letters to Sir John Sinclair, who had sent him some of these reports, perceived at once their great value, and looked forward to the establishment of a similar board among us, whose labors might be directed with equal success to the same valuable results. His letters are deserving of attention, and I here quote parts of them.

"Philadelphia, 20th July, 1794.

"I have received with peculiar pleasure and approbation the specimens of the county reports you have sent me. Such a general view of the agriculture in the several counties of Great Britain is extremely interesting, and cannot fail of being very beneficial to the agricultural concerns of your country, and those of every other wherein they are read. I am so much pleased with the plan and execution myself, as to pray you to have the goodness to direct your bookseller to continue to forward them to me, accompanied with the cost, which shall be paid to his order, or remitted as soon as the amount is made known to me. When the whole are received, I will promote as far as in me lies the reprinting of them here.

"I know of no pursuit in which more real and important service can be rendered to my country, than by improving its agriculture, its breed of useful animals, and other branches of a husbandman's care; nor can I conceive any place more conducive to this end than the one you have introduced for bringing to view the actual state of them in all parts of the kingdom; by which good and bad habits are exhibited in a manner too plain to be misconceived; for the accounts given to the British Board

of Agriculture appear in general to be drawn up in a masterly manner, so as fully to answer the expectations formed in the excellent plan which produced them,—affording, at the same time, a fund of information, useful in political economy, and serviceable in all countries."

A second letter is dated Philadelphia, 10th July, 1795: "I could not omit so favorable an opportunity as the departure of Mr. Strickland affords me, of presenting my best respects to you, and my sincere thanks for the views of agriculture, in the different counties, which you have had the goodness to send me, and for the diploma (received by the hands of Mr. Jay,) admitting me a foreign honorary member of the Board of Agriculture. For this testimony of the attention of that body, and for the honor it has conferred on me, I have a high sense; in communicating to the Board, I shall rely more on your goodness, than on any expression of mine to render it acceptable.

"From the first intimation you were pleased to give me of this institution, I conceived the most favorable ideas of its utility; and the more I have seen and reflected on the plan since, the more convinced I am of its importance, in a national point of view, not only to your own country, but to all others which are not too much attached to old and bad habits to forsake them; and to new countries that are just beginning to form systems for the improvement of their husbandry."

A third letter to the same gentleman is dated Philadelphia, 10th December, 1797: "The result of the experiments entrusted to the care of Dr. Fordyce must be as curious as they may prove interesting to the science of husbandry. Not less so will be an intelligent solution of those inquiries relative to live stock, which are handed to the public."

"A few months more, say the third of March next, and the scenes of my political life will close, and leave me in the shades of retirement; when, if a few years are allowed me to enjoy it (many I cannot expect, being upon the verge of sixty-five,) and health is continued to me, I shall peruse with pleasure and edification, the fruits of the exertions of the Board for the Improvement of Agriculture; and shall have leisure, I trust, to realize some of the useful discoveries which have been made in the science of husbandry.

"Until the above period shall have arrived, and particularly during the present session of Congress, which commenced the 5th inst., I can give but little attention to matters out of the line of my immediate avocations. I did not, however, omit the occasion at the opening of the session, to call the attention of that body to the importance of agriculture. What will be the result, I know not at present, but if it should be favorable, the hints, which you will have it in your power to give, cannot fail of being gratefully received by the members who may constitute the Board."

I regret that I have not at this time access to the speech to which he refers in this letter; but it is understood that he

proposed to Congress the establishment of a Board of Agriculture similar to that which existed in Great Britain. Such were the views of this great man, this true patriot, of the importance of the great interest of agriculture to the United States; and of means within the immediate power of the Government, by which they could most essentially subserve its advancement and prosperity. It is certain it has not received that direct attention and patronage to which it is entitled; and though the Government has done something for the protection of the wool grower, and for the cultivation of silk and sugar, by the publication and distribution of valuable treatises on these two important subjects, yet very little has been, nothing compared with what might be, may I not add, ought to be done, both for these and other important interests of agriculture. The establishment of a Board of Agriculture like the English Board, composed of a few of our most enlightened, enterprising, and patriotic farmers, or planters, whether in Congress or out of it, who would give their attention to obtain a thorough agricultural survey of the whole country, would be of the highest benefit. This is a matter of such universal advantage, and in which no party views could mingle, unless they were forced in by violence, I can but indulge the hope that if it were distinctly presented and urged upon Congress by a respectable array of names, in different parts of the country, it would be favorably considered. But if the plan should be thought too extensive to be feasible by the government of the United States, it ought to be urged upon the different States. Let the Empire State, the magnificent republic of New-York, take the lead in this as in other splendid essays of improvement. Massachusetts, never behind in any good work for the general welfare, and Pennsylvania, now almost breathless in her public enterprises, will no doubt follow in her train; and, in due time, a mass of agricultural intelligence would be obtained, and at a comparatively trifling expense, which would, in its beneficial influence upon the States who should undertake such a thorough agricultural survey of their own territories, be more than an equivalent for a hundred times its cost.

With a view of communicating my own ideas more fully, and of drawing the attention of others to the subject, I hope it will not be thought presuming too much if I subjoin such a form of memorial as I should be glad to see presented to the Congress of the United States at a future session, with the names of many of our distinguished and influential fellow-citizens attached to it; and if it should fail of success there, or there should be so little hope of success as to discourage and prevent the application, such an one as might properly be presented to the Legislatures of several of our States, hoping that at least there the obvious advantages of such a survey might, from being nearer, be more fully seen, and the project be received with favor. I am very far from presuming that this is the best way of accomplishing the particular object,—that is, a thorough agri-

cultural survey of the country; and entertain no exclusive partiality for my own views; but this is a mode which has occurred to me, and with all due respect I leave it to the wise, intelligent, and patriotic, among the friends of agriculture, to suggest a better.

(To be continued.)

Miscellaneous Collection of Facts and Opinions. By S. F. [For the New-York Farmer and American Gardener's Magazine.]

BUTTER.—There are three requisites in producing an easy separation of cream—the milk should have a large surface, be kept perfectly still, and at the temperature of 54 to 56 degrees. If desirous of obtaining all the cream, the milk should not be skimmed as soon as it curdles. The best butter, however, is made from the cream that rises first. If the room containing the milk is too warm in the hot season, the floor should be often washed, and salt occasionally sprinkled over it. The sooner the cream is churned the better will be the butter, and the less the latter is washed with water, the more delicate and pleasant will be its flavor. In the fall and winter, Mr. W. Allen, of North Andover, obtains butter by churning ten minutes. He raises his cream to 72 or 73 degrees.

CUT STAW FOR HORSES.—At this season of the year, horses that are used much, or that perspire freely, are apt to take cold, and become hide-bound. They require once or twice a couple of table spoonfuls of sulphur mixed with their food, which should be of cut straw, and corn and cob, and oats, ground together. If well curried, their skins will soon be loose, and they will begin to thrive immediately.

HAY ON BARN FLOORS.—When hay, particularly clover, is thrown on the floor, much of it, and the most valuable part, too, breaks and crumbles into so small pieces, that the fork will not take them up. In most barns, this is entirely wasted or shoved out into the yard, where but comparatively little of it is picked up by the stock. "I," says an aged farmer, "keep my barn floor as clean as my wife's parlor, and every day shovel into an old sleigh or box, which I keep standing by, all the leaves, seeds, and fine parts of the hay. This makes superior feed for my cows: if moistened with water, and a small quantity of bran or meal added, and given about the time of calving, nothing appears more nourishing to them.

MORUS MULTICAULIS.—Seeds of this plant have been sown in this country, in the vicinity of Northumberland, Mass. I think. Perhaps some reader of the New-York Farmer will state the result in reference to this plant being a mere variety. It is the opinion of the French Royal Society of Agriculture that it is not a distinct species—that its seed will not produce its like—that it cannot be preserved except by propagating it by layers, cuttings and grafts—and that it is exclusively by these means that the Chinese have reared this plant from time immemorial.

STONE WALL FOR SHEEP.—A farm well fenced with stone is much more valuable

than one with rails, even if suitable timber grows on the farm. There is, however, one drawback: One unruly sheep will take a flock over a whole farm, and soon learn them to skip over the best of wall fences, with so much ease that it is impossible to keep them, except where they are disposed to remain. Some farmers have been obliged to abandon sheep husbandry on this account. If the stone wall is high, and well faced, and the pasture good, sheep may often be kept without much inconvenience or damage. Ordinary stone fences, with a top rail, will not prevent unruly sheep from scaling them. They will approach the fence in an oblique direction, and skip over it with the ease of a deer. If the top rail is made to project over towards the field in which the sheep are, it answers a much better purpose. The best top rail is red cedar, with all the limbs left on to the length of two feet. If two fields are fenced in this manner a farmer need not be troubled with unruly sheep. Alternating them in these lots will ever afford good pasture, and enrich the ground.

Swine. By H. C. [For the New-York Farmer and American Gardener's Magazine.]

MR. EDITOR: To inquisitive minds facts are always instructive and valuable. "What man has done, man can do." This is a lesson of the highest practical utility. The experiments of others excite competition, and their success encourages and animates our exertions. For these reasons I propose to give you, from my agricultural minutes, a few accounts of the success of some individuals in fattening swine. I shall not refer to any examples of hogs which have been kept to an advanced age, and on account of their extraordinary size have been carried through the country for exhibition. Some of these have been of an enormous size. But I propose to give you the weight of some which have been fatted for consumption, and their weight, when dressed for the market. I shall put down, where they are ascertained, the place and year where and when they have been raised, their owners' names, their age, and weight.

- 1815—Eli Cooley, Deerfield, Mass., killed eight. They were all of one litter, and were 19 months old. Their weight as subjoined—577, 492, 598, 423, 492, 445, 405, 455—total,.....3809 lbs.
- 1822—P. Denton, Greenfield, N. Y. four pigs, 9 months 17 days, wt. 348, 318, 310, 308—total,.....1284 "
- 1824—Oliver Chickering, Shrewsbury, Mass. one, 19 months,..... 650 "
- G. Wheelock, do. one, 30 months,..... 584 "
- 1825—Maskell Ware, Rhodestown, N. J. one,..... 740 "
- Johnston, Bridgton, N. J. two, 19 months,.....1100 "
- 1828—Enoch James, Deerfield, N. H. one, 18 months,..... 716 "
- Smith, Hunterdon, N. J. five hogs, the oldest 12 months, four less than 11 months; largest, 329 lbs.; smallest, 265; weight of the whole, 1501 "
- 1829—Stacy Hall, Portsmouth, N. H. one, 23 months 682 "
- This hog gained 500 lbs. in less than a year. He was of the Byfield breed.
- 1830—Alanson Sessions, Cumberland, R. I. one,..... 675 "
- one,..... 645 "
- Richd. Leisure, Swansey, R. I. one, 30 months,..... 712 "
- 1831—John King, Medford, Mass. one, 30 months,..... 786 "

Samuel Dare, Salem county, N. J.	954 lbs.
one, weight alive, 1074 lbs.	
D. Rowell, Madison,	
six hogs, wt. 427, 436, 449, 483, 492,	
538—total.....	2895 "
Capt. Mackay, Weston,	
two hogs, 20 months—wt.....	1218 "
Farmer in Dunning street, N. Y.	
twenty-nine hogs, average wt. each	400 "
1833—Karl Stinson, Galway, N. Y.	
twenty hogs, average wt. each....	414 "
1833—Asa Littlefield, Framingham, Mass.	
one, 18 to 19 months.....	678 "
1834—In Nantucket, Mass.	
one.....	470 "
Increase in 267 days, 295 lbs.	
Sable Rogers, Springfield, Mass.	
one, 3 years old.....	708 "
E. Thayer, Charlemon, Mass.	
one, 17 months.....	542 "
—Pittston, Ramaselaer county, N. Y.	
two, 15 months.....	893 "
—Lansingburgh, N. Y.	
one, 14 months.....	412 1/2 "
R. Benedict, Lagrange, Dutchess co., N. Y.	
sixteen hogs, average each.....	333 "
S. B. Clapp, Lagrange,	
one, 10 months.....	340 "
Called the Mocho breed; probably	
some local designation.	
Andrew Lake, Sharon, Dutchess co., N. Y.	
twenty-one hogs, average wt.....	351 "
—Doty, Hempstead, L. I.	
Two hogs, 14 months old, one.....	611 "
	578 "
The above were fed upon apples and	
milk through the last of the sum-	
mer; in the fall, upon Indian meal,	
how prepared is not known.	
—De Wolfe, Deerfield, Mass.	
two hogs, one.....	432 "
	482 "
1835—Eben. Burrill, Jr., Lynn, Mass.	
Three hogs, age not ascertained, but	
believed not to exceed 19 months:	
one.....	492 "
".....	610 "
".....	743 "
Total.....	1845 "
Solomon Williams, Deerfield, Mass.	
one.....	482 "
".....	528 "
Total.....	1010 "

Such results as the above are certainly remarkable and encouraging. Much, undoubtedly, of such success is owing to the particular breed of hogs; not a little to the management and mode of feeding. In no branch of husbandry has there been greater and more acknowledged improvement than in the race of swine, within indeed the memory of most of us. This improvement, in the judgment of one of the most distinguished butchers and packers of pork in Boston, has added hundreds of thousands of dollars to Massachusetts. The origin of the Byfield breed I perfectly well remember. A respectable friend of mine, living in Byfield, one of the parishes in Newbury, Mass., being at market one day in Newburyport, found a small Chinese boar pig, recently arrived in a vessel from India or Canton; which he obtained and carried home in his pannier or market cart; for it was then common to carry meat to market in two large square baskets, hung on either side of the saddle, where the farmer rode. From this animal he propagated the stock with success, which has spread through the whole country, and even to Europe, under the same name. This could not have been far from the year 1790, and this good man and excellent farmer is still living.

Since that time various crosses have been made, and other valuable breeds introduced into the country. Without question, the finest boar in appearance which I have ever seen is owned by David Hosack, Esq., M. D., at his magnificent establishment at Hyde Park on the Hudson; whose superlatively fine stock of Improved Durham Cows, not surpassed, and, when the number is considered, not equalled by any, which have come under my observation, and whose admirable flock of pure Dishley 'bucks and ewes, reflect the highest honor upon his public spirit, and his truly patriotic liberality. Mr. Caleb N. Bement, of Albany, the keeper of an excellent hotel in Market street, a spirited and intelligent farmer, as well as a courteous and attentive landlord, has, through the kindness of Dr. Hosack, a boar from his stock, which promises extremely well. He has likewise a cow from the improved stock of I. Whitaker, of England, of most extraordinary excellence in appearance and product; and much other stock, deserving the attention and examination of every admirer of fine animals.

H. C.

Meadowbanks, Jan. 7, 1835.

Tanner's Bark and Leaf Mould for Strawberries. By D. F. A. [For the New-York Farmer and American Gardener's Magazine.]

MR. FLEET: In the last number of the Farmer I notice a communication by H. H., on the use of tanner's bark in the cultivation of the strawberry. I tried it some years since, and though a very good thing, it has some disadvantages: First, it is generally found to impart a disagreeable flavor to the fruit; secondly, it cannot be procured at all times, and then but in few places, unless at too much expense. I have this year tried a substitute, which I recommend in preference, as every wood or copice will furnish the material.

Rake away all the loose leaves from a corner or hollow, where they annually settle, and gather the coarse mould beneath; or prefer the decayed wood from an old stump or fallen tree, that has decomposed, until it has become nearly in appearance like tanner's bark. It is without that astringent quality, and will answer in all respects, prevent weeds, preserve moisture, warmth in winter, food in spring, and by selecting the wood from different trees, a variety of tints may be formed that will make a pleasing appearance when this chilly season deprives us of so much of our garden foliage. I subjoin my method of cultivating. In the fall, cover the beds slightly with straw, and burn all down; then dig in between the hills with a trowel or deep hoe, rake smooth, and replace with a fresh dressing two inches thick, for winter protection, &c. The hills ought to be no more than twelve inches apart, and two or three stems in a hill. While the fruit is setting, water morning and evening, with a table spoonful of salt to each pail of rain or river water; if well wa-

tered, it should be exposed to the sun some days. A bed planted from any good variety in full bearing will, thus treated, always insure a crop. Early in September is the best time to plant, choosing the first made runner plants, or some offsets for immediate bearing. The runners will come in the second and third season. D. F. A.

December, 1834.

SUPPLYING THE CITY WITH WATER.—In the board of Aldermen last evening, the Report of the Commissioners for supplying the city with water, was read and accepted. "The plan" says the Times "is to obtain water from the Croton river—the grand reservoir for the city to be the summit of Murray Hill, about three miles out, and which is higher than the highest house in the city. The cost of bringing water to Murray Hill, is calculated to be \$4,250,000, and from thence through the city \$1,262,000 more, making in all \$5,512,000. The pipes already down will answer for a part, and their cost may be taken from the above amount. It was stated that in 110 fires last year the loss of property which was insured amounted to \$910,931, and that there was about half as much more not covered by insurance. The loss by fire in the city of New York averages \$1,000,000 a year, one fifth of the cost of the projected water works, most of which would be saved by a ready and abundant supply of water."

We trust the Board of Assistants will, at their next meeting, concur with the Aldermen, and that, at the Spring Election, there will be a clear vote in favor of this useful, this magnificent, and only certain, project.

23d CONGRESS—Second Session. LIST OF ACTS

Passed at the second session of the 23d Congress.

An act to render permanent the present mode of supplying the Army of the United States, and fixing the salary of certain clerks therein named.

An act for the relief of Samuel Bragdon, David Chase, and the owners of the schooner Halcyon.

An act for the relief of Charles Gordon, and the crew of the schooner Two Sons.

An act for the relief of Wm. P. Zantinger, Purser in the Navy of the United States.

An act for the relief of Silas D. Fisher.

An act for the relief of Mervin P. Mix.

An act for the relief of Humphrey B. Gwathmey.

An act for the relief of Robert Haile.

An act for the relief of Evan Edwards.

An act for the relief of Samuel S. Lord, and the owners and crew of the fishing schooner Mary and Sally, of York, in the State of Maine.

An act for the relief of Frances Lassell and others, Michigan volunteers.

An act for the relief of Samuel Butler.

An act for the relief of Job Barton.

An act for the relief of David Kincaid.

An act for the relief of Stevens Smith, and the heirs of Patrick McRowan and crew of the fishing schooner Rising States, of Bath Bay, in the State of Maine.

An act for the relief of Mathew C. Perry, a Master Commandant in the Navy of the United States.

An act for the relief of E. R. Shubrick, of the United States Navy.

An act for the relief of Riddle, Beetle, and Headington.

An act for the relief of John J. Avery.

An act for the relief of Stephen Gatlin.

An act for the relief of Theodore Owens.

An act for the relief of the representatives of Thomas Clammont.

An act for the relief of Shubael Conant.

An act for the relief the legal representatives of Aaron Smith.
 An act for the relief of Thomas Ball.
 An act for the final adjustment of the claims to land in the southeastern district of Louisiana.
 An act for the relief of Wm. Haskell and others.
 An act for the relief of John Collins, a soldier of the Revolutionary war.
 An act for the final adjustment of claims to lands in the State of Louisiana.
 An act granting a pension to Amasa A. Tift.
 An act to regulate the pay of the Navy of the United States.
 An act granting a pension to Isaac Janvier.
 An act for the relief of Peter Triplett.
 An act authorizing the Secretary of the Treasury to refund to Richard Butman the tonnage duty imposed on the schooner Brandywine.
 An act granting a pension to Wm. Wilges.
 An act for the relief of Simeon Meacham, of the State of New York.
 An act for the relief of the children of Dominick Lynch.
 An act granting a pension to Joseph Mead.
 An act granting a pension to Benjamin Leslie.
 An act for the relief of James Young.
 An act for the relief of Henry Awkward.
 An act granting pensions to William Baden and James Harrington.
 An act for the relief of John Ashton.
 An act granting a pension to John Gerodelle.
 An act granting a pension to Samuel Shelmerdine.
 An act for the relief of Joseph Gilbert.
 An act for the relief of the legal representatives of John Muldowney.
 An act granting a pension to Thomas Morton.
 An act for the relief of Timothy Jordan.
 An act for the relief of the heirs and legal representatives of Bailey E. Clarke.
 An act to authorize the Secretary of State to issue letters patent to James Jones.
 An act for the relief of Joseph Swartwood.
 An act for the relief of Abraham E. Boutwell and David Pearson.
 An act for the relief of Daniel Page.
 An act to allow further time to complete the issuing and locating of military land warrants during the late war.
 An act for the relief of Thomas Buford.
 An act to make appropriations for the payment of the Revolutionary and other pensioners of the United States, for the year one thousand eight hundred and thirty-five.
 An act to extend the time of issuing military and land warrants to the officers and soldiers of the Revolutionary army.
 An act making appropriations for the support of the army for the year one thousand eight hundred and thirty-five.
 An act making appropriations for the current expenses of the Indian Department, for the year one thousand eight hundred and thirty-five.
 An act for the relief of John Moore.
 An act making appropriations for the naval service for the year one thousand eight hundred and thirty-five.
 An act making appropriations for Indian annuities and other similar objects for the year one thousand eight hundred and thirty-five.
 An act to amend an act, entitled "an act authorizing the construction of a bridge across the Potomac, and repealing all acts in relation thereto."
 An act for the relief of George C. Seaton.
 An act granting a pension to John Bryant.
 An act granting a pension to Larnard Stallow.
 An act for the relief of Richard T. Archer.
 An act to change the place of holding the District Court of the United States of the District of Mississippi.
 An act for the relief of John Tice, assignee of William Pennington.
 An act granting a pension to Noah Miller, an invalid major of the militia.
 An act making appropriations for certain roads, and for examinations and surveys, for the year one thousand eight hundred and thirty-five.
 An act placing Captain Cole, a Seneca Indian Chief, on the pension roll.
 An act making additional appropriations for the

Delaware breakwater, and for certain harbors, and removing obstructions in and at the mouths of certain rivers, for the year one thousand eight hundred and thirty-five.
 An act for the relief of William O'Neale and Robert Morrison.
 An act for the relief of Benjamin Holland.
 An act authorizing the construction of a Dry Dock for the Naval service.
 An act making appropriations for building light boats, beacons, and monuments, and placing buoys for the year eighteen hundred and thirty-five, and for other purposes.
 An act to authorize the City Council of St. Augustine to widen a street in St. Augustine.
 An act to authorize letters patent to be issued to Francis B. Ogden.
 An act making appropriations for the Civil and Diplomatic expenses of Government for the year one thousand eight hundred and thirty-five, and for other purposes.
 An act amendatory of the act for the continuation of the Cumberland Road.
 An act to authorize the removal of the Land Office at Wapahongkonea to Lima, in the State of Ohio.
 An act to prescribe the punishment of Consuls, Commercial Agents, and others, in certain cases.
 An act to authorize the sale of certain lands belonging to the University of Michigan.
 An act for improving the harbor at the mouth of the river Raisin, in the Territory of Michigan.
 An act granting to the borough of Michilimackinac certain grounds for public purposes.
 An act for the completion of certain improvements in Florida.
 An act for the relief of Col. J. Eugene Leitensdorfer.
 An act for the relief of the legal representatives of Moses Shepherd, deceased.
 An act for the relief of John Dougherty, an Indian Agent.
 An act for the relief of Lemuel Tanner, assignee of Pierre Dufresne.
 An act making an appropriation for the completion of the Military Barracks at New Orleans.
 An act to provide for the further compensation of the Marshal of the District of Delaware.
 An act to authorize the construction of a railroad upon the public lands from Tallahassee to St. Marks, in Florida.
 An act supplementary to an act entitled an act to authorize the inhabitants of the State of Louisiana to enter the back lands.
 An act to continue the office of Commissioner of Pensions.
 An act for the continuation and repair of the Cumberland Road, in the States of Ohio, Indiana, and Illinois.
 An act to complete certain roads of the Territory of Arkansas.
 An act in amendment of the acts for the punishment of offences against the United States.
 An act to establish branches of the Mint of the United States.
 An act to authorize the Secretary of the Treasury to compromise the claims allowed by the commissioners under the Treaty with the King of the Two Sicilies, concluded Oct. 14, 1832.
 An act further to suspend the operation of certain provisions of "an act to alter and amend the several acts imposing duties on imports," approved July 14, 1832.
 An act further to extend the time allowed for the execution of the duties of the commission for carrying into effect the convention with France.
 An act granting a pension to Justus Cobb.
 An act granting a pension to Isaac Eckright.
 An act granting a pension to Solomon Case.
 An act to change the time of holding the District Court of the United States, for the Western District of Virginia, held at Clarksburg.
 An act supplementary to an act entitled "an act to authorize the extension, construction and use of a lateral branch of the Baltimore and Ohio Railroad, into and within the District of Columbia."
 An act to provide for paying certain pensioners at Jackson, in the State of Tennessee.
 An act to extend the patent of Robert Eastman, for a further period of seven years.
 Joint Resolution, giving the right of way thro'

the property of the United States at Harper's Ferry, to the Winchester and Potomac Railroad Company.

Resolution for the (sale) of a Lion and two Horses, received as a present by the Consul of the United States at Tangier, from the Emperor of Morocco.

Resolution presenting a gold medal to Gen. Croghan, and a sword to each of the officers under his command, for their gallantry and good conduct in the defence of Fort Stephenson in 1813.

The President has recognized NICHOLAS D. C. MOLLER, as Consul of the Republic of Venezuela, for the city of New York.

MASSACHUSETTS—GOVERNOR DAVIS transmitted a message to both Houses of the Legislature, resigning the office of Governor and accepting that of Senator in Congress. Lieutenant Governor Armstrong, by the Constitution, is empowered to perform all the duties and exercise all the prerogatives of Governor, for the remainder of the year, and until a Governor shall have been chosen and qualified in his stead.

The Arabian horses, lately sent as a present from the Emperor of Morocco to the President of the United States, were sold at auction, at Washington, on Monday, in pursuance of a resolution of Congress. One was bought by Mr. Flournoy of Virginia, for 1205 dollars; and the other, by Messrs. Horton and Tammany, of Pennsylvania, for 860 dollars.

The Boston Transcript of Monday evening says "The Frigate Constitution got under way this morning at half past 11, and was towed out of the harbor by the steamboat Banger."

†Extract from the *Garde National*.

MARSEILLES, DEC. 19, 1834.

General statement of commerce, of France, 1833.

The second result offered by the administration of the custom-house, in its *Tableau General*, is that of the whole of our relations with each of the great commercial Powers of the world.

The United States continue to be placed very far ahead of the nations with which we hold the most extensive trade. In 1833 our importations amounted to 99,079,212 francs, and our exportations to 117,396,336 francs. After the United States, the following is the order of the Powers with which our relations are the most extensive:

	Imports.	Exports.
England, comprising Malta, Gibraltar, and the Ionian Islands, ..	39,741,639	116,195,829
Belgium	62,844,033	62,368,158
Spain, including the Canary Islands ..	41,844,565	62,491,390
Sardinia, island and continent	68,737,900	49,687,122
Austria, including the Lombard Venetian Kingdom	48,213,779	6,657,401
Switzerland	31,169,003	58,191,450
Germany	24,567,158	41,945,779
Russia	23,103,600	10,553,791
Prussia	90,491,942	7,401,000
India	37,406,138	5,905,192
Turkey, including the islands of the Archipelago	17,364,911	14,412,779

§ The following statements are taken from the official tables for the financial years, ending the 30th September of each year.

Imports from France.

Years.	Total.	Silks.	Wine.	Brandy.
1824	8,121,000	2,340,000	200,000	590,000
1825	11,836,000	3,632,000	419,000	864,000
1826	9,500,000	4,124,000	639,000	458,000
1827	9,449,000	4,261,000	565,000	694,000
1828	10,998,000	3,992,000	438,000	1,064,000
1829	9,617,000	4,363,000	444,000	614,000
1830	8,241,000	3,518,000	445,000	310,000
1831	14,724,000	6,848,000	651,000	254,000
1832	12,755,000	5,044,000	904,000	616,000
1833	13,963,000	6,256,000	930,000	890,000

Exports to France.

Years.	Total.	Cotton.	Value.	Am ton. Fr. ton.
		lbs.	cleared.	clear'd.
1824	10,552,000	40,626,000	6,436,000	104,000
1825	11,881,000	30,012,000	5,918,000	100,500
1826	12,106,100	62,943,000	8,176,000	131,500
1827	13,565,000	70,423,000	7,350,000	147,700
1828	12,008,000	52,460,000	5,903,000	120,900
1829	12,532,000	47,464,000	6,855,000	137,700
1830	11,800,000	78,165,000	7,846,000	148,700
1831	8,672,000	46,127,000	6,860,000	98,800
1832	13,845,000	77,477,000	7,723,000	129,500
1833	14,465,000	76,623,000	8,945,000	119,600

Novel, Practicable, and Cheap Mode of obtaining Good Crops of Wheat. By O. P. Q. To the Editor of the New-York Farmer.

MR. EDITOR,—In the Complete Farmer and Rural Economist, recently published in Boston, a work of great merit, the following directions are given for the cultivation of wheat on the authority of John Townsend, of Andover, Conn. We make only a short extract: After a crop of corn, "plough three inches deep, and spread on evenly four or five inches of well rotted manure, and sow three pecks of good clean wheat to the acre, and unless something disastrous happen, the summer following your garner may be filled with the finest wheat."

Now, we ask, very respectfully, of the "editor of the Complete Farmer," to whose authority we have been long disposed to defer, to inform us who is the happy farmer, saving always Mr. Jno. Townsend, of Connecticut, who has manure enough, and time enough to put it on, to spread evenly four or five inches of well rotted manure over his wheat fields? and to let us know whether "any thing disastrous" has happened to Mr Townsend since he adopted this very pleasant and feasible operation? This is book-farming with a witness. O. P. Q.

STONES ON TILLABLE GROUND.—It is the practice of most farmers to pick the stones off their fields after they are laid down to grass the spring prior to mowing. Is it not better to carry them off when putting in the seed, and prior to the last harrowing. By thus doing, grain and grass will grow in the places occupied by the stones; and these are often very considerable portions of the surface. At this time there is no difficulty in getting up the stones. Last fall, I sowed five acres of stony ground with wheat and rye, and picked off all the stones after the seed was sown, and before the harrowing was finished. The appearance of the field was very much improved.

PLASTER OF PARIS.—At the distance of fifteen miles from the city, on the banks of the Hudson, gypsum answers a very good purpose on clover; and yet salt water ascends near a hundred and fifty miles above this. On Long Island, it is supposed not to succeed on account of the proximity of salt water.

CLOVER WITH OATS.—Many of the farmers in West Chester and Putnam counties sow clover seed with their oats—think it takes better than with rye or wheat. The ordinary rotation in most parts of this section of the Union is corn, oats, rye, or wheat with clover. In order to secure the enriching properties of clover, I should suppose, even in this rotation, it would be profitable to sow clover with a view of turning it under for rye or wheat in the fall. The expense of seed and sowing is but a trifle. The pasture, from the time the oats are cut to that for fall ploughing, will pay for all expenses.

STOCKINGS.—Those made of common wool are said to be more durable than from Merino wool.

TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of **Duffee, May & Co.** offer to supply Rope of any required length (with-out splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.
Hudson, Columbia county, New-York, {
January 29, 1833.

RAILROAD CASTINGS.
MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.
Railroad Spikes of every description required, made at the Albany Spike Factory.
Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.
Orders may be addressed to Messrs. **ERASTUS CORNING & CO.**, Albany, or to **THOMAS TURNER**, at the Factory, Troy, N. Y. sept. 18-1 y

PATENT RAILROAD, SHIP AND BOAT SPIKES.
The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. **HENRY BURDEN**, Agent.
Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 323 Water street, New-York; A. M. Jones, Philadelphia; T. Janvier, Baltimore; DeGrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

MILL DAM FOUNDRY FOR SALE.
The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of:
No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.
No. 2. Blacksmith's Shop, 50 feet by 30, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 35, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.
No. 4. A three story brick building, covered with slate, 190 feet by 40, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathe, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 14 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines Lead Mill Rolls, Gearing, Shafts, Gears, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store-rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 35 to 40 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOS. J. ECKLEY, Treas. &c., Boston, or to
ROBERT KALSTON, Jr., Philadelphia.
Boston, Dec. 20, 1834.

STEPHENSON,
Builder of a superior style of Passenger Cars for Rail-
road,
No. 264 Elizabeth street, near Bleecker street,
New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. JAS if

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, 30 00 Wall street, New-York, will be promptly attended to.
Also, CAR SPRINGS.
Also, Flange Tires turned complete.
J8 **ROGERS, KETCHUM & GROSVENOR.**

RAILWAY IRON.
35 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 200 do. 1 1/2 do. 14 to 15 feet, counter sunk 40 do. 1 1/2 do. holes, endcut at an angle 800 do. 2 do. of 45 degrees, with splicing plates and nails to 800 do. 3 1/2 do. suit.
soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.
Wrought Iron Rims of 30, 32, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.
Axles of 2 1/2, 3, 3 1/2, 4, 4 1/2, and 5 inches diameter for Railway Cars and Locomotives of patent iron.
The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

SURVEYORS' INSTRUMENTS.
Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by
E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.
The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principle of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.
The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.
Baltimore, 1833.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineers and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Supt of Construction
of Baltimore and Ohio Railroad.
Philadelphia, February, 1833.

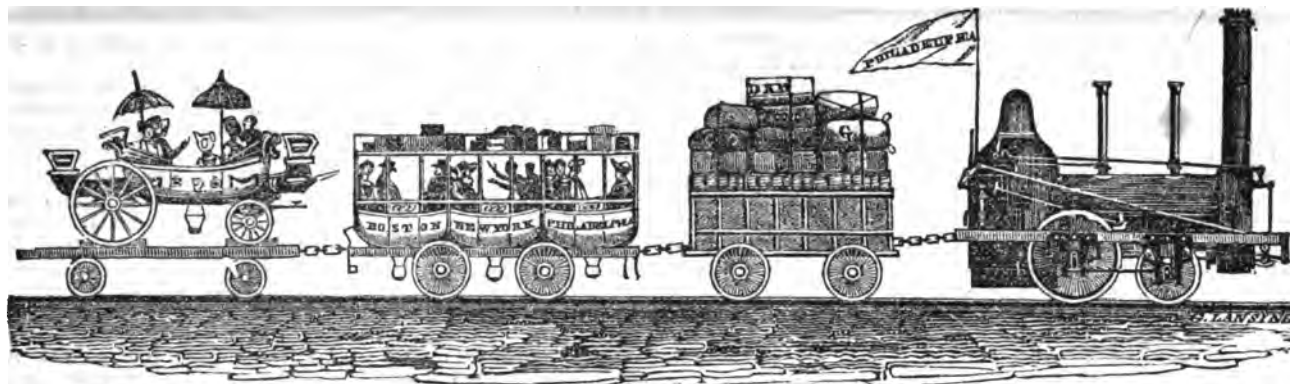
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad.
German and Norristown Railroads



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, MARCH 14, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MARCH 14, 1835.

MARYLAND, AS CONTRASTED WITH NEW-YORK, ENTERPRISE.—The House of Delegates of Maryland have authorized a loan of two millions of dollars for the purpose of completing the Chesapeake and Ohio Canal to Cumberland. This is truly an evidence of liberality. This canal terminates in another territory—yet the State of Maryland, with a spirit of true and judicious munificence, or liberality to its Western citizens, who are to be benefitted by the work, lends her credit to insure its completion—as she also has for the completion of the Susquehanna Railroad, by the loan of a million, for the benefit of the City of Baltimore.

Will the great State of New-York imitate her example?

ONTARIO AND HUDSON SHIP CANAL.—We have commenced in this number the Report of Mr. E. F. JOHNSON, upon that part of the canal between Utica and Oswego. It was our intention to have given it entire, but its length has prevented. We shall, however, give in the next number his very appropriate and correct remarks upon the importance of the work. They exhibit

the enlarged views of a liberal mind—and should be read by every man who doubts the importance and necessity of the work.

The annexed extracts from Mr. Johnson's remarks will show the advantages to be derived from a ship canal navigation.

From Lake Erie to the Hudson River, the distance by the Ontario route is 378 miles, and exceeds that by the Erie Canal only 15 miles. Of this distance, 146 miles is along the Niagara River and through Lake Ontario; about 62 miles more of improved navigation along the Oswego and Oneida Rivers and Oneida Lake, leaving only 140 miles from the latter point to the Hudson at Albany.

The increase in lockage by the Ontario route is 240 feet, which being overcome by 30 locks, will occasion a delay of four hours; making the liberal allowance of eight minutes for the passage of a single lock. To compensate for this delay, we have the greater celerity of motion on the Ontario route, which may be rated as follows:

Buffalo to Lewiston, 30 miles, 3 1-3 miles pr. hour, 9 hours.
Lewiston to Oswego, 146 " " " " " 16 "
Oswego to Albany, 202 " 5 1-2 " " 37 "
Total, 378 miles in 62 hours.

By the Erie Canal the distance is 363 miles, which, at 2 1/2 miles per hour, the average speed for freight boats, gives 145 hours; making a difference in favor of the Ontario route of 83 hours, or reducing the time more than one half.

My estimate of the probable relative cost of transportation, is deduced, in part, from a printed tariff of rates established by companies engaged in that business, for the year 1834, and since the reduction of the tolls:

From this tariff, the charge per mile, per 1,000 lbs., for heavy goods, conveyed as described, is as follows:

	Miles.	
New York to Albany, 7.3	Steam on the Hudson River.	
Albany to Buffalo, 22.6	By the Erie Canal.	
Buffalo to Detroit, 11.3	By vessels. } to 15th Oct.	
	" steamboats. }	
Buffalo to Chicago, 6.2	By schooners to 20th Sept.	
Oswego to Niagara, 14.5	To 15th October.	
Oswego to Toronto, 13.2		

The preceding exhibits a great difference in favor of navigation by wind and steam upon the larger waters, when compared with a canal.

On the Hudson River the cost is only one third of that upon the canal for the same distance.

On Lake Erie, from Buffalo to Detroit, it is one half by sail vessels and three fourths by steamboats. On Lake Ontario it is two thirds, and from Buffalo to Chicago but little more than one fourth.

The reason for a higher charge upon Lake Ontario than Lake Erie, is undoubtedly in a great measure owing to the less amount of business upon the former, a difference which will not exist when Lake Ontario shall become a more general medium of transportation.

From Lake Erie to the Hudson River, on the Ontario route, one third of the whole distance is lake navigation. It will not, I apprehend, be unreasonable to infer from the facts presented above, that the cost of transportation will, in consequence, be materially reduced.

At the close of the Report given in this number of the Journal, is a transposition. The table of aggregate sections should come before the general remarks, and the few paragraphs in the head of general remarks belong to that part of the Report not published.

We have received the following letter in relation to the reported new channel, or entrance to the Suwanee River, from an officer of the Army:

TALLAHASSEE, Florida, Feb. 26, 1835.

SIR,—I perceive that you have inserted in the Railroad Journal an article first published in the Floridian of this place, giving an account of a pretended new discovery of a channel into the Suwanee River—which discovery, if true, would be of considerable importance, not only to the country on the river, but to the Atlantic seaport cities, as well as those of the Gulf of Mexico, as a route of communication, by means of the Suwanee and St. John's Rivers, between them.

The report of the discovery originated with Mr. Watson, a gentleman of high respectability and intelligence, who resided near the spot—who has assured me, on inquiry of him, that an entire misapprehension of his meaning has been taken by the author of the article in question. His only discovery was the harbor at the mouth of the river, which is the same surveyed by Capt. Swift, of the U. S. Topographical Engineers, some years since, and where Col. Gadsden found the vessel at anchor belonging to Arbuthnot & Ambriater, when St. Marks was taken by Gen. Jackson, as he has described to me in person.

I give you this information, that you may save many from being misled, who may feel an interest in this quarter.

Report of E. F. Johnson, Esq., in relation to a Ship and Steamboat Canal from Utica to Oswego.

The city of Utica, the point where my examination commenced, is situated in the upper, or western part of the Mohawk valley, in a region of country fertile and healthy, and already considerably advanced in agriculture and manufactures. In a commercial view, it occupies a prominent position on the line of the great thoroughfare from the Hudson to the Lakes, and is the first point of divergence of the trade in its course west, being situated near the western entrance to the deep valley of the Mohawk. The Erie canal passes longitudinally through it, and it is the point of termination of two important works of internal improvement, both of which are in a course of construction, viz.: the Chenango Canal and the Utica and Schenectady Railroad; the former connecting the Erie Canal with the valley of the Susquehanna, and the latter uniting with the Mohawk and Hudson Railway, and forming therewith a railway communication to the Hudson River at Albany. The Mohawk River, which bounds the city on the north, is 30 feet below the Erie Canal, and 390 above tide water. It has its source in the elevated country at the north and west, its head waters interlocking with those of Fish Creek and Black River. Thence it runs southerly to the village of Rome, from which place it pursues an easterly course to its junction with the Hudson River, nine miles above Albany.

From Rome to Utica, 15 miles, the descent by the river is 30 feet, the most of which occurs in the first 8 miles. The intervening valley is composed of an alluvial bottom, varying from one half to one mile in breadth, and bordered on each side by the slopes of the elevated ridges which form the confines of the valley. The channel of the river between the points mentioned, is exceedingly serpentine. In breadth it varies from one hundred to two hundred feet, and in depth from 2 to 10 or 12 feet. The banks and land, on either side, are low; from 7 to 8 feet only above low water, and during the spring floods are completely submerged in many places to the depth of four or five feet. The Mohawk, in the distance mentioned, receives several important tributaries, viz.: the Six and Nine Mile creeks on the north, and the Little Oneida, Oriskany, and Saquoit creeks on the south; the two latter of which afford numerous and valuable hydraulic privileges, many of which are improved.

The village of Rome occupies the height of land between Lake Ontario on the west, and the Atlantic on the east, and is the lowest summit, with the exception of the Champlain, between the great St. Lawrence basin, and the Atlantic Ocean. The ground on which the village stands is about 25 or 30 feet above the Mohawk River. Towards the south it is lower, and swampy. On the margin of the lower ground skirting the village, is the site of the "Old Rome Canal," constructed some 30 years since, by the Western Inland Lock Navigation Company, and forming at the time, in connexion with the Mohawk River, the waters of Wood Creek, Lake Oneida and the Oswego River, the only navigable communication between the Atlantic and the west. The village of Rome is likewise the point of termination of the proposed Black River Canal, a project which has been some time in contemplation, and which has been viewed as consti-

tuting an important feature in the system of inland navigation in the State.

Proceeding from Rome west, the country assumes a different aspect. We now enter the broad valley of that beautiful series of inland lakes, which are distributed through the interior of the State, viz.: Oneida, Onondaga, Skaneateles, Oswego, Cayuga, Seneca, Crooked, and Canandaigua.

These lakes are the recipients of the drainage of an extensive and fertile region, the waters of which are conveyed by the Seneca and Oneida Rivers to a point of junction forty-six miles west of Rome, and from thence constituting the Oswego River; which, after running northwesterly a distance of 23½ miles, empties into Lake Ontario at the village of Oswego.

The northern portion of this valley, from Rome to the Oswego River, is somewhat elevated. The ridge which bounds it, is nearly parallel with Lake Ontario, declining in elevation towards the Oswego River, but possessing, it is believed, no point of depression less elevated than the Rome summit, if we except, perhaps, a short distance in the immediate vicinity of the Oswego River.

At the foot of this northern slope is the Oneida Lake, 21 miles in length, with a medium breadth of five miles. This lake lies in a direction nearly east and west. It receives, as tributaries, Fish Creek, with several smaller streams on the north and east, and Oneida and Chittenango Creeks on the south. The valley in the latter direction, although much diversified in its surface, is broader and more open, and more advanced in cultivation than the country north.

It is along this slope, parallel with, and elevated about 60 feet above the lake, that the Erie Canal is located. From a point 9½ miles east of Utica, the canal is one continued level westward to Syracuse, a distance of 69½ miles. At Utica it passes through the centre of the city, 30 feet above the Mohawk River. At Rome, it occupies the low ground already described, half a mile south of the village. Between Utica and Rome it passes through the flourishing villages of Yorkville, Whitesborough, and Oriskany, crossing the Saquoit and Oriskany Creeks by two aqueducts. At Rome, it receives, by two feeders, the waters of the Mohawk River, together with those of Little Oneida and Wood Creeks. From Rome, west, to the termination of the level, it receives a supply from nearly all the streams which flow from the south, with the exception of the Oneida Creek, arrangements for the admission of which have already been made by a provision in the charter of the Oneida Lake Canal Company, who are now engaged in opening a communication between the Erie Canal and the Oneida Lake, at its eastern extremity.

The direct course from Rome to the Oneida Lake, leads along Wood Creek. The distance is 14 miles. This creek unites with Fish Creek, a large and powerful stream, a short distance before it enters the lake. The channel of Wood Creek is very crooked. The navigation of the upper part of it was formerly improved for small boats, by means of dams and locks. For the remaining distance, the curvature was so great as to render it, notwithstanding the great descent, a comparatively sluggish stream.

For six miles adjoining the lake, and extending to some distance on either side, the ground is low and swampy, not exceeding five or six feet above the waters of

the creek, and subject at times to be overflowed.

From the junction of the two streams to the lake, and, indeed, for some distance up the main or Fish Creek, the depth varies from 14 to 25 feet. At the mouth of the creek is a broad bar, extending out for some distance, having a minimum depth of water of 2½ feet. The water is likewise shoal along the east end of the lake. The remainder of the lake has sufficient depth for navigation. The level of this lake varies at different seasons; the maximum difference observed in the spring is 6 or 7 feet; the average from four to five feet. The level of low water is subject to less variation than that of high water. Five years since, the State directed the surface to be reduced, by the removal of obstructions in the outlet, for the purpose of reclaiming the low lands contiguous to its eastern and western margins.

From the south side of the lake to the Erie Canal, the distance is from 5 to 6 miles. About midway of this distance are the Cawassalon and Canaseraga branches of the Chittenango Creek, running parallel with the lake for some distance. These streams are bordered by an extensive marsh, elevated, it is stated, from 17 to 24 feet above the lake, and separated from it by a tract of hard land.

The outlet of the lake is by a stream of large size, having an average breadth of from 300 to 350 feet, and, with the exception of ten or twelve places, exceeding 10 feet in depth, in its lowest state.

This outlet is termed the Oneida River. Its length is 19½ miles, and its descent 9½ feet, to where it unites with the Seneca and Oswego Rivers. The land on either side is, with few exceptions, elevated above the reach of flood waters, and has an undulating surface. The stream pursues a very circuitous course, the direct distance between its two extremes being only 8 miles: From Three River Point, the place of junction with the Seneca and Oswego Rivers, to Lake Ontario at Oswego, the distance is 23½ miles, and descent 112 feet.

The Oswego River is very broad, not less, on an average, than 600 feet, and discharges a large quantity of water; being the drainage of nearly 4,000 square miles of country. It is likewise very equable in its flow. The extremes of flood and drought not causing a greater difference than from 4 to 5 feet, and by the ordinary rains is seldom swollen to a greater height than from 12 to 20 inches. This is owing to the numerous lakes from whence it draws its waters, and which, in connexion with its magnitude, renders it eminently fit for navigation by the aid of dams and locks.

An improvement of this kind has already been effected, and adapted to boats of the size of those navigating the Erie Canal, and uniting with that work at Syracuse near the west end of the Rome level. The number of dams is eight, which are passed by means of short canals and locks constructed on the eastern side of the river; the number of the latter being 14, and overcoming 109 feet of descent, the balance to 112 being made up in the inclination of the surface of the river. The most of this descent occurs in the 12 miles nearest the lake.

From Three River Point to Oswego Falls, 12 miles, the place where the greatest descent begins, the banks are not high, varying from 12 to 10 feet. There is but little low land in the immediate vicinity of the river; on one of its tributaries, however, from the west, Ox Creek, the land is low.

for some extent, and is said to be injured by the setting back of the waters from the dam below.

At Oswego Falls is situated the village of Fulton, possessing great advantages in the amount of its hydraulic power. From thence to the lake the banks of the river are uniformly high and steep, in some places rock bound, unbroken by any ravines, and presenting an unvarying sameness of appearance. The river for this distance passes over a rocky, and in some places gravelly bed of red and gray sandstone.

At its confluence with Lake Ontario is situated the flourishing village of Oswego, occupying the ground on both sides of the river, possessing many commercial and manufacturing facilities, the latter of which are improved to a considerable extent.

The harbor, which covers an area of about 40 acres, is protected by a pier erected by the General Government. The place is favorably situated for concentrating the trade of the lake, and constitutes (it is believed) the best termination for the proposed canal.

Size and Character of the proposed Canal.

In the absence of definite instructions on this subject, I have assumed for the dimensions of the proposed canal, a depth of 8 feet; breadth at surface, 90 feet. Inside slope of banks, 2 horizontal to 1 perpendicular. The banks to be well faced with stone; the canal to be provided with a towing path; the locks to be 30 by 130 feet in the clear in the chamber, with a lift of about 8 feet; and, together with the culverts, to be built of stone, in the most substantial manner. The aqueducts, waste-weirs, and bridges to be constructed with substantial stone abutments; the latter to be formed with draws, for the convenience of passing vessels.

A depth of 8 feet has been adopted, as being suited to the draught of such vessels as can navigate the great lakes with safety; that being the depth of water in the Welland Canal, and likewise the depth to which the Delaware and Raritan Canal has ultimately been increased; both of which canals are designed for vessels navigating the larger waters. The locks are assumed double the width of those now used in the New-York canals, to enable boats from those canals to pass them by pairs. This width is but little, if any, greater than would be required for vessels of suitable proportions for lake service, drawing 7 feet water; and it was therefore deemed the most proper dimension to adopt.

The tonnage of vessels adapted to a canal of the above dimensions, may be rated nearly as follows:

	Register.
Schooners.....	160 tons.
Freight vessels to be towed by steamers.....	190 "
Steamboats.....	140 "

Provision for the protection of the banks has been made in the estimate, to guard them from the effects of abrasion by the wave or swell caused by boats moving rapidly, whether propelled by steam or otherwise, and a towing path constructed to allow the use of animal power. Bridges for the accommodation of farms are not contemplated, from a conviction that they will be incompatible with the character of the navigation.

The dimensions assumed for the canal are, it is believed, sufficiently moderate. I am strongly impressed with the idea, that a larger channel would be preferable, corresponding in size to the improvements on the St. Lawrence, and to the proposed en-

largement of the Welland Canal. Whether this magnitude can be obtained at a reasonable expense, will depend, perhaps, in some measure, upon the character of that portion of the route between Utica and Albany, not included in the present examination. A canal of the largest size practicable will, I am convinced, be the best.

The present avenue of communication from the Hudson to Lake Erie has been in full and successful operation only 9 years, and is now hardly sufficient for the necessities of trade. It would be evident impolicy in the proposed undertaking, to limit the view so much as to render a revision and enlargement necessary at the expiration of another ten or fifteen years.

[We omit, at this time, the particular description of the route, giving merely the points and distances.]

Total Distance from Utica to Oswego.

	Mls. chs.
Utica to Fort Bull (Erie Canal enlarged).....	16.43
Fort Bull to Fish Creek (new canal).....	10.24
Channel of Fish Creek to Oneida Lake.....	2.00
Oneida Lake (assumed).....	21.00
Oneida River to Caughanoy.....	4.54
Canal at Caughanoy (new).....	.16
Oneida River to Three River Point.....	14.33
Oswego River to Phoenixville.....	2.43
Canal enlarged to Brandy Creek.....	.52
Oswego River to Horse Shoe Dam.....	3.69
Canal enlarged to Ox Creek.....	1.01
Oswego River to Oswego Falls, upper landing.....	3.63
Canal enlarged at upper landing.....	.34
Oswego River to Fulton.....	.37
Canal enlarged to Mooney's Bay.....	1.60
Oswego River to Braddock's Dam.....	1.57
Canal enlarged to Devil's Horn.....	2.15
Oswego River to McKimster's Dam.....	.70
Canal enlarged to Lock No. 19.....	1.07
Oswego River to High Dam.....	1.16
Canal enlarged to Lock No. 21.....	.26
Oswego River to Oswego Dam.....	.54
Canal enlarged to Oswego Harbor.....	1.16
Total.....	92.49

From the above is deduced the following:

	Mls. chs.
Total extent of enlarged canal.....	25.13
" of new ".....	10.40
" of Fish Creek ".....	2.00
" of Oneida Lake ".....	21.00
" of Oneida River ".....	19.07
" of Oswego River ".....	14.69
Total.....	56.76
Total.....	92.49

Making a total of 35 miles and 53 chains of canal navigation, and 56 miles and 76 chains of lake and river navigation.

General Remarks.

I have thus far confined myself to an examination of the practicability and probable expense of that portion of the proposed steamboat canal, lying between Utica and Oswego.

I have thought it not improper, in continuation of the subject, to advert to some of the more prominent of the relations which a work of that magnitude, connecting the great lakes with the tide waters of the Atlantic, will bear to the internal commerce of the country.

That there is no other route presenting the same or equal facilities for an enlarged navigation, by which the trade of the west may be conveyed in the most direct manner to the sea-board, will, I believe, be readily conceded by every one acquainted with the physical geography of the country. The only important question, therefore, which remains to be decided, is, whether the time has arrived for forming such a communication. The evidence of this must be deduced principally from an examination of the existing and prospective

increase in trade of that region of country, the surplus produce of which will naturally find its way to market along the great thoroughfares from the Lakes to the Hudson.

The following table exhibits the past, with the prospective increase in population of the States and Territories mentioned, deduced from the census taken at the periods stated from 1800 to 1830.

Aggregate of Sections.

	Section.	Distance. Mls. chs.	Cost.
Erie Canal enlarged,	1	2.14	\$ 41,812
	2	3.55	57,670
	3	2.10	33,911
	4	4.32	44,347
	5	2.10	39,808
	6	2.01	18,930
Total distance,		16.42	\$986,473
Erie Canal to Fish Creek,	7	1.76	51,386
	8	2.47	65,460
	9	3.75	77,944
	10	1.66	52,166
Total distance,		10.24	\$946,956
Fish Creek & Oneida Lake,	11	23.00	25,115
Oneida River,	12	.41	20,635
	13	4.99	34,636
	14	6.14	31,090
	15	5.00	36,410
	16	3.19	20,920
Total distance,		19.23	143,521
Oswego River,	17	2.23	15,300
	18	.52	20,509
	19	3.69	7,071
	20	1.01	25,799
	21	3.63	6,890
	22	.34	36,617
	23	.37	1,059
	24	1.60	66,701
	25	1.57	2,479
	26	2.15	45,574
	27	.70	2,392
	28	1.07	39,134
	29	1.16	2,586
	30	.26	30,880
	31	.54	1,226
	32	1.16	73,008
Total distance,		23.40	\$377,916
Whole distance,		92.49	\$1,039,491
Superintendence & contingencies, 10 pr. ct.			103,908
Whole cost of the canal,			\$1,131,989

To the preceding amount of \$1,131,989, must be added whatever expense it may be found necessary to incur for obtaining the requisite supply of water, as likewise the damage, should it be necessary to allow any, for injury to the business prospects of the Oneida Lake Canal.

[From the Journal of the Franklin Institute.]

Specification of a Patent for an Improvement in the Mode of Chilling Cast Iron Wheels for Railroad Cars. Granted to PHINEAS DAVIS, Civil Engineer, city of Baltimore, July 29, 1834.

Whereas, it has been found that, in the casting of what are called chilled wheels, for railroad cars, that the part of the wheel which is most liable to wear, namely, the rise, cone, or curve, between the tread of the wheel and the flanch, is usually less hard than the other parts, for the obvious reason that the metal is there less rapidly cooled by the chill.

Those acquainted with the business of, casting iron, are aware that the operation of chilling consists in placing within the mould, so as to make a part thereof, a piece, or pieces of iron, which, when the metal is poured in, rapidly cools that por-

tion with which it is in contact, and renders it hard. In the casting of wheels for railroad cars, the chill consists of an iron hoop, of considerable thickness, and with which the whole face of the wheel, including its flanch and tread, is in contact; but from its form, as I have already indicated, there is one part of it, uniting the tread with the flanch, which is less rapidly cooled than the others. To remove this difficulty, I employ what may be denominated an internal chill; this consists of an iron hoop, or ring, which I usually form of round rods, half an inch in diameter, giving to the hoop, or ring, such a diameter as shall cause it, when laid in the flask, and the casting made, to be surrounded by, and completely imbedded within, the cast metal, and to stand about half an inch within the body of that part of the wheel which forms the curve, or cone, before spoken of, and opposite the centre thereof. But as, in the usual thickness of the rims of such wheels, the said ring would be covered on the inside by only a thin shell of metal, I form such a bead, projection, or thickening, opposite thereto, on the inside of the pattern of the wheel, as will cause the metal to cover it, about three-eighths of an inch.

Iron-founders are well acquainted with the means of supporting such articles as the before described ring, within the flask, so that they may be embraced within the cast metal. The method which I have adopted of effecting this in my wheels, is the following. I take four strips of iron, which may be one-tenth of an inch thick, one-fourth of an inch broad, and four or five inches long, and one end of each of these I bend round the ring, so as to clasp it tightly, the remainder of the strap forming a shank, or bearing, which rests upon the sand in the lower flask. These clasps stand at equal distances apart, and, when in the mould, point toward the centre of the wheel. The pattern must be so made, that the parting of the sand in the flask will be opposite to the centre of the ring. Facing sand, of the usual description, should be used in making the mould. The ring, before being placed in the mould, should have its surface made bright, by filing, or otherwise. It must also be heated, say to the temperature of boiling water, to dissipate any moisture, or other evaporable matter, which might otherwise cause it to blow. The casting should be performed immediately after placing the ring in the flask.

Although I have described the mode of procedure in casting, and in other parts of the process for forming wheels within which are imbedded a ring of wrought iron, I do not claim these as making any part of my invention; but I do claim the using of a hoop, or ring, of wrought iron, to be laid and cast within the body of a railroad wheel, in such manner as to operate as an internal chill, to cool more rapidly, and consequently to harden, the part which I have described under the name of the curve, or cone thereof; I claim no more. PHINEAS DAVIS.

[From the same.]

Specification of a Patent for Promoting the Combustion of Anthracite in Locomotive and other Steam Engines. Granted to PHINEAS DAVIS, Civil Engineer, city of Baltimore, July 29, 1834.

The means by which I promote the combustion of anthracite, or other fuel, is by the employment of fan wheels, or vanes, revolving within drums, in a manner well known to machinists; and my improvement consists in the arrangement of the apparatus by which I employ the waste, or escape steam, to give motion to such fans, or vanes. For a locomotive engine, I usually employ two fan wheels, and I have found them, and their appendages, to answer well in practice, when made of the dimensions which I am about to indicate, although, in this particular, there may be considerable variation, without injury to the effect. The wheels may be from eighteen to twenty inches in diameter, and from ten to twelve inches wide; they may be placed upon the same axis, and at the distance of about eighteen inches from each other in the clear; in many instances, two vanes to each wheel will be sufficient, but a greater number may be used; the drums within which the wheels revolve do not differ from those ordinarily employed in similar blowing machines. The wind is conducted from these drums through tubes seven or eight inches square, which lead from them in the direction of a tangent to the circle described by the wheels, into a tight ash-pit under the grate of the furnace; and the air is thereby forced through the fuel with such velocity as to cause the fire to burn with great energy, so as to produce an abundant supply of steam from anthracite, notwithstanding the tendency of that fuel to pack, and thereby to impede the ordinary draft, when employed for locomotive engines.

In order to give motion to the fan wheels, I place a steam wheel upon the same shaft with them, generally at the centre thereof, so as to be equidistant from them. This steam wheel is constructed in the same manner, nearly, as the wind wheels, differing from them principally in its dimensions, and its being acted upon and impelled by an elastic fluid, (steam,) whilst they act upon and impel an elastic fluid, (air.) The steam wheel has usually four wings, or vanes, from three to five inches in width; and it may be from twenty to twenty-four inches in diameter. This wheel is enclosed within a drum, of such dimensions as just to allow the vanes to revolve freely within it. A tube connected with the exhaust pipe, from each end of the cylinder, enters the drums tangentially, and the waste steam is thus injected forcibly against the extreme ends of the vanes, impelling them, and consequently the wind wheels, with great velocity. The steam which thus enters escapes at an opening, or openings, in the centre of the drum, made similar to those at which the air enters from the action of, and to supply the, fan wheels.

As it is necessary to command the blast, so as to regulate the intensity of

the fire, which would often be too great were the whole of the waste steam discharged upon the steam wheel, I attach a branch pipe to that which conducts the steam from the cylinder, or cylinders, to the steam wheel, and employ a valve, or valves, so arranged as to enable me to direct the whole, or any desired portion, of the steam, through such branch pipe, and thus attain the desired object in the most perfect manner.

The continued fresh supply of steam, and the diminished centrifugal force of that which has acted upon the vanes, continues, however, to operate until the moment of its escape at the opening surrounding the centre, provided the parts are properly proportioned to each other, for although its energy is diminished, so also is the actual velocity of the vane, as the centre is approached.

The opening in the steam wheel, for the escape of steam, I usually make on one side only, and cover this with a cap, or drum, and from this cap, or drum, a tube extends upwards to carry off the steam in such a way that no inconvenience may be experienced by its discharge.

Although I intend always to use the waste steam from the cylinder, or cylinders, it is manifest that steam may be supplied from the boiler, to act upon the steam wheel; but this procedure would not be economical, and would yet be a manifest invasion of my rights.

I am aware that wind wheels, such as I have described, have been used to supply a blast to the furnaces of locomotive engines; I am also aware that wheels have been propelled by the action of steam upon wings, or vanes, surrounding them; I do not, therefore, claim either of these, singly and separately, as my invention; but what I do claim is the combination and arrangement of the parts such as I have described, by which the waste, or escape steam, is made to act upon vanes revolving within a drum, for the purpose of giving motion to wind wheels, to feed the furnaces of steam engines.

And I do hereby declare, that I have herein explained and set forth what I believe to be the best method of applying the waste steam to accomplish the proposed object, but that I do not intend thereby to confine myself to this precise mode of construction and arrangement, but to vary the same as I may find convenient, whilst I operate upon the same principle, and attain a like end by unanalogous means.

PHINEAS DAVIS.

We insert the following communication with pleasure, and should be pleased to hear often from its author.—[Ed. R. R. J.]

Remarks relative to the Steam Engine.

To the Editor of the Railroad Journal:

SIR,—If you consider the following remarks relative to the steam engine worthy of attention, oblige me by giving them a place in your Journal.

In all machines it is a desideratum, that just such an amount of power should

be applied as is necessary to produce the desired effect. When the effect to be produced requires different degrees of power at different times, the machine should be so arranged as to be able to exert more power at one time than at another; and it should at no time exert a power greater than is necessary to produce the effect required at that time. The want of thus apportioning the power and effect is obvious in many cases where steam is used, particularly so when it is used as the motive power on rail and other roads; and a great waste of power is the consequence.

In cases where locomotive steam engines are used on railroads, which are undulating, or various in their grades, it is common to give them such loads as they are capable of moving up the steepest ascents which they are expected to encounter between their places of starting and destination. If they are expected to pass ascents of 24 feet to the mile, they only take half the load which they are capable of moving on a level, and if they have to pass descents of that inclination, as well as ascents, they have nothing to do while they are thus descending. When stationary steam engines are used to draw boats or cars up inclined planes, they are generally idle during a considerable portion of their time, yet the steam must be kept at its full pressure, so as to be ready for any work which may offer.

In order to prevent this waste of steam when used as the *primary power*, it is proposed to employ the engine during its moments of ease and leisure, in condensing atmospheric air, which condensed air will be used as a *secondary or reserved power*, and be applied to assisting the engine when it has the most to do.

The atmospheric air to be condensed in air chambers of *globular, cylindrical, oval, rectangular*, or other shape, as may be found best suited to the case, and to be made of copper, iron, or other suitable material.

The air to be passed from the air chamber, through *hot tubes*, to one or more working pistons, similar to the pistons of a high pressure steam engine; the tubes to be kept at as high a temperature as is found expedient, so that the air may enter the cylinder of the working piston rarified as much as possible, whilst the air in the chambers will be kept at a low temperature by surrounding them with a non-conductor of heat. Although the use of the hot tubes will greatly tend to economise the use of air, it may not be found expedient to use them in all cases.

In cases where *globular air chambers* are used, they may be provided with *air measures*, so that, although the air in the chamber may have a pressure greatly exceeding that necessary for producing the desired effect on the working piston, yet such a quantity only shall be let out at one time as is necessary to produce that effect. This may be done by having something like a safety-valve to the measure, so adjusted as to shut off the sup-

ply of air from the chamber at the moment it raises.

In cases where the air chambers have a shape other than globular, they may be provided with a *piston* so arranged as to decrease the size of the chamber as the air is used; that is, for each cubic foot of air used by the working piston, the air chamber shall be reduced in size one cubic foot, by which means the full pressure of air will be kept up, until it is all exhausted. These pistons may have a vertical or a horizontal motion, and may be forced into the chamber by *levers and weights, cords passing round drums, or cog wheels working in racks*.

After the air has produced the desired effect on the working piston, it is proposed to pass it into the fire of the engine, so as to hasten the combustion of its fuel.

When locomotive engines have not weight enough to produce the necessary adhesion, it is proposed to connect the wheels of the engine with those of its tender, and, if necessary, with those of several of the loaded cars following next after it. The forward and after wheels of the engine and cars may be connected by *cranks and connection rods*; and the wheels of one car with those of another, by *chains, with suitable links, passing round cog wheels fixed on the middle of the axles*. The chains may be made to work tight on the cog wheels by *pressure wheels*, to be so arranged as to cause the two sides of the chain, that is, the sides of the chain above and below the cog-wheel, to approach each other, and to operate only when necessary.

An engine having the two kinds of power thus combined, it will be proper to entitle the *Pneumatic Steam Engine*, and the advantages which must result from the combination are obvious.

The capacity of the ordinary locomotive steam engine used on railroads, must be greatly increased by it; in some cases it may be doubled. Even when it is used on level roads, it is often difficult to keep up the pressure of steam. By having condensed air on hand, the deficiency of power on account of the low pressure of steam will not only be supplied, but the combustion of the fuel hastened, and consequently steam generated more rapidly, at the very time when it is most wanted.

By combining the secondary and primary power, in steam engines at the head of inclined planes, the steam engine need only have a power equal to the whole amount of work to be done, instead of a power equal to the elevation of the heaviest load, which may be offered at any one time.

The great difficulty in the way of using steam carriages on common roads,—viz., too much weight for their power,—will be measurably removed by the combination.

The combination may be used for the purposes of regulation and economy, in all cases where the steam engine is called on to exert a greater force at one time than at another, and where the intervals of time, during which the greater force has to be exerted, are too long for the ad-

vantageous use of the *fly-wheel*; and it may be used with advantage as a regulator of hydraulic as well as steam power.

In submitting the above remarks to the public, I am fully aware of the danger which surrounds me, in common with other inventors: that of being blinded by my partiality to the products of my own mind. Perhaps I have already fallen into the snare; certain it is, that if there are any insurmountable difficulties in the way of making the combination, I cannot see them; but I wish to get at the truth, and therefore invite criticism.

Respectfully,

J. D. STEELE, Jr.

Ellicott's Mills, Md., Feb. 15, 1835.

We have been favored with the following statement, taken from the Journal du Commerce of 29th January last, relative to the Railroads in France. We give it as another evidence of the increased favor with which Railroads are viewed.

Memorandum of the Chemins de Fer (Railroads) now in France.

IN OPERATION.

DISTANCE.

	Metres.	Miles.	Fr.
1. From St. Etienne to the Loire	21,285	13	1194
2. From St. Etienne to Lyon by St. Chamond and Givors..	60,000	37	1495
3. From Andrezieux to Roanne..	68,000	42	1341

IN CONSTRUCTION.

4. From Alais to Beaucaire....	70,000	43	2624
5. From Epinay to the Canal of Burgundy.....	28,000	17	2105

IN ENGINEERING.

K'tres. Miles. Yds.

6. From Paris to Orleans.....	45	=	28
7. From Paris to Pontoise.....	28	=	17

BOOKS OPEN.

8. From Paris to Havre and Calais.....	320	=	198
9. From Lyon to Montauban...	52	=	32

[From the New-York American.]

IMPORTANT TO BALTIMORE and to NEW YORK.

—The House of Delegates of Maryland have passed a bill authorising a loan of *two millions* of dollars, to the Chesapeake and Ohio Canal Company, which will suffice to complete that canal to Cumberland; and a loan of *one million* of dollars to the Baltimore and Susquehanna Railroad, which will complete that road to York, in Pennsylvania. The Senate, it was confidently believed, would concur.

The Mayor of Baltimore had in consequence, and in conformity with an application from many most respectable citizens, convened a town meeting for this day, to express their gratification at this event, and to take immediate means to make it available.

Will not these efforts, and those scarcely less strenuous making in Pennsylvania, arouse our State—and this city and the south-western counties in particular—to the necessity, the pressing, urgent necessity—if they mean to maintain their fair proportion of the late Fall, and early Spring, trade, with the great West—of at once entering upon the construction of the *New York and Erie Railroad*? There is no other path but that, through which New York can secure to herself the benefits which natural advantages, and the present course of trade, put within her reach.

Let her not from mistaken views of economy—or from doubts unworthy of, and unauthorised by, her own experience—lose the golden opportunity.

[From the "Mechanics' Magazine and Register of Inventions and Improvements."]

We are indebted to the politeness of Dr. Bartlett, editor of the Albion, for the following drawing and description of a Rotary, or "Gravitating Rotary Engine." It is singular in its construction, although not new to us in the application of the steam through the main shaft and arms. The hollow rim and "gravitating" part of the machine are to us entirely new.

Elliott's Gravitating Rotatory Engine.

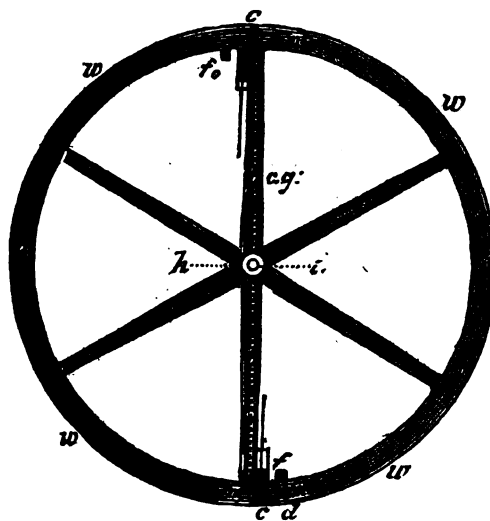
A new and highly important discovery has recently been made in the application of steam to a very simple machine, by combining those two powerful agents, *steam* and *gravity*, together, and called a *Gravitating Rotatory Steam Engine*, for generating a steady rotatory motion by the pressure of steam exerted between a gravitating weight and a *closed and alternating valve*,* and capable of communicating a direct rotatory motion, as a *first mover* to all kinds of machinery, by means of a single wheel on a shaft, requiring neither crank or piston, or but very few of the incumbrances of the common steam engines now in use.

The above is the invention of an Englishman, Mr. James Elliott, a native of Rothbury, Northumberland, Eng., a practical mechanic, who has been employed in the construction of a great variety of mills, and other machinery, in the Province of New-Brunswick, and has occupied the most of his leisure time for the last eleven years in its completion.† We have procured a drawing of this gravitating rotatory steam engine, and from the following brief description, with which we have been furnished, we presume that any scientific person may form a pretty correct idea of its plan, simplicity, and capabilities. As to its application as a *first mover*, we may safely assert that it is unequalled.

The principal part of this gravitating rotatory steam engine consists of a strong cast iron wheel, of any given diameter, having a hollow rim, with three, four, or more arms in it, some of which are also hollow, for conveying steam. A part of the space in the hollow rim of this wheel is very nicely fitted inside with a piece of solid cast iron, or other heavy metal, forming the *gravitating weight* intended to fix the maximum of the desired power, which weight slides *freely* all round this rim, or *more properly the rim round it*, and is made steam tight at or near its ends, either with packing in the common way, or with mercury. The steam is made to enter the wheel at its centre, by a moving steam-tight collar, fitted on the wheel shaft close to the

* Resembling in operation a dog in a turn-spit; but as the weight will not move like the dog, the steam is introduced between the weight and valve, to represent the dog's motion; or resembling a sailor setting an-end a bale or barrel: he places his back against something solid, and setting his feet against the bale, pushes it into its place. In this operation, the steam introduced as before represents the man's motion.

† The model of the first attempt having been destroyed in the great fire at Miramichi, in the year 1835.



wheel, and passes by a valve into one of the hollow or *working arms*, which conducts the steam to the rim while that arm is at the lower circumference,* when the valve at the extremity of the arm shuts, and brings the pressure of the steam in contact with the gravitating weight in the hollow rim, where, acting with its expansive force against the end of the weight, and pressing against the closed valve, a separation of these parts takes place, the rotatory motion is generated, and the wheel is moved round by this joint resistance (the weight remaining suspended at the pressure) until that arm is carried round to the top, when the valve attached to it opens and lets the weight slide quite clear of it; whilst the valve in the opposite arm being at the bottom in its turn, now shuts through and cuts off a small body of the steam at its pressure, and resists the flowing steam as the first one had done before, at the same instant opening the exit valve immediately behind it; the valves attached to the working arms thus alternating with great mechanical regularity, let the speed be ever so great, being instantly and simultaneously *shut* when at the bottom, and *open* when at the top of the circumference.

A rotatory engine of 100 horse power, of this descriptive principle, would not weigh more than 1½ or 2 tons—need not be over 10 feet diameter—or the hollow rim not more than from 10 to 18 inches wide; for although the longest leverage is at all times the most desirable, yet the difficulty of construction is somewhat increased by so doing. For steamboats, this rotatory engine is put immediately on to the paddle-shaft which crosses the boat, occupying the centre of the boat; or two smaller wheels may be used, placing them near to the sides of the vessel, and on each side of the boiler, which boiler may be in the middle.

As stated before, the motion produced is one continued, steady rotation; there is no waste of steam in the operation, and not an atom of steam goes into the wheel but what *must* exert its whole force—a subject to no unequal pressure, no

* Each working arm is fitted with sliding valves worked by hand gearing, for starting the machinery, or reversing the motion.

retardation or jerking (inseparable from the use of cranks)—no minor parts of machinery to get out of order—no friction except the shaft in its boxes, the steam collar, and the sliding of the gravitating weight through the rim; its advantages also in *time saved* are as much superior to engines on the *old principle*, as a *wheel* lathe is to a *pole* one. The cost of construction will not exceed one fourth the price of an engine on the old principle, nor occupy more than one fifth of the usual space—can be worked on either the high or low pressure principle; when for the latter, he adds a small wheel of the same description, on the same shaft, and not over 4 feet diameter, or 3 inches square in the rim, for an air pump; and makes double steam pipes in the working arms of the large rotatory wheel.

It must be highly gratifying to the lovers of science in general, that this highly important discovery of a new application of steam has been made, and to learn that this engine, which has occupied the attention of scientific gentlemen and practical mechanics, both in Europe and America, from the early days of the highly gifted Watt to the present time, should at length have been discovered amidst the forests of New-Brunswick, by an unassuming mechanic, among other pursuits occupying his winter evenings' amusement.

Labor omnia vincit.

References—*w, w, w, w*, exhibits a full view of the engine wheel, exposed with one of the sides off, on a scale of a quarter of an inch to a foot; *a*, the gravitating weight, occupying so much of the hollow rim; *b, b*, the working arms; *c, c*, the valves attached to the arms; *c, d*, the lower valve, shut for resistance; *f*, the exit valve open, blowing off the waste steam, supposing the wheel to have already performed half a revolution; *b, c, g*, the upper arm with the valve open to pass the weight, and the exit valve, *f*, closed—the dotted lines on the two working arms show the passage for the steam; *h*, the steam-tight collar on the shaft; *i*, the shaft—the motion, as the plan now lays, will be against the sun; *m, m, m*, the space occupied with steam when the Union who should not have it in his

in motion. The wheel, as here represented, shows the position of the gravitating weight when working at a high pressure. When the steam gets at a lower pressure, the weight will gravitate and balance lower, and the valves open at a different part of the circumference; and as the opening and shutting of the valves depends on the position of the weight, and are governed by it, they never can come in contact with it, except as exactly wanted. The hand gearing is not represented on the plan, because there are several methods of fitting it; and on so small a scale it would be impossible to give a clear representation of any of them.

[From the Journal of the Franklin Institute.]

Extract of a Report upon the Employment of Hot Air in smelting Iron with Charcoal. By M. E. GUEYMARD, Engineer-in-Chief of Mines.

A successful experiment in the smelting of iron by the aid of the hot air blast, has been made at the furnace of Riouperoux, (Depart. of Isere.) In this furnace, the distance from the blowing machine to the tuyere was insufficient for the erection of the apparatus for heating the air which the machine furnishes; they were obliged, therefore, to make the conduit pipe semicircular.

Six kilns, or ovens, were made with one chimney, 54½ feet, (French,) high, placed against the stack of the furnace. The fuel used in them was anthracite, which was applied to heat a pipe eight inches in diameter, and ten feet long; the part of the tube which traverses the fire was protected by a coating of fire clay, one inch thick, covered by a shield of cast iron, which received the direct action of the fire.

Five months' work have proved the efficacy of this arrangement; the expense of the construction of the apparatus for heating, including a tube for water, amounted to the sum of 5,009 francs, (1,001 dollars.)

Upon the blast pipe, and close to the tuyere of the furnace, is placed an air gauge, and a thermometer. The consumption of fuel by the air oven has been fixed at 150 kilog. (300 lbs.) of anthracite in twenty-four hours.

The experiments were commenced on the 3d of April; the fires were lighted in succession, and, on the 15th of May, five of them being lighted, the temperature of the air was raised to 125° R., (313° Fahr.) and even as high as 130° R., (324° Fahr.)

Before the introduction of hot air, the furnace was charged each time with 65 kilog. (130 lbs.) of soft charcoal, and with 77 litres (2½ cubic feet) of ore.

Gradually the hot air was introduced, the temperature being raised more and more. They have been able to use with the same load of charcoal, quantities of ore increasing as 82, 87, 91, 102, and up to 105 litres; a quantity which has not been exceeded. It was observed that, at this maximum charge, the scoria, or slag, was more liquid, and the metal of a better quality, and finer than before.

The consumption of the five fires was 750 kilog. (1500 lbs.) of anthracite in twenty-four hours.

When they worked with cold air, the mouth of the tuyere was eighteen lines, (1½ inches,) in diameter, and the pressure of the air equalled twenty-four inches of water. Upon the introduction of the hot air, the diameter of the mouth was increased to twenty lines, (1½ inches,) and the pressure decreased to twenty inches. The number of charges were forty in twenty-four hours, in the first case; but in the second, they could not exceed thirty-four or thirty-five. Afterwards, having restored the pressure to twenty-four inches, they were enabled to increase the number of charges to forty.

The economy of fuel by the use of hot air, at the furnace of Riouperoux, may be estimated by the results of the castings made during the month of June, being about the average of three months' experiments, and about the same with those of the months of July and August.

During the month of June, 57,989 kil. of pig iron were made by the consumption of—Ore, 110,400 litres; charcoal, 1,104 charges.

To obtain the same quantity of metal by using the cold air blast, would have required 1,434 charges of the same charcoal. There was, therefore, a saving of 330 charges, of which the value, at 5 frs. per charge, = f.1,650

Add 8 days' work of workmen, at 19.36 f., 154.88

1804.88 = \$360.98

Deduct for the expense of heating the air,

Attendance of fireman, 45

21,500 kil. anthracite, 516

Interest, 10 per cent.,
on cost of the heating apparatus, 41.10

602.10 = 120.42

f. 1202.78 = \$240.56

The benefit resulting from the employment of hot air was, for one month, 1202.78 francs, (\$240.56,) or 2,072 f. (\$4.14,) per 1000 kilog. (20 cwt.) of the casting produced. This is the minimum gain. Since, the general expenses are not given, and refractory mixtures of ores have frequently been used, during the month of June. It must be observed that the saving of 21,450 kilog. (42,900 lbs.) of charcoal, made in the casting, had required a consumption of 21,500 kilog. (43,000 lbs.) nearly an equal weight of anthracite, of which the value is much less than that of charcoal.

The tuyere was burnt through three or four times in twelve hours, an inconvenience which was remedied by surrounding it with water, after which the working of the furnace became perfectly regular.

The sixth fire having been lighted, the temperature of the air was maintained at 130° R. (324° Fahr.), and was sometimes raised above; but no change was found in the working of the furnace, nor could the charge be increased beyond 105 litres

(3½ cubic feet) of mineral, to 65 kilog. (130 lbs.) of charcoal.

The dimensions of the tuyere mouth, and the pressure of the air, were varied, and the results were always inferior to those already stated; so that the maximum effect produced, with the mixture of ores employed, was, with a pressure of twenty-four inches of water, a diameter of tuyere of twenty lines, the temperature of the blast, 130° R. (324° Fahr.) and 105 litres of ore to 65 kilog. of charcoal.

A mixture of more refractory ores than the preceding, and which could not be smelted with the cold air blast, was reduced with much facility, but the charge of ore could not exceed 100 litres. It should be remarked, that the temperature of the blast, which appeared to give a maximum effect at temperatures not exceeding 130° R., was much below the temperature of melted lead, (604° Fahr.) to which it had been carried in the experiment made at Vienna in a coke furnace.

Remarks on the foregoing, by the French Editor.

1. M. Gueymard has correctly observed, that unless the air can be heated by the flame which issues from the mouth of the charcoal furnace, those who are not able to procure a cheap combustible for the heating furnace, and continue to work with cold air, must be most unfavorably situated.

Happily, the attempts made in Germany, and the apparatus there contrived, and which has already been imitated in France, have shown that the flame which escapes from the furnace will heat to a proper temperature all the air which is required. It is recommended that at furnaces where charcoal is used, the heat which would otherwise be wasted shall thus be used, instead of the separate apparatus for heating air, thus augmenting the profits of smelting with heated air, by the whole value of the combustible consumed in the fires.

Thus at Riouperoux, the saving which has been made of 1202.10 fr. will be carried to 1763.78 fr. per month, or to 30 fr. per 1000 kilog. of iron produced, in place of 20 fr.

2. The best plan yet presented for heating the air by the flame at the top of the furnace is the following, which differs a little from that employed at Wasseralfingen, and described by M. Volz. The air required for the blast is passed through twenty small columns or vertical tubes, four feet long by two inches and a half in diameter, which are placed in a space or oven near the mouth.

By this means, the air is more heated, and there is less friction, than by passing it through a long tube horizontally, because the air passes slower, and has only four feet to traverse.

The diminution of the resistance to be overcome by the blowing machine is considerable and very important, because the water courses are frequently hardly sufficient, during the summer, to furnish the quantity of air necessary for the consumption of the iron furnaces.

3. The temperature of the air thrown

into the furnace of Wasseraufingen, has been raised constantly to 165° R. (403° Fahr.) and often to 210° R. (504° Fahr.) with increased effect.

M. Gueymard, on the contrary, has observed that the production of iron was not augmented by an elevation of the temperature above 130° R. (324° Fahr.)

At Wasseraufingen, with the air heated to a temperature varying from 165 to 210° R. (329 to 400° Fahr.) to produce 1000 kilog. (2000 lbs.) of iron, 1130 kil. (2260 lbs.) of charcoal was consumed, in place of 1730 kilog. (3460 lbs.) burned when the cold air was used. The weekly production has been carried from 527 local quintals to 734 quintals—equal to 357 metrical quintals, (lbs.)

At Riouperoux, with the air heated to 190° R. (266° Fahr.) they have consumed for 1000 kilog. (2000 lbs.) of castings, 1270 kilog. (2540 lbs.) of soft charcoal, in place of 1610 kilog. (3220 lbs.) with cold air.

The differences between the results obtained in these furnaces are not considerable. It is remarked that in both the quantity of charcoal consumed in twenty-four hours is not augmented, but the charge of coal, and the daily produce of casting, has, by the employment of the hot air blast, received a considerable increase.—[Annales des Mines.]

[From the London Mechanics' Magazine]
Improved Portable Fire-Ladder.

SIR: I have several times had occasion to notice the improved fire-ladders employed by the London Fire Establishment, and as I may frequently have to refer to them again, I take this opportunity of forwarding a description of them for instruction in your Magazine, the more particularly as they cannot be too well known.

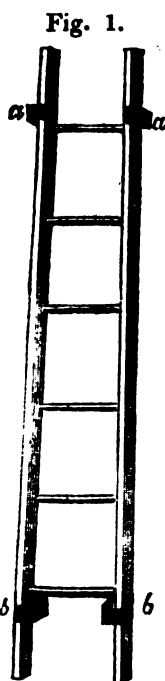


Fig. 1 is a representation of one of the single ladders, on a scale of half an inch to a foot; the top of the ladder is

so made, as to slip into the lower part of another, and the iron straps *a a*, and *b b*, embrace the ends, making a safe and substantial joint. As every ladder in the service is made precisely alike, it matters not in what order they are taken, as all will fit one another.

Every engine carries two lengths of these ladders, so that on all occasions the firemen can command a ladder of any required height, by joining a sufficient number of lengths together, and they have frequently found them of infinite service. When used, the first ladder is held as high as the men can conveniently reach, and a second ladder is pushed up to it, the top pieces going into the straps *b b*, while the lower ends of the first ladder enter those marked *a a*, making a secure joint; the second ladder is then raised, and others added until the required elevation is obtained. Three ladders, which will reach about 18 feet, are easily handled; but when four or more lengths are to be joined, the raising of them becomes more difficult in proportion to the height; every little projection in the wall, against which they are raised, catches the ladders, and impedes their ascent.

Fig. 2.

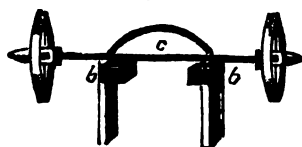


Fig. 2 is a sketch of a simple piece of apparatus, which I have contrived, for obviating the above difficulties; it consists of two short side-pieces, corresponding to the bottom part of a ladder, with the joints *b b*. On the upper part is an iron axle, carrying a pair of small light wheels; a semi-circular connecting-rod of iron preserves the proper position of the side-pieces, when not mounted on the ladder. For convenience of stowage, the wheels take off, when the whole lays flat in a small compass. Each end of the axle *c* is provided with rising springs, similar to those in an umbrella-stick, which allow the wheels to be slipped on the axle, but effectually prevent their sliding off again until the springs are depressed. These springs answer the purpose of linch-pins, without the trouble attending their use, and thus enable the apparatus to be fitted up for use in a few seconds. When mounted with this carriage, any number of lengths may be joined, and the compound ladder run up with the greatest facility, as the wheels would traverse all the inequalities of surface, cornices, window-sills, &c., without subjecting the men to any unpleasant jerks and strains.

Some few provincial fire-offices have adopted this kind of ladder, and I have no doubt that when their advantages are sufficiently known, and duly appreciated their use will become very general.

I remain, Sir, yours respectfully,

WM. BADDELEY.

London, Dec. 10, 1834.

Specification of a Patent granted to HENRY CRANE, Merchant, and JOHN YOUNG, Patent Lock Manufacturer, for their invention of certain improvements in the making, manufacturing, or forming, of Iron Hoops for Casks, and other purposes.—Sealed 20th March, 1834.

These improvements in making, manufacturing, or forming, of iron for hoops for casks, and other purposes, consist in giving to the narrow strips of hoop iron a curved figure; that is, bending the strips of iron from the usual straight form in which they are delivered by the ordinary operation of rolling, into such a curve suited to the diameter of the barrel round which the hoops are intended to bind, as will enable them, when formed, to lay close to the conical or elliptical surface of the barrel. This is effected by a peculiar method of acting upon the strips of iron by means of rollers, in order that such required lengths of iron, when cut off and bent round into the circular hoop shape, may be formed slightly tapering, or as the frustrums of cones.

The method by which this is effected, is by drawing out the bar or rod of iron by rolling, in the first instance, in a heated state, in the usual way, until it has been reduced to nearly the required thickness; we then set the rollers, so that their axes incline at a slight angle from the true parallelism, by which means the peripheries of the rollers will be nearer together at one end than at the other, and the strips of iron being then passed between these inclined rollers, will be necessarily compressed, or formed on one edge thicker than at the other edge—that is, of a wedge shape, if cut in a transverse section. This may be done by relieving the screws which confine the axle at one end, and tightening them at the other end; or the same might be effected by making the grooves and ribs of the two rollers inclined to each other, instead of parallel.

When the strip of iron has assumed this wedge shape, in its transverse sectional figures, we then pass it, in its heated state, between a pair of parallel rollers, which, by pressing principally the thicker part of the substance of the strip of iron, causes that thick part to expand and elongate more than the thinner part of the strip, and, consequently, to extend or elongate the strip more on one edge than on the other.

This mode of operation will cause the strip of iron, as it is discharged from the parallel rollers in the last instance, to assume the form of a regular curve, and which curve may be varied to suit any required diameter and inclination of the surface of the cask, or barrel, by varying the inclination of the rollers, or the bevel of the groove, by which the strips are compressed into the wedge shape, that is, thicker on one edge than on the other; and in order to prevent the strip of iron from bending into irregular curves, as it passes in its heated state from the rollers, we have found it useful to place a curved guide, or conductor, near the rollers, which will enable the workman, as he

draws out the strip of iron from the rollers, to preserve its desired figure with great accuracy.

Lastly, we wish it to be observed, that as the rolling of iron, for the purpose of bringing it into thin and narrow strips for the manufacture of hoops, is not new, of course that process is not to be considered as claimed by us; but the taking of strips of iron, previously made thicker on one edge than on the other, and passing them between parallel rollers, for the purpose of expanding the metal on one side of the strip more than on the other side, and thereby giving to the strip a curved figure as it is discharged from the rollers, being, to the best of our knowledge and belief, new, and never before employed by any other person, or persons, in the manufacturing of hoops, we claim that mode of operation as our invention, and forming the essential feature of our present patent right.—[Lond. Journ.]

AGRICULTURE, &c.

[From the New-York Farmer.]

Adam, the Gardener. By CHARLES COWDEN CLARK, Author of *Tales in Prose* from Chaucer: Revised by the Editor of the Popular Library. Boston, JOHN ALLEN & Co., 1835, 18mo., pages 252.

Every attempt to implant a love for rural pursuits in the breasts of youth should be very favorably regarded—as likely to be productive of great and varied benefit, not only in reference to the increased capabilities of adding to the physical resources, but to the moral worth, of the rising generation. With pleasure, therefore, we opened this little volume. Its perusal has led us to approve both of its contents, and of the taste and judgment that selected it to form a part of the Juvenile Popular Library.

Although the work was written, so far as practical directions are concerned, for the climate of England, yet it abounds in so much that is of general interest, and the whole, too, is in so lively and pleasing style, that no youth can fail of deriving pleasure in its perusal. For those of our own country, residing south of New-Jersey, much of the practical information is very appropriate, and much needed.

Mr. and Mrs. Stock, the parents of Adam, appear admirably qualified, or rather properly exert themselves, to teach the young idea how to shoot. The following extracts, under the head of March, are lengthy, but they convey so many useful suggestions to parents, and afford so much for a just comparison of the climate of England with that of the United States, that our readers will not, we presume, think them unworthy the space they occupy in our columns.

MARCH.

"As yet the trembling year is unconfirm'd,
And winter oft at eve resumes the breeze,
Chills the pale morn, and bids his driving sleets
Deform the day, delightful."
At length, array'd
In all the colors of the flushing year,
By nature's swift and secret-working hand,
The garden glows."

"The last two or three days of February, and the first week of the present month, March, were so stormy, and attended with such floods of rain, that Mr. Stock found it was of very little use attempting to do any thing in the garden; he therefore told Adam, that as the weather was so unfavorable, he should take advantage of it, and get on as fast as he could with his arithmetic and geography; 'for,' said he, 'you know how often I have told you that the real meaning of independence is our being able to do every thing for ourselves. Now, you are aware, that no man could be able to prepare and make every thing he wanted. A North American Indian, or any other wild man, would, because his wants are fewer than ours; every thing he requires, he can make. His mat for a bed; his bow and arrows, and fishing lines and nets, to procure him food; and he can build himself a hut. But we are brought up in a different manner from these people, and our habits of life compel us to stand in need of many things that an Indian never thought of. Therefore an Indian is more independent than we are. But, if we choose, we may be very independent, too; and the way is, by getting all the useful knowledge we can; by being diligent in our business, and contented with what we gain. Now, Adam, you will never be an independent man if you know no more of arithmetic than you do at present; because you will not be able to calculate the value of the things which you wish to sell, but must have a person to do this for you; and then you will be dependent indeed. You cannot think of this too often, that if you wish not to be in the power of any man living, (for that is being independent,) you must acquire all the knowledge possible; be honest, and be contented."

"This dreary week having passed, and Adam, to say the truth, tired of confinement, the weather cleared, and a brisk wind sprung up, which, after a few hours, dried the surface of the ground so that they could go to work. Mr. Stock told Adam that this would be a very busy month for them. 'In the first place,' said he, 'we must weed the beds which we sowed the last two months. The onions, the parsnips, the carrots, the lettuces, and, indeed, all the beds. And if we persevere now, while the weeds are young, we shall keep the garden clear, and benefit the plants. But you must be very careful, and distinguish the weeds.' This was a tedious task, and Adam began to be wearied; but as his father helped him, and kept steadily at it, he did not complain. When they had finished, his father showed him how to dress the artichokes, and take off the suckers for fresh plants. Afterwards he saw him fork up and rake up the asparagus, and sow the seeds for fresh beds. When this was done, they sowed some more beet-root, beans, and broccoli, for the first crop; carrots, parsnips, and onions, for the principal crop, and for the winter. His father showed him, too, how to prick out the celery, and plant it; and then they transplanted the young cauliflower plants which had been all the winter under glasses: they also sowed radishes and mustard and cress, covering up the beds from the cold winds. 'Now, Adam,' said his father, 'you may take the barrow, and wheel in some manure from the yard, and we will make a cucumber bed. When we have finished this, we will plant out our potatoes; and I will show you how to cut them into quarters, so as to leave in each partition what is called an eye; for where there is an eye, there will be a shoot, and a fresh plant. And when this is done we will sow two or

three more rows of our favorite peas; and we will have one or more beds of turnips." All this, I should suppose, occupied them nearly a fortnight. During the time they were at work, the season was very various. It might truly be called 'March many-weather'; for in the course of one day they had wind and sunshine, snow, rain, and fierce storms of hail. 'It is well, Adam,' said Mr. Stock, 'that we covered up our tender flowers, and screened the fruit trees; or the opening blossoms would have suffered bitterly from the slanting bullets of the storm.' But we must not complain; for all this violent weather had better come now than later in the year, when our blossoms would be more opened. And indeed, it is pleasant to have the gleams of sunshine after the dark storms, and to see the great clouds moving before the wind like mountains of snow, and to watch the shadows of them passing over the ploughed lands; and when they are far off, to see the showers descend in long streaks. See, now, how beautiful those pigeons look, hurrying home after their meal, with the black cloud behind them! Then we have the lively song of the chaffinch between the showers. It is of the greatest service to the rising vegetation to have these changes of rain, wind, and sunshine; because the moisture is allowed to sink to the roots of the plants, and the warmth of the sun brings them and the seeds forward. * * * * *

"Come, you shall help me plant out these few sweet herbs, which I sowed last year; and here we will have a row of parsley; then, if the weather be likely to hold up for the remainder of the day, we will dine early, and take a long walk.' They did so, and away they all went. By the side of a farm-yard, on a dead branch, at the top of an elm tree, they heard a thrush making the homestead ring with his fine note. Their father told them that, if they were now near some wood of beech trees, they would hear the ring-dove cooing, and perhaps the crowing of pheasants, the most beautiful birds in our country. 'The rooks also are now in a great bustle,' said he, 'building their nests; and as the spring is fully set in, and the air mild, I make no doubt we shall see the bat fluttering like a butterfly around the farm-yards in search of gnats and other insects, its food. I told you, if you recollect, that the bat is one of the animals that remain torpid all the winter; that is, that it sleeps through the whole of that season. It is generally to be found in the roofs of thatched cottages, and in small holes in the walls of old out-houses, hanging by the hind legs, and covered over with its wings. If you had found one during the severe weather of January, and had kept it in your hand for some time, or placed it near the fire, it would have awakened and begun to fly about. But it would be a cruel thing to do so, for as there is no food for it at that time of the year, the little creature would certainly die.' Adam said it could go to sleep again. 'Yes,' said his father, 'so it could; and sometimes, when we have two or three warm days during the winter season, they will awake and come from their hiding-places; but then the same warmth brings forth the insects which are their food, and when the frosty wind returns, they do go to sleep again, well fed. But if you were to rouse one by bringing him to the fire, he would wake almost starved from his long fasting, and would flutter about in search of food. If he did not soon meet with some, being so weak with hunger, he would very shortly die.

(To be continued.)

Political Agriculture. By H. C. [For the Quarterly Journal of Agriculture, Mechanics, and Manufactures.]
(Concluded.)

The memorial of the subscribers to the Congress of the United States, respectfully represents:

That agriculture is the great interest of every civilized community—the mother of all the arts—and the basis of all national prosperity—and in this view claims the fostering care of every patriotic and enlightened government.

That the United States of North America is, and must continue to be, essentially an agricultural people; and that an improved agriculture must directly and most favorably conduce to its manufactures and commerce, and to the substantial comfort and best interests of the whole people.

That the agriculture of the United States, although in an improving, is yet in a very imperfect condition; the resources of the country are very partially unfolded; the cultivation yields by no means those ample returns which it may be made to command; and is far from that improvement and perfection to which it may with the highest advantage be advanced.

That it would contribute essentially and immediately to this object: that a general agricultural survey of the whole country, should be undertaken and gradually prosecuted to its completion. That this survey should embrace the actual condition of its agriculture in different parts of the country, going, as far as practicable, from personal observation and intercourse with the most intelligent and successful cultivators, into detailed and statistical accounts of the crops cultivated, the modes of cultivation, the average yield, the value and application of labor, the disposal of the produce, the implements of husbandry, the condition and capabilities of the soil, the improvements of which the agriculture of any particular part of the country is susceptible, and, in general, whatever may be immediately connected with its agricultural advantage and prosperity, particularly in the manner of Arthur Young's Agricultural Tours, Radcliffe's Survey of the Agriculture of Flanders, the County Reports of England, Sinclair's Reports of the Agriculture, and his particular account of the Husbandry of Scotland.

That such survey should particularly embrace the cultivation of the leading products of the country—maize, wheat, cotton, sugar, tobacco, hemp, wool, and silk; the cultivation of the most valuable forest trees; together with other crops and products not less essential to comfort and use, but of less comparative importance and extent; and the character, rearing, and management of every species of live stock.

That the information thus obtained should be immediately furnished to the Government, and measures taken for its general diffusion.

Your memorialists would further respectfully suggest, that to accomplish this most valuable object, there be appointed a joint and standing committee of both Houses of Congress; or otherwise, there be

selected, in any mode deemed best, as many as five individuals from the citizens at large, who shall constitute a Board of Agriculture for the United States.

That there be appointed one or more competent individuals, whose duty it shall be to prosecute such survey; and whose further duty it shall be to be in attendance upon the Board of Agriculture at Washington at least one month during every session of Congress; and to them make a full report of his or their doings, surveys, and travels; and who shall themselves act as Secretaries to said Board.

That it shall be the duty of said surveyor or surveyors, to spend at least — months in every year, under the direction of said Board, in the actual and personal survey of different parts of the country, with a view to obtaining and diffusing the fullest agricultural information; and that he or they shall present a written and full report of all his or their doings and observations annually at the first meeting of the board.

That it be the duty of the said Secretary or Secretaries, under the sanction and direction of said committee, to procure models of all new and valuable machines to be employed for agricultural purposes, one of each kind of which, as far as may be adapted to that part of the country, shall be deposited at Washington, and at the seat of government of each State in the Union; to open a correspondence with distinguished individuals abroad, and in different parts of the country, on the subjects of agricultural interest and improvement, and to obtain and circulate such valuable seeds or plants for agricultural purposes as it may be desirable to introduce into the country, or diffuse in different parts of it.

That it be the duty of the said Secretary or Secretaries to manage and superintend, under the sanction and order of said Board, the publication and distribution of such reports and papers as may be deemed of general utility and importance.

That for these objects there be annually appropriated the sum of — dollars.

Such, Mr. Editor, are the outlines of a plan, simple enough, in my opinion perfectly feasible, and of the most obvious and highest utility; and the expense of which, compared with the public advantages to accrue from it, would be of no consideration; and compared with other expenditures of the Government for objects of far more doubtful utility, would be hardly a drop to the ocean. How many individuals it might be necessary to engage in such survey, and how long a time might be occupied in it, would be matters of further consideration. One active, intelligent, and practical man might accomplish it. Two would doubtless be ample. It would not be an affair to be hurried, and the statistical information to be collected would require great care and exact inquiry. Six years would not be too short a time, if the country were divided into two great sections, to accomplish it in a proper manner.

As the survey progressed, much valuable matter would be gradually elicited. Every farmer and planter of any consideration in the country would be excited and interested by it; would from patriotic motives be emulous to communicate all the information in his power; and from personal considerations, would be anxious to put his property in the best condition for examination. Massachusetts has already set the example of a thorough and able geological survey of her territory. New-York has done the same in respect to several of her counties; but, precisely to what extent, I am not apprized. An agricultural survey, conducted in the manner above described, would be of more value, and might itself be instrumental of furnishing much geological information; and exposing many of the mineral as well as vegetable treasures of the country.

I shall not now go farther into detail of the advantages which I think would accrue to the country, if this project could be intelligently and properly executed. I hope it will not be regarded as wholly visionary. I offer these suggestions with diffidence; but with the strong desire that they may attract the attention of some of our distinguished statesmen and citizens, who estimate justly the importance of an improved agriculture, and are willing to labor at its advancement; and that it will call out from such men opinions and discussions, which, if not favorable to it, will lead to wise and better plans. No one will listen to such opinions with more satisfaction, or co-operate, in any useful and feasible projects for the same objects, as far as my humble power extends, than myself.

H. C.

Meadowbanks, Jan. 30, 1835.

Surinam Potatoe. By ALEX. EDGAR.
[For the New-York Farmer.]

MR. FLEET,—Among the many excellent varieties of potatoes cultivated in America, the yam, or Surinam potatoe, is not to be found. It has been long known in Scotland, and cultivated to a great extent for the purpose of feeding cattle. The produce is from 15 to 20 tons per Scottish acre. It is an excellent substitute for turnips in the spring of the year, when turnips are done. It will grow on soils too that the common turnip and ruta bage would not yield roots exceeding a common sized egg. Yams present every advantage which can be got from ruta bage, and are not so peevish in their growth. Their culture is a matter of far less difficulty, as such will grow upon soils where ruta bage would starve. They require less manure, and may be planted as late in the season as the others, thereby enabling the farmer to bestow the like previous preparation upon the ground, the want of which is a general argument against ordinary potatoe husbandry. If you think the above lines worth a place in the Farmer, they are entirely at your service. I have read your Farmer seven years, with the greatest of pleasure and profit too; and was it in my power, there should not be a farmer nor a gardener in

possession; for without reading, a farmer may plough and mow, and a gardener may dig and hoe, to the end of their existence, and then know but little of the art of their profession.

ALEX. EDGAR.

Hartford, Conn., Jan. 22, 1835.

A Substitute for the Lima Bean. By WM. PRINCE & SONS. [For the New-York Farmer.]

DEAR SIR,—We think the point has at length been attained of obtaining a substitute for the Lima Bean, suited to a more northern climate than that very tender variety. The *Prolific Lima* is of recent introduction, and not having been cultivated beyond the limits of two or three gardens, is absolutely unknown to the American public. It is white, or rather cream-colored, nearly the size of the Small Lima, but exceeding it in thickness, and has a peculiarly rich appearance, which is verified by its quality. It fully equals, and it is even contended that it excels, both the other Lima varieties in richness; is at least two weeks earlier, and its produce is far greater, we think we may say four-fold. Like the Lima, it is used as a shell bean, and we think, from its various advantages, it promises to rival that variety even here, and to supersede it in more northern latitudes. We do not invite applications for it, having only a small supply of two bushels, but in the autumn of the present year all applicants can receive such quantity as they desire. The Dwarf Bonavista Bean also deserves particular notice for its remarkable richness and delicacy, and may be considered as holding the same rank in this respect among the dwarf or bush varieties that the Lima does among the climbers; it is also exceedingly prolific.

We intend, in a future communication, to mention the public spirited individual to whom our country is indebted for the introduction of the *Prolific Lima Bean*, and other very choice horticultural productions, in a manner better calculated to do him justice, as a *public benefactor*, than we could possibly do in this short article. Yours, very respectfully,

WM. PRINCE & SONS.

Linnæan Botanic Garden, Flushing,
Feb. 2, 1835.

On Chess. By FARMER C. [For the New-York Farmer.]

MR. EDITOR,—In looking over old papers not long since, I was somewhat pleased with a description of the plant commonly called "chess," by a New-England farmer, in some of the last numbers of the fourth volume of the New-York Farmer. I here give a contrary opinion to his.

The vulgar opinion respecting the origin of the chess plant is too well known to need at this time a particular account. It may not be generally known, that many farmers are quite indifferent about its being mixed with seed wheat or rye, asserting that it is not produced by its own seed. When error of opinion results in a practice so absurd, it is time for those who know better to enter a protest. It

is frequently inquired, if chess does not come from wheat, why do we find it on new ground where wheat is the first crop, and where chess has never been sown?

It is a circumstance familiar to all who are acquainted with clearing land, that in places where fire passes over the ground, many plants spring up and grow spontaneously, and where log-heaps have been burned, we have frequently seen the earth entirely covered with sumach (*Rhus typhinum*), and fire weed (*Senecio hieracifolius*). Now, chess, when mixed with wheat, is extremely deceitful, and we conclude it may either have been sown unperceived with the grain, or it may have been scattered by birds, or otherwise. This seed is so small as to render its detection, to a careless observer, improbable. It is true, botanists have given us a list of hybridous plants, but the chess has not suffered the disgrace of being placed on the catalogue; nor is it pretended by the advocates of this belief, that seed-wheat, from which this monster is said to rise, is guilty of vegetable adultery. They admit that the wheat plant may rise perfect from the ground, but after being injured by cattle or unfavorable situations, its nature becomes changed, and the stalk, instead of being crowned with the golden grain, is only burdened with the shrivelled chess. Now would it not be perfectly safe to assert that nothing analogous to such transformation can be produced from the vegetable kingdom: we here remark, that chess, though a weaker plant than wheat, is yet more hardy, and where that grain is thick and flourishing, the chess drops among the stubble; but when the winter, cattle, or excess of moisture, have injured the wheat, the other shoots forward with renewed vigor, and fills the vacancy. Chess is a perfect plant, as different from wheat as that is from other grain, with seed completely capable of vegetating, and known in science by the name of *Bromus secalinus*. Botanists, whose observations are incomparably closer than the asserters of this doctrine, would no sooner admit this plant to be a degeneracy of nature, because it grows in our wheat fields, than the zoologist would admit a goat to be the degenerate offspring of the cow, because they fed in the same pasture.

FARMER C—.

Manlius, Jan. 20, 1835.

Produce of a Small Farm. By H. C. To the Editor of the New-York Farmer.

MR. EDITOR.—I procured from an esteemed neighbor, Mr. Horatio Hoyt, the subjoined account of the produce of three and a half acres of land in Deerfield, Mass., in 1833, a result highly creditable to the cultivator and the soil; and which, I presume, will be interesting to some of your readers. We do not say that it is more than others have done or can do; very far from this; but we hope it may induce others to say what they have done or can do, for such communications cannot fail to be interesting and useful to the agricultural community.

The produce is estimated at the market prices at the time.

Yours, respectfully,

H. C.

Hay, 3½ tons, at \$12 per ton,	\$42 00
Wheat, 11 bushels, at \$1 50 per bushel,	16 50
Stubble and clover, 1 ton,	4 00
Corn fodder, stalks, blades and husks, 3 tons,	10 00
Corn, 120 bushels, at 80 cts.	96 00
Potatoes, 117 bushels, at 20 cts.	23 40
Apples, 60 bushels, at 12½ cts.	7 50
Pumpkins, 1 cart load,	

\$199 40

BURYING TURNIPS.—OUT-DOOR CELLARS.—Early in last December I slightly buried some turnips with straw and earth in a situation well protected from cold winds, and exposed to the sun. In the latter part of January I took them out. Notwithstanding the previous very severe weather, they were in growing state, having sprouts half an inch long. My impression is, that a shady, cool situation is preferable, although it is probable that the heat exists in the turnips.

In an out-door, or dirt cellar, there were, in a little cooler place, a considerable quantity of potatoes. During some of our most severe weather, the temperature in this cellar was such as to cause the evaporated moisture from the potatoes to remain in small drops on the rafters and planks. Such cellars are far the best for preserving vegetables. They should be well covered with earth, and very tight about the door. A small aperture at the top, rising in steep form, two feet above the outer surface, should be made for a ventilation.

S. F.

INFLUENCE OF COLOR ON HEAT, THE DEPOSITION OF DEW, AND OF ODORS.—Dr. Stark, in a paper in Jameson's Journal, vol. xvii. p. 65, has shown, by experiment, that one principle operates in the production of all the above results. A black color, whether in solids or fluids, absorbs heat more rapidly, and parts with it most rapidly; dew is also deposited more rapidly on this color than on any other, and with proportionate rapidity evaporated from it. Odors, whether agreeable, offensive, or of infectious diseases, are, in like manner, absorbed with greater rapidity, and in greater quantity, in a given time, by black colors; and discharged by these colors with proportionate quickness. The other colors are next to black in the order of blue, brown, green, red, yellow, and lastly white; which last absorbs and gives out heat, dew, and odor more slowly than any other color. These facts will afford valuable hints to gardeners for the colors of walls, of walks, of rockwork, of soils, of coverings for protection, and even of their dresses.—[Gard. Mag.]

NEW POTATOES.—We were shown last week a quart or two of new potatoes, just out of their warm bed. They were raised by the gardener of Col. B. C. Howard, and have come to their present state from the planting within the last seven weeks. One of them now before us is about an inch in diameter. They are of the kind called in our catalogue "earliest white."—[Baltimore Farmer.]

NEW-YORK AMERICAN.

MARCH 7—14, 1835.

LATE FROM FRANCE.

The *Rhone*, packet ship, from Havre, brings Paris accounts to the 11th ult. They are highly favorable, certainly, to our affairs.

The various bureaux into which the Chamber is divided, have each elected a member to compose the committee to which the examination and preparation of a Report, on the American indemnity, are confided. Of these nine members, all but one are said to be in favor of carrying the Treaty into effect. M. Delessert, who is chosen the Chairman and Reporter of the Committee, is understood to be clear and strenuous in that opinion.

We feel great confidence that as our Havre P. S. states, "all will be well" with the treaty.

The course of the thing was this. On Thursday and Friday, 5th and 6th February, the Chamber, in its bureaux, and *not in public sitting*, discussed the proposed law. After the discussion in each bureau, and when the sentiments of members were ascertained, the committee of nine was formed by one from each bureau. One only of the nine bureaux was—not hostile to the project—but in favor of reducing the amount proposed.

On the 7th February the report of the Senate's unanimous vote reached Paris. It is thus announced by the *Journal des Debats*: "This is a fresh and striking censure of that portion of the President's Message which concerns France."—Such, certainly, was not its character, for it sustained the leading views of the Message, though objecting to the remedy proposed.

We annex various letters received by us, and copy some from the *Courier and Enquirer*.

Extract of a letter dated

PARIS, 6th FEBRUARY, 1835.

As we have led you to expect, every thing has gone in favor of the American question here.—The committee chosen to report upon this subject have been seven out of nine in favor of it.—This is a further indication of the sense of the Chamber, and we now consider the majority certain, and are inclined to believe that it may be as considerable as fifty. This month, we have reason to think, will see the execution of the

Extract of a letter to the Editor, dated

HAVRE, Feb. 7, 1835.

The Committee has been named, to examine and report on the American Treaty. The discussion will take place in ten or twelve days hence.

The Chamber is divided into nine bureaux: each names a member, and of the nine named, eight are in favor of the Treaty, that is, to vote the 25 millions. The other is for the Treaty, but thinks the sum ought to be reduced. A discussion takes place at the nominations in the bureaux, and as far as opinions could be ascertained, not only as to those named, but those not named, there must be a decided majority in favor of the projet de loi now before the Chamber.

A Postscript of the 8th says—

All going on well. The packet cannot sail to-day. If you hear nothing further from me, take it for granted there is nothing new.

The *Journal du Havre* of 7th February, gives this under the head of "Private Correspondence," dated Paris 6th. It makes the vote in our favor certain, as it strikes us.

The nomination of a Committee all ministerial, made yesterday by the bureau of the Chamber, for the examination of the American credit, must not be taken as pre-figuring absolutely the adoption of the law proposed. Many circumstances may, before the discussion takes place, and during the discussion, modify the ideas of the Chamber. It is to be remarked, moreover, that in all the bureaux many members who did not vote against the rejection of the credit asked for, nevertheless expressed the opinion, that it might be reduced.

As for the rest, never did a question witness more extraordinary changes of opinion. In one bureau M. Realier Dumas and M. Delessert, who heretofore were for reducing the credit to thirteen millions, voted yesterday for twenty-five, and in consequence of this vote M. Delessert was named chairman of the Committee. Yet M. Delessert was a member of the Committee of 1831 and in the majority of that Committee which voted thirteen millions only.

Many Ministerial Deputies expressed opinions more or less in favor of the law, especially Messrs. Bresson, Lascases, Malleville, and Bessley, the father, (who, like M. Delessert, was a member of the Committee of 1831.) Moreover, Messrs. Maes, Ducos, de Tracy, de Sade, Lafayette, the son, warmly advocated the law, the rejection of which they would look upon as a manifestation of want of sympathy with the American people—the people of all others whom France should look upon as her most faithful ally.

We annex the names of the Deputies who in the bureaux spoke for and against the law:

AGAINST.—Messrs. Salverte, Lepelletier d'Aulnay, Lamartine, De Rancé, Teste, Mathieu, Lascases, Roger, Bresson, Isambert, Hector d'Aulnay, Dugabé, Lacrosse, Odillon Barrot, Chas. Dupin, Berryer, Bignon, and others.

FOR THE LAW.—Messrs. Ganneron, Bugead, Maes, Jaubert, Meynard, Realier Dumas, Anisson Dupenon, B. Delessert, Amilhan, Dumon, Ducos, Ferail, De Rigny, Thiers, Poul, Palaille, Duchâtel, Keratry, Fleury De Chabouillon, Tracy, Sade, Lafayette, &c. &c.

There were at one time 406 deputies present in the Bureaux—401 ballots were received, of which about 240 were in favor of, and 161 against, the law as proposed; a majority, which a change of 40 votes would also change: and it is not impossible that amendments tending to reconcile the desire of doing what is just, with that of not approving, what through thoughtlessness, if not from speculation, is stipulated in the treaty, may bring about such a result.

The Chamber of Commerce of Marseilles has addressed the following letter to the Minister of Commerce:

MARSEILLES, JAN. 31.

An important political question, one of peace or war, is soon to be decided—shall the treaty with the United States be ratified, or a second time rejected by the Chamber? Notwithstanding the apprehension felt by the commerce of this city, notwithstanding the uneasiness which pervades it, notwithstanding the frightful prospect of disasters which would overwhelm it, in case the friendly relations between France and the United States should be interrupted, we have, until now, refrained from expressing to you, our opinion upon a question of such great interest to us.

Full of confidence in our Legislators, we were persuaded, as we still are, that imitating the example of His Majesty, they will learn how to conciliate what is required by national dignity, with what is due to the interests of commerce and industry, now so seriously menaced.

We would be among the first to offer these as a sacrifice to our country, if the national honor were compromised, but we shall not be so here, because true honor consists in being just, in repairing the evil one may have committed, in paying what one owes, in fulfilling engagements entered into. We did not suppose that truths such as these could be made matter of doubt, and therefore it was Mr. Minister that we awaited calmly the termination of a discussion in which we should see nothing to dread, if the spirit of party, for the furtherance of its own ends, had not mingled with the question.

Of a question of good faith, a point of national honor is sought to be made—the substance is lost sight of, to cavil at the form, and without examining whether the claim upon us is legitimate, we are told to look at the unbecoming manner in which it is presented; pains are taken to repress the sum stipulated as excessive, without making any allowance for the advantages on our side from the treaty, and which ensure to our industry and to the public treasury, an immanum equivalent for the momentary sacrifice imposed upon us by true national honor. No scruple is felt about hazarding our fortunate peace, which is for all France a source of prosperity: on the contrary, we are urged on to war, which will augment the debt now refused to be paid, diminish the public resources, ruin commerce and industry, and of which the whole result would be, to revive the hopes of the enemies of Liberty, in forcing into hostilities, two nations whose institutions repose upon that base.

In this state of things, and when uncertainty has already checked the activity of all sorts of industry—when all maritime expeditions are suspended, from a provident caution lest the ill under which our city has heretofore suffered so much, should be again visited on us,—we esteem it a duty to break silence, and to oppose the voice of apprehension of our citizens, to the perfidious joy of those who found upon our misfortunes, the hopes of making their reverses triumphant.

It belongs not to us to examine this question, beyond its bearings upon us. It is enough for us to point out to Government, the danger to which our commercial relations would be exposed, if a second rejection of the treaty with the United States, should become the signal for a conflagration, of which the consequences cannot be looked at without terror.

Our intercourse with Americans is immense: no one more than you is capable of appreciating it. It is impossible to presume that interests of such magnitude should be without influence upon the decision to be formed. It is to you, Mr. Minister, the enlightened champion of the interests of commerce, who have already done so much for it, that we take the liberty of addressing ourselves, in order to beg you to become our advocate in the Chamber. It is not for the commerce of our city alone that we ask your aid, but for all France—whose growing prosperity is the envy of her enemies—their criminal hopes will not be realized—peace will not be interrupted. Your opinion cannot fail to exercise great influence in a discussion of which we await the result with equal impatience and anxiety.

[Here the signatures follow.]

This document, published, as it is, in the *Journal des Debats*, must thence be deemed to have the sanction of Ministers.

GREAT BRITAIN.

By the way of Havre, we have the following intelligence from *Liverpool*, 2d. Feb. Markets firm, with a tendency to rise. Advices express great confidence in the future.

Liverpool, 5th.—The market very animated on the 4th, with a rise of 1.8 to 1.4 in Cotton, was checked by the arrival of fourteen vessels from the United States.

The accounts from London are to the 6th February. They furnish little of interest.

The pregnancy of the Queen of England—which, when first alluded to in the *Court Journal*, was deemed a "calumny"—is confidently asserted at the latest dates; and the joy of the Tories—at the prospect of thus shutting out the Princess Victoria, and a liberal Regent—is excessive.

Mr. *Manners Sutton*, it seems, is to be dropped as Speaker by the Ministry, and Mr. *Abercromby* is to be put forward.

His Majesty will open the new Parliament in person, and will leave Brighton for that purpose on the 19th inst., accompanied by the Queen and several of the suite.—[*Brighton Gazette*.]

We believe that Count Pozzo di Borgo's stay

are will not extend to more than a month after the assembling of the new Parliament, as he will then return to resume his functions at the Taileries. Count Woronzow, on whom the Czar has determined to confer the post of Ambassador to this Court, will not arrive until the advance of the Spring. He was lately Governor-General of Odessa, and is the son of the late respected Count Simon Woronzow, the predecessor of Prince Lieven here, and who died in London at an advanced age in 1832.—[Chronicle.]

Joseph Bonaparte came to town from his seat in the country for the express purpose of meeting the Duke of Leuchtenberg, after he had visited and dined with the King at Brighton. The Duke and Joseph Bonaparte met at the house of a friend, where they were closeted for several hours.—[Courier.]

The report of the pregnancy of the Queen, though not officially announced, is generally believed in the higher circles.

According to calculation, which we believe to be as accurate as possible, and rather unfavorable than otherwise, the strength of parties in the Commons is as follows: Anti Ministerialists 370, Ministerialists 237, Doubtful 51. Total 658.—[Courier.]

The opposition party are in great spirits, and are spreading reports that they have secured at least 260 votes upon the question of the Speaker-ship. This, if true, insures a majority, we should think; but we regret to see an issue taken upon such a question.—[Herald.]

LONDON, Feb. 6. Intelligence has been received of the loss of the fine American ship *Lyon*, which sailed from Liverpool on Friday.—She was bound to New Orleans, and was commanded by Captain Bursley, brother of Captain Bursley of the American packet ship *Orpheus*. The crew consisted of 14 men, including the Captain. She struck on a ledge of rocks about three o'clock on the morning of the first of February, a short distance from Portpatrick, nearer to the Irish than the Scotch coast. The wind at the time was blowing fresh from the northwest, and she immediately went to pieces. Three of the crew succeeded in reaching the nearest land, and were saved; but the remainder, consisting of the Captain and ten men, have found a watery grave. The *Lyon* sailed from the highly respectable house of Haggerty & Jerdein of this town.—[Liverpool Albion.]

SUMMARY.

DIPLOMATIC RELATIONS WITH PORTUGAL.—We find in the *Globe* of Wednesday the following notice:

OFFICIAL.—DEPARTMENT OF STATE.—Senor Joaquim Cesar de Figueira e Morao yesterday presented his credentials, and was re-recognized as Chargé d'Affaires of Portugal.

March 11, 1835.

NAVAL DRY DOCK IN NEW YORK.—The following act authorizing the construction of a Dry Dock "in the harbor of New York, or its adjacent waters," was passed at the last session of Congress.

AN ACT authorizing the construction of a dry dock for the naval service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Navy, under the direction of the President of the United States be, and he is hereby, authorized to purchase a site, should it be deemed most advisable, and to cause a dry dock for the naval service to be constructed, upon the most approved plan, in the harbor of New York or its adjacent waters; and that towards defraying the expense thereof, the sum of one hundred thousand dollars be, and the same is hereby appropriated, to be paid out of any money in the Treasury not otherwise appropriated.

Approved, March 3, 1835.

PROMOTIONS IN THE NAVY.—Masters Commandant Foxall A. Parker, Edward R. McCall, Daniel Turner and David Conner, to be Captains. Lieutenants Thomas Cribb, Edward B. Babbit, James Armstrong and Joseph Smoot, to be

Masters Commandant. Passed Midshipmen Arthur Sinclair, Edwin W. Moore, Robert B. Hitchcock C. H. A. H. Kennedy, Thomas W. Brent, George M. Bache, Ezra T. Doughty, Joseph Lannan, John W. Cox, and John K. Mitchell to be Lieutenants.

The Constitution frigate was towed up from the lower bay to the Navy Yard, Wednesday afternoon by steamboats American Eagle and Hercules.

M. SERRURIER, the French Minister, his family and suite, were passengers in the packet ship Albany, which sailed from this port yesterday for Havre.

[From the Pensacola Gazette, of Feb. 21st.]

NAVAL.—Arrived here, on Sunday last, the United States Sloop of War *Vandalia*. We understand that the cold weather experienced here on the 7th and 8th inst. was felt on board the *Vandalia*, then at sea, on the South side of the Island of Cuba.

On Tuesday last the United States Schooner *Grampus*, from a cruise among the Virgin, Windward and Leeward Islands and on the Spanish Main. She is last from Guracao and Jamaica.

The brig *Lexington*, from Cadiz, which was ashore at the Hook, got off at high water yesterday, after throwing over 2,500 bushels salt, arrived at the wharf last evening in tow of the steamboat *Heron* es. She does not leak, and has sustained little or no injury. The cargo consisted of 110 lasts salt to E. Mix, and 4 boxes sulphate bark to P. Harmony & Co.

The lighter *Walter R. Jones*, Schenck, which was engaged in discharging the cargo of the ship *Sovereign*, and blown off in the violent gale of the 27th ult., and was supposed to be lost, has we are happy to say, returned in safety.—[Gazette.]

Affecting and unusual occurrence.—In the midst of the public service yesterday afternoon, in the 2d Dutch Church, the congregation was thrown into a great confusion by the sudden death of the wife of Mr. Anthony Van Santford, an aged member of that church. Mrs. V. had attended church in her usual health and a moment before the painful occurrence, was observed intently fixed on the preacher, who we understand was preaching on Heb. iii 7, and had just concluded some remarks on the uncertainty of life. The first indication that any thing had taken place, was hearing what seemed a loud snore, which directed all eyes to her—her head had fallen forward—immediately she was lifted up, and it was supposed for a moment she had fainted; she breathed a few times, and then it was seen, that her spirit had departed. Most solemn admonition to all! Most affecting seal to the truths the congregation were hearing! The effect of the annunciation from the pulpit at the close of the worship, that she was dead, was indescribable.—[Albany Evening Journal, of Wednesday.]

FROM THE SOUTH.—By the steam packet *Wm. Gibbons*, Captain Wright, we have received Charleston papers to the evening of the 7th inst. with Mobile dates to the 24th, and New Orleans to the 21st ult.

CHARLESTON, Feb. 7.—The Weather.—We must again advert to this almost interminable topic, to note the disagreeable change which has taken place, giving us rain and gloom, in lieu of the lovely snow fall, cheering though cold, and dissolving into filthy mud the mantle of purity which so lately covered and adorned our streets. About 9 o'clock, on Thursday night, snow and sleet re-commenced to fall in thick showers, but were soon succeeded by a drenching rain, which continued until morning. The whole of yesterday was raw and rainy, and attended with all the concomitants of downright bad, if not the very worst weather.—[Courier.]

GEORGETOWN, S. C. March 5.—Snow.—It commenced snowing in this place yesterday morning about 8 o'clock A. M. and continued until this morning. The Snow is now lying about 7 or 8 inches deep.

NAVAL.—The Norfolk Beacon, states that the brig *Mary* arrived in Hampton Roads, left at Rio de Janeiro, 11th January, the United States ship *Natchez*, Schrs. *Enterprise* and *Boxer*, the latter 62 days from Norfolk, had experienced very severe weather, lost spars, &c. was repairing and would sail in 5 or 6 days for the Pacific. The *Erie* was at St. Salvador, and the *Ontario*, Capt Salter at the Falkland Islands—Officers and crews all well.

The steward of the *Enterprise*, who was charged with an attempt to blow up that vessel, was tried by a court martial and acquitted.

Lieutenant Arthur Sinclair, late of the United States ship *Natchez*, and 6 discharged seamen, came passengers in the *Mary*, and have arrived at Norfolk.

[From the Mercantile Advertiser.]

Auction Duties.

At our request, Mr. WILLIAMS has furnished us with the following statement of Auction Duties, paid last year, as prepared for his forthcoming Annual Register, for 1835, which we understand will be published early in April.

Amount of Duties on Auction Sales paid by Auctioneers in the city of New York, for the year ending September 30th, 1834:—

1. David Austen,	\$43,723 49
2. Lindley M. Hoffman,	28,272 68
3. William C. Haggerty,	27,449 95
4. Henry L. Patterson,	20,503 18
5. William Timpson,	15,845 02
6. Edward G. Thompson,	12,182 69
7. Richard Lawrence,	7,832 12
8. Rowland R. Minturn,	6,660 61
9. Joseph W. Corlies,	6,489 42
10. Anthony W. Blocker,	2,615 73
11. Duncan C. Fell,	2,377 08
12. Thomas M. Hooker,	3,364 25
13. William Gerard,	3,221 94
14. Thomas W. Pearrell,	2,701 15
15. George M'Kay Morrill,	1,555 33
16. Samuel Philips,	1,494 80
17. John J. Bedient,	914 78
18. William D. M'Carthy,	626 56
19. John Herriman,	496 64
20. William M'Donnell,	466 63
21. Aaron Levy,	317 43
22. James M. Miller,	305 96
23. Sidney P. Ingraham,	305 90
24. Lawrence Power,	197 49
25. William J. Brown,	191 05
26. Aaron B. Nones,	180 97
27. Jesse Cady,	86 61
28. George S. Mann,	84 85
29. Robert C. Morris,	75 77
30. Cornelius Agnew,	71 20
31. William H. Franklin,	58 59
32. Thomas Bell,	49 30
33. John Langdon,	49 54
34. Daniel Sparks,	32 28
35. John Pearson,	28 37
36. Solomon Seixas,	27 98
37. Thomas Asten,	26 23
38. Albert J. Fontaine,	18 05
39. Joseph Daymon,	17 72
40. Samsan M. Isaacs,	15 19
41. Isaac T. Doughty,	12 41
42. William M'Laughlin,	11 22
43. James C. Smith,	9 91
44. Richard Crawford,	3 84
45. Jacob Van Winkle,	3 64
46. Gilbert Lewis,	1 83

Total amount paid by Auctioneers in New York city, \$191,923 63
In all other parts of the State, 1,546 51
Total amount of Auction Duties for 1834, \$193,470 19
Total amount of Duties in 1833, \$238,719 45

We understand that the roof of the Livery Stable in Fulton street, Brooklyn, occupied by Mr. Snedeker, fell in on Tuesday from the weight of the snow, and caused great damage to the numerous carriages and sleighs in the building, some of them having been broken to pieces.—The horses also narrowly escaped being killed. Many of the vehicles belonged to private individuals.

We learn that during the violent snow storm yesterday, the engines of the Camden and Amboy Railroad Line, going to, and coming from, Philadelphia, approached each other without being perceived until they came into collision. The guide wheels of the train for New York, were so much injured, as to prevent their proceeding, and the passengers were obliged to wait, until one of the engines employed in clearing the rails of snow, could be got. They then again started, but did not arrive in New York until 1 o'clock this morning, having been further delayed by the war in the tanks of the engines giving out, owing to the delays caused by the deep snow on the rails.

THE TWENTY FOURTH CONGRESS.—The following States have elected to the 24th Congress the number of Representatives to which they are respectfully entitled.

Maine	8	Illinois	3
Vermont	5	Delaware	1
Massachusetts	12	S. Carolina	9
New York	40	Georgia	9
New Jersey	6	Louisiana	3
Pennsylvania	38		
Ohio	19		143

Being twenty two more than a quorum. Mr. Wayne of Georgia, has been appointed a Judge of the Supreme Court of the U. States since his election. There are therefore only 142 qualified to take their seats. In the following states the elections will be held as follows:

New Hampshire	4	in March
Rhode Island	2	April
Connecticut	6	April
Indiana	7	August
Missouri	2	August
Maryland	8	October
Virginia	21	April
Kentucky	13	August
N. Carolina	13	August
Alabama	5	August
Mississippi	2	May
Tennessee	13	August

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Commodore Downes has been appointed to the command of the Navy Yard at Charlestown, (near Boston, Mass.) to succeed Commodore ELLIOT, appointed to command the Constitution Frigate.

We learn that Surgeon John S. Wiley, of the United States Navy, who was dismissed by sentence of a Court Martial, has been restored by the President, with the unanimous concurrence of the Senate, to his former rank in the Navy.

We are assured, and readily believe, that this re-appointment is hailed with universal satisfaction by the Navy.

FROM PORT MAHON.—Mr. C. S. Mead, passenger in the brig Alice, from Cadiz, informs that he left at Port Mahon on the 15th of January, the United States ship Delaware, frigate Potosi, sloop of war John Adams, and schooner Shark. All well on board. The Delaware was expected to sail soon for home. Mr. Mead also states, that an express had just reached Cadiz (30th January) from France. It was reported and generally believed, that the United States and France were on the eve of a war, which caused much excitement.

Baron DE REXNE, Chargé d'Affaires from Prussia, and **M. STERN BILLE,** Chargé d'Affaires for Denmark, left their Winter residence in this city yesterday: the former for New York, the latter for Philadelphia.

PRESENTATION OF SWORDS.—Thursday the 20th February, was the time appointed by Governor Thomas, for the delivery of the swords which the Legislature of Maryland directed to be presented

to Col. (now General) Townson, of the United States Army, and Captain Gallagher of the United States Navy, as a testimony of the high sense entertained by their native State of their efficient services and gallant conduct during the late war with Great Britain. Those officers reached the city during the forenoon.—At four o'clock in the afternoon, a large number of persons consisting of the members of the Legislature, Executive and Judicial Departments, officers of the Army and Navy, visitors and citizens, assembled in the Senate Chamber.

There the Swords were presented, with suitable addresses by the Governor, and modest and becoming replies by the distinguished officers, who received them.

The Illinois Legislature adjourned on the 13th February, having been 75 days in session. They passed several bills of general importance. The State Bank bill, Canal bill, and the bill for extending the charter of the Shawneetown Bank, have passed. The capital of the State Bank is \$1,500,000, and the amount which is authorized to be borrowed for the commencement of the Canal, is \$500,000. The subject of *Common Schools* received no definitive action.

SMALL NOTES.—The law prohibiting the making and circulation, in New Jersey, of notes under five dollars, which for notes of one dollar takes effect on 4th July next, of two dollars on 1st January next, and of all others under five dollars, on 4th July, 1836, is enforced by a penalty of five dollars for each offence, as to any note of a State Bank, and of fifty dollars, as to any note of a bank out of the State.

QUEBEC, FEB. 27.—Privilege of a Colonial Assembly.—We have just heard that Mr. Speaker Papineau has issued his warrant for taking into the custody of the Sergeant-at-arms, HENRY JESSOP, Esq., Collector of His Majesty's Customs; on the ground of his refusing to obey a resolution calling for certain papers in his department, without either his having received the order of the Governor or that of any competent officer of the empire.

The Philadelphia Gazette of Saturday evening says:—"The river Schuylkill broke up on the night of the 5th inst. The ice is fast disappearing in the Delaware, and from present appearances, the navigation will be entirely open in a few days. The thermometer at 7 o'clock this morning, was at 33, and we have had this morning some hail and rain with wind from the northeast.

We learn from Capt. Robinson, that a line of steam packets has been established, by a company at Havre, to carry freight and passengers between that place and Hamburg, which leaves twice a week; their average passages are 54 hours. These vessels are 450 tons each, with double engines of 130 horse power, and 170 feet in length; they are very swift vessels, built in the strongest manner, of the best materials, and finished in a style of elegance equal to any vessels that float; in fact no expense has been spared by the company to make them very superior vessels. These packets afford a quick, regular and almost direct communication for passengers and freight between New York and Hamburg, both of which are taken at low rates; this intercourse was very much wanted, inasmuch as shippers of German merchandize had frequently to wait months for vessels, or transport the goods by land to Havre, at a heavy expense.

The company intends to have another line to run between Havre, Lisbon, Cadiz and Gibraltar, which will afford a direct communication between the south and the north of Europe.

There are on the stocks at Havre 5 large ships, 2 brigs, and 3 steamboats.—[Merc. Adv.]

UNPARALLELED DESPATCH!—Captain Shinn, of the packet schooner *Portsmouth*, politely handed us last evening the New York papers of the pre-

ceding day. (Tuesday) having accomplished the whole distance from wharf to wharf in (we believe) the unprecedented period of twenty-eight hours. The papers contain no foreign news.—[Norfolk Beacon.]

A physician, named Moniz, took up his residence in Norfolk, Virginia, when driven from Portugal during the political troubles some years ago. The change in affairs in that nation induced the Doctor to return; and he was soon elected a member of the Cortes—where he had scarcely taken his seat, before he offered a resolution to the Chamber of Deputies, expressing the grateful sense with which the conduct of the United States was regarded in relieving the inhabitants of the Cape de Verde.

An Advertisement in the Morning Chronicle offers a reward of three guineas for a set of *gentleman's teeth*, which were lost in an omnibus. Only think of going out to dine, and when the roast and boiled stand in all their glory before you, finding, confound it! that you have not got your teeth in your pocket!

Six Acre Factory.—The Behrens of Manchester are erecting a huge power-loom mill at Preston in Lancashire, which will cover six acres of ground. The whole is to be one story high to avoid the inconvenience experienced in loftier buildings, from the machinery in the upper stories. It is to be called the "Six Acre Factory."

An elderly lady at a village in Norfolk, England, has adopted the singular idea that she is an old hen. Her restlessness and vexation were excessive so long as her friends contradicted the notion; but after a time they ceased to do so, and at the recommendation of her medical adviser, suffered her to think and act as she pleased. In consequence of this indulgence the good dame is more positive than ever of her feathered state, and has even gone as far as to make herself a nest in a clothes basket where she sits a great part of the day with most praiseworthy patience on three Dutch cheeses, asserting that they will be hatched in seven weeks time.—[Suffolk Chronicle.]

ANIMAL INSTINCT.—A seaman, belonging to the wood-party of a ship upon the coast of Africa, had straggled with his companions, and was using his axe freely in the woods, when a large lioness approached him, face to face. The man, for the first moments, gave himself up for lost; but very soon afterwards he began to perceive that the manner and expression of countenance of the lioness was mild, and even mournful, and that he had no danger to apprehend from her. She looked at him, and then behind her, and upward into the trees, and went a few steps from him upon the path by which she came; and then returned, and went again, and acted, in short, much as a dog would act that wished you to follow him. The seaman yielded to her obvious desire, and she led him some little distance, till near the foot of a tall tree, she stopped, and looked up, with plaintive cries, into its branches. The seaman, directed by her eyes and gestures, looked upward also, and soon discovered, at a considerable height, an ape, dandling and playing with a cub lion, which he had carried thither for his amusement. The wants and wishes of the lioness were now easily understood. The lion species, though usually reckoned among the species of cat, differ absolutely from it in this, as in many other particulars, that it cannot ascend a tree; a distinction, by the way, which ought to satisfy us at once of the error of those who talk to us of lions in America, where in reality there is no lion, and where the puma and jaguar, which they call lions, so readily ascend a tree. But equally in vain would it have been for the sailor to climb after the cub; for the ape, at the best, would have enjoyed the frolic of leaping with his plaything from branch to branch, or from tree to tree, as he approached. The only chance, therefore, was to fell the tree before the ape, seated near its top, should have the sagacity to provide against the effect of the strokes of the axe at its bottom. To work, therefore, he went—the lioness, which had seen other trees fallen by the axe of the stranger, standing by, and impatiently waiting the event. The ape kept his seat till the tree fell, and then fell with it; and the lioness, the

moment the robber reached the ground, spring upon him with the swiftness and force of a cat springing upon a mouse, killed him, and then, taking her cub in her mouth, walked contentedly away from the benefactor to whose skill and friendly assistance she had made her sorrowful appeal! "I can so much the more readily," observed Mr. Gubbins, "believe that even wild animals should put faith in the skill and helping disposition of mankind, as I have myself met with a few striking examples of that faith and expectation in domesticated species, to whose observations, however, the human arts and powers must be more familiar. A short time since I was riding over a common, at some distance from my house, when a pig, which, in the course of feeding, had so twisted the triangular yoke upon his neck that the narrow portion of it pinched his throat and threatened him with suffocation—no sooner saw me, than he came as near as to the fore-feet of my horse, foaming at the mouth, and struggling to overcome his difficulty. That he believed in the power of a man to assist him was evident; but he had also his fears of that human power, as possibly more dangerous to his throat than all the pressure of his inverted yoke; so that whenever I alighted from my horse with the design of helping him he ran away, and yet, as soon as I was again seated, he returned, continuing to travel with me, close to the horse's fore-feet, or as near to my own person as he was able, his mouth still foaming, and his efforts to escape suffocation still prolonged. In the end, seeing a farm-house a little upon one side of my road, I pulled my bridle that way, the pig still accompanying me, till, reaching the yard-gate, I called to some of the people and apprised them of the pig's presence and misfortune, as my best means of promoting his relief.—[Barford Cottage, &c.]

LATEST FROM PORTUGAL.—The brig *Opulence* arrived last night, having sailed from Oporto on the 8th Feb.

Captain St. John brought no papers. We learn from him, that a steamboat arrived the day he left from Lisbon, with Donna Maria and the Duc de Leuchtenburg, her husband; and that there was great rejoicing upon the occasion. The same steamboat brought the heart of Don Pedro in an urn! Captain St. John also informs, that it was reported the day he left, that France had declared war against the United States, which report caused a great deal of excitement.

Our accounts direct from France render the truth of the report impossible, as without any such information, it would be most extremely improbable.

MECHANICS' MAGAZINE, Nos. 1, 2, and 3 of VOLUME 5, FOR JANUARY, FEBRUARY, AND MARCH, 1855.

These three numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal to any other of the kind published.

Bound or stitched volumes may be had single, or in complete sets, at the office No. 35 Wall street, of D. K. MINOR.

AGENTS FOR NEW PUBLICATIONS.

HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications: The New York American Daily, at \$10.00—Tri-Weekly, at \$3.00—Semi-Weekly, at \$1.00 in advance.

The American Railroad Journal, Weekly, at \$3.00 per annum.

The Mechanics' Magazine, two volumes a year, at \$3.00 per annum.

The Quarterly Journal of Agriculture and Mechanics, at \$3.00 per annum, or \$1.25 per number.

The Family Magazine, 416 pages a year, at \$1.50 in advance.

The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, new in this volume, bound volumes \$1.25.

The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance.

The Household Gem, at \$1.50 in advance.

All Communications addressed to me, at Wheatland, New York, will be promptly attended to. September 29, 1854.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly Feb 18

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1853. A291RM&F

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent. Troy, N. Y. July, 1853.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. L. Brower, 232 Water street, New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of:

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 30, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, fitted with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 15 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearings, Shafts, Gears, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 300 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to

THOMAS ECKLEY, Treasr. &c., Boston, or to ROBERT RALSTON, Jr., Philadelphia. Boston, Dec. 20, 1853.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 364 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J254f

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 300 do. 1 1/2 do. 14 to 16 feet, counter sunk 40 do. 1 1/2 do. 14 to 16 feet, counter sunk 800 do. 2 do. 14 to 16 feet, counter sunk 800 do. 2 1/2 do. 14 to 16 feet, counter sunk of 45 degrees, with splicing plates and nails to suit. soon expected.

4250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, and 4 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mccwr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J216c

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principle to construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG.

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1853.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1853.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

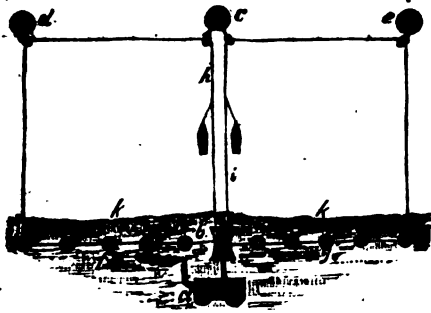
Germantown, February, 1853.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroads

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[From the Journal of Commerce.]

CATCHING SHAD BY STEAM.—When Solomon said, many hundred years ago, "There is nothing new under the sun," he could not have foreseen that a portion of mankind so universally known as the "Yankees" would be continually inventing something "new under the sun," and bring the elements so completely in subjection to their will and pleasure as to change the order as well as the "eternal fitness of things." Man has been told that he should live by the "sweat of his brow;" but the "Yankees" by their ingenuity appear to be seeking out a way, if not to counteract this injunction, at least to make it as easy and pleasant as possible. They have earned a name by their enterprize, their daring, and their ingenuity, which, although some envious minded individuals may affect to cast odium upon it, has given them a character of which these same individuals are proud, and which is blended with that of the nation so strongly as to leaven the whole.

Among all the inventions that have ever been patented, the one I am about to mention not only caps the climax, but certainly is the last any one would have thought of projecting and putting in operation—IT IS **CATCHING SHAD BY STEAM.**

In the absence of a *drawing* and technical terms, I will endeavor to explain it as well as I am able, though I presume a more accurate description will be given when it is in operation, which will be very soon, in North Carolina—where catching shad is a very extensive business, employing for three or four months a great many negroes, &c. at considerable expense, as their nets are a mile in length. A steam engine (a) of small power is placed near the water's edge, with a concave wheel (b) attached to the shaft. Abreast of the engine, and at a suitable distance from the shore (k) for dropping the nets into the water, is a buoy (c) anchored, with two blocks fastened to it; at a distance to the right and left of the centre buoy are two more (d and e) with one block each. On the right and left of the engine are five more (f and g), making ten, with blocks also. From the concave wheel, two ropes (h and i) run parallel with each other to the centre buoy, through the blocks, one passing to the buoy on the right, the other to the buoy on the left, from thence to the shore, and running through the blocks there, to the concave wheel connected with the engine. It will be seen that when the engine is put in motion, the ropes are in motion also. Two boats, having the net equally

divided between them, are fastened to the ropes running parallel with each other, and are carried out by them to the centre buoy, then to the right and left, and of course, as they separate, the net runs off from the boats into the water until they reach the other buoys. All that is necessary for the men in the boats to do next, is to take the ropes attached to the net for hauling it in to the shore, which is done by having the rope as it runs ashore take the boat with it in the same manner as they were carried out. When this is done, the rope running through the blocks on shore is cast from them, (being made so that it can be done,) and the ropes for hauling in the net take its place, and being attached to the engine, the shad are rapidly wending their way to the shore. The time occupied in taking out the net to the buoys, when placed in the boats and hauling it again to the shore, must be much less than it has been by physical strength heretofore. The plan certainly appears feasible; and if so, a great revolution will take place in this business. So great, that some other "Yankee" must invent some new method of separating the bones from the meat, so that it can be consumed as rapidly as the market is supplied; for I understand that the patentee calculates that the net will make its voyage in twenty minutes from the time it is put in motion on board the boats. So confident are those interested, (the patentee lives in this city,) that it will be fully tested next spring. K. N.

Hartford, Ct., Jan. 17, 1835.

MECHANICAL POWERS.—From a late foreign periodical we have gleaned the following interesting items, by which it will be seen that steam is not the only, and perhaps not the most economical power, that may be used for mechanical purposes. Much yet remains to be discovered in the arena of nature.

New Moving Power.—At a meeting of the French Academy of Sciences, on the 16th of June, a very interesting communication was read from M. Thilorier, a skilful chemist, who exhibited to the Academy the apparatus by which he procured a litre (a quart) of liquid carbonic acid in a few seconds. The properties of this substance, he observed, have been but little examined, chiefly because it requires to be confined in close vessels, hermetically sealed, and capable of resisting a great pressure. It surpasses all known bodies in the expansion and contraction which it undergoes from given variations of temperature; from 32 to 86° Fahrenheit, a column of the liquified gas is elongated one half. With the same change of temperature a similar column of air is only elongated one-eighth. This enormous dilation, M. Thilorier thinks, will, in future, afford the elements of a moving power infinitely more effective, as well as economical, than that which is derived from the expansion of vapor.

New Mechanical Power.—An ingenious mechanic at Brussels has just applied a new power to mechanics, from which great results appear to be expected. This

new power is galvanism. Across a fly-wheel, which is to give motion to the machine, he has placed a metallic bar, previously magnetised by a galvanic pile, and within the attraction of two very powerful magnets. The moment that the bar arrives in a rotary course at the limit of the attractive power, and when it would necessarily stand still, the inventor, by the application of galvanism, suddenly converts the attractive into a repulsive power, which continues the motion in the same direction, and by these alterations, well managed, the whole acquires a rapid rotation. The experiment is said to have been completely successful, and the machine worked a whole hour.

HOOKS AND EYES.—A young man in Boston, who recently returned from a whaling voyage, has constructed an uncommonly ingenious machine, in School street, for manufacturing hooks and eyes. It possesses advantages over any heretofore constructed, from this circumstance, that by altering a few screws, hooks or eyes may be made of different sizes. Those ordinarily in use can make but one size. After viewing this beautiful contrivance, which seems to possess consciousness, from the manner of its handling a skein of brass wire, we were at a loss which to admire most, the complicated apparatus effecting such surprising labor, or the man who must have contrived the whole, and witnessed its unerring operations in an ideal form, before a single portion of it ever assumed a tangible shape.—[Scientific Tracts.]

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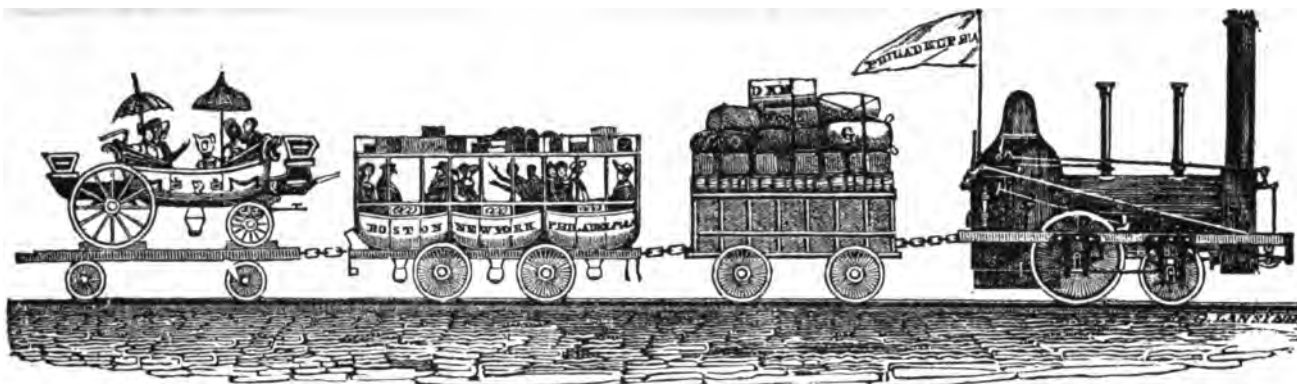
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* Mr. Thornburn is also Agent, and will at all times receive subscriptions, for the NEW YORK FARMER and AMERICAN GARDENER'S MAGAZINE; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. E. MINOR.



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PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, MARCH 21, 1835.

[VOLUME IV.—No. 11.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MARCH 21, 1835.

We continue in this number the general remarks of Mr. E. F. JOHNSON, which accompanied his Report relative to the Ontario and Hudson Canal. They show a mind well informed, and deeply impressed with the importance of immediate action upon all the great works of internal improvements, in order to secure the trade of the great West.

We regret not being able to give the remainder—which we are prevented from doing, as the copy has, by accident, been lost.

We would ask for the communication of "GOVERNEUR MORRIS" an attentive perusal.

The New-York and Erie Railroad bill finds greater opposition in the Assembly than was anticipated. It was indeed believed by its friends that there was some degree of liberality, or sense of justice, amongst those representatives of the people who have been so much benefitted by the State works. It is idle, however, to look for liberality there—or, at least, amongst many of them.

The following extract of a letter from Albany shows that some of the opponents of the measure are handled without mittens.

"In the debate in the Assembly on the bill to 'aid and expedite the construction of a Railroad from Lake Erie to the City of New-York,' Mr. WILKINSON, from Syracuse, (Onondaga), spoke at great length, and with much vituperation. His arguments were principally repetitions of a late publication in the Syracuse 'Standard,' going to show that no internal improvements ought to be made in the State of New-York other than along the line of the Erie Canal, and consequently through the village of Syracuse.

"He arraigned the motives of the honorable and patriotic citizens of New-York, who have become subscribers for the stock in the contemplated railroad, and imputed to them the fraudulent design of speculating in the stock without any intention to construct the road.

"He was answered by Mr. BURKE, of Cattaraugus, in one of the most overwhelming replies that I have ever heard. Mr. B. kept the whole house in almost breathless attention for about two hours. Mr. W., if he possesses a particle of sensibility, must have felt (as did all others) that he was annihilated. The constituents of Mr. BURKE owe him a large debt of gratitude, for his able assertion and defence of their rights, on the floor of the Assembly. Well may the people of Cattaraugus be proud of their representative!"

PENNSYLVANIA CANALS.—The Harrisburg Chronicle of 12th inst. says: "the Canal is filled with water, and navigation has commenced."

The Philadelphia Inquirer of Tuesday says: "the Delaware and Raritan Canal opened for business yesterday morning. The Schuylkill Navigation will open to-morrow. The weather, for the last day or two, has been delightful. Vessels arrive and depart without the slightest interruption."

Thus it will be seen that the PENNSYLVANIA CANALS are now, and have been since about the 10th inst., in full operation; by which they are not only enabled to anticipate us, by at least six weeks, on our canals; but also by nearly half that time on our "noble Hudson"—and yet our liberal friends on the line of the canal, are determined that our State and City shall not derive the benefit of increased or uninterrupted communication with the West, unless the new works pass directly by their own doors.

We cannot reflect upon the subject without being reminded of the inhabitants of a new country, who erect their dwellings to please themselves, and then insist that the main road shall pass *their door*; be it in a direct or indirect course, it matters not. So with some of our friends on the line of the canal—after they have had MILLIONS of public money spent amongst them, and have taxed the salt, and calicoes, and teas, and sugars consumed by other parts of the State, to open a communication with the Lakes, passing their doors; and thereby doubling the value of their property—they now say to other parts of the State, asking aid to open a communication to market, "If your work will pay an interest, you need no aid—if not, the State should not enter into unprofitable speculations."

Is this, we ask, the spirit and course of reasoning which is to retain for the State of New-York her proud pre-eminence for enterprise and public spirit?

The passenger cars on the Columbia Railroad are propelled by locomotive engines. The trip from Philadelphia to Columbia, 82 miles, is made in about six hours; and it is believed that it will soon be made in four hours.

STEAM NAVIGATION TO INDIA.—We find in the last number of the Edinburgh Quarterly Review, which has just come to hand, a long article on this subject, with copious extracts from the Report of a Select Committee of the House of Commons, to whom it was referred—affording much interesting information. We shall give it a place in the Journal at an early day.

Mr. Vignoles, Civil Engineer, has invented, as we learn from the London Mechanics' Magazine, an apparatus called spring connectors, for connecting trains of cars, by which the unpleasant concussions at stopping and starting the engine are diminished.

To the Editor of the Railroad Journal:

Have you, sir, seen the new LOCOMOTIVE ROTARY STEAM ENGINE of Wm. Avery, on the Newark Railroad, in operation? If you have not, I hope you will take an early opportunity of examining it, as I consider it one of the most ingenious yet simple machines I ever saw, and its operation is highly satisfactory to those who have seen its performance. Yours, very respectfully,

A MECHANIC.

In reply to the above question, we can say that we have not yet witnessed the operation of this engine on the railroad, although we saw one of them, many months since, in operation, in the machine shop of Elam Lynds, Esq. and William Avery, at Syracuse, Onondaga county, N. Y., which performed to admiration, carrying at the same time all the machinery of an extensive machine shop, blowing the bellows of a cupola furnace, and performing other work, with only an 18 inch arm, or 3 foot engine, and making the almost incredible number of over 3000 revolutions, as we were informed, in a minute. Several engines of the same description are, as we have been also informed, now in operation, and in all cases, so far as we know, to the entire satisfaction of those who use them.

We have been promised an early description and drawing of the engine for the Journal, which, when received, will be given to our readers without delay, when we hope the ingenious and enterprising inventor, and gentleman with whom he is associated, Mr. Lynds, will derive ample remuneration.

Report of E. F. Johnson, Esq., in relation to a Ship and Steamboat Canal from Utica to Oswego.

(Continued from page 147.)

General Remarks

I have thus far confined myself to an examination of the practicability and probable expense of that portion of the proposed steamboat canal, lying between Utica and Oswego.

I have thought it not improper, in continuation of the subject, to advert to some of the more prominent of the relations which a work of that magnitude, connecting the great lakes with the tide waters of the Atlantic, will bear to the internal commerce of the country.

That there is no other route presenting the same or equal facilities for an enlarged navigation, by which the trade of the west may be conveyed in the most direct manner to the sea-board, will, I believe, be readily conceded by every one acquainted with the physical geography of the country. The only important question, therefore, which remains to be decided, is, whether the time has arrived for forming such a communication. The evidence of this must be deduced principally from an examination of the existing and prospective increase in trade of that region of country, the surplus produce of which will naturally

find its way to market along the great thoroughfares from the Lakes to the Hudson.

The following table exhibits the past, with the prospective increase in population of the States and Territories mentioned, deduced from the census taken at the periods stated from 1800 to 1830.

States and Territories.	Area in square miles.	POPULATION.					
		1800.	1810.	1820.	1830.	1835.	1850.
New-York.	46,000	586,050	959,049	1,372,812	1,918,532	2,300,000	3,600,000
Ohio.	40,000	45,965	230,760	581,484	935,984	1,200,000	2,000,000
Indiana.	37,000	5,641	24,530	147,178	348,081	500,000	1,200,000
Illinois.	58,000	215	12,282	53,211	157,445	260,000	600,000
Missouri.	61,000	. . . . .	19,833	66,586	140,455	200,000	400,000
Michigan Territory, (proper).	36,000	. . . . .	. . . . .	8,896	26,529	80,000	350,000
Wisconsin, (fertile portion).	95,000	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	200,000
Minnesota, (fertile portion).	95,000	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	150,000
Missouri T.	927,000	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
						4,540,000	8,500,000

If the estimated increase, as exhibited in the table, is not overrated, the population of all the States and Territories mentioned will be doubled in about fifteen years.

The population of a country has not unfrequently been assumed as a proper measure of the extent of its trade, or of its ability to furnish a surplus produce to exchange for the commodities of other regions.

This principle is correct when applied to countries having equal natural resources, possessing equal facilities of soil and climate, and in which the total amount of productive power is fully and profitably employed.

That much depends upon the full and profitable employment of the productive power, is strikingly exemplified in an estimate recently made of the comparative amount of animate and inanimate force applied respectively in Great Britain and France to agriculture, commerce, and the arts. From this comparison it appears that France, with a population nearly dou-

ble that of Great Britain, and a climate and soil in no respect inferior, has a productive power, in agriculture, but little greater, and in commerce and the arts, two thirds less than Great Britain. Great as this difference is, it would undoubtedly be exceeded if the comparison were made between Great Britain and some of the other civilized nations of Europe.

With respect to the extent of country, the trade of which is to be conducted upon the New-York canals, but a small portion of it has reached that point where it can boast of more than its agricultural power, and even this is in no respect fully developed.

The surplus productions of a country, in the early stage of its settlement, bear a less proportion to the amount of its population than when more advanced. The reason is obvious. The first settlers are mainly occupied in procuring for themselves and families the means of subsistence; in clearing ground for cultivation; in erecting suitable dwellings, and in opening the necessary roads.

They have, consequently, but little remaining to offer in exchange for the productions of other regions. It is not, moreover, until a country has been some time settled, that the extent of its mineral resources, and the fitness of its soil and climate for the perfection of various productions, can be fully ascertained.

It is only, likewise, in a country somewhat advanced, where the business and occupations of individuals are established on a permanent basis, that the greatest benefit are derived from an economical division of labor, and its surplus or exchangeable wealth increased to its greatest amount. The accession, likewise, to its wealth, from those mutual exchanges, through the aid of which each separate territory is enabled to produce those commodities, and those alone, in which it is peculiarly fitted to excel, can never be fully realized until the avenues of exchange are opened, and the wants and capabilities of each fully understood.

The influence of these several causes upon the amount of trade, is particularly exemplified in the progressive increase of the business upon the New-York canals, since the period of their completion.

In the very able report of the Canal Commissioners, made to the Legislature of this State in 1825, there is an estimate of the probable increase in revenue upon the Erie Canal for the succeeding ten years, based upon, and corresponding with, the assumed increase in population for the same period. This estimate gives for the population, whose surplus produce is conveyed upon the canal in 1834, \$1,800,000, and for the whole revenue for the same year, \$900,000.

How much the assumed differs from the actual increase in population, it is impossible to say; but enough may be inferred from the table above given, to lead to the conclusion that the actual increase has been less than was anticipated, while the receipts from tolls, instead of \$900,000, have been increased to 12 or \$1,300,000, the much larger portion of which has been drawn from the interior of New-York, comprising but a moiety of the population intended to be included in the estimate.* This, too, notwithstanding there have been two successive reductions in the rate of toll, amounting to nearly 40 per cent.; the

* The tolls collected at Buffalo, in 1832, amounted to little more than one twentieth of the whole revenue of the canals, and in 1833, to one seventeenth.

country having, in the mean time, suffered much embarrassment in its commercial relations, from the visitations of Providence, and other causes. All which goes conclusively to support the principle I have endeavored to illustrate, viz.: that in a growing country advance in wealth must necessarily exceed that in population.

From the table above given it appears that the population of the country, west, may be safely calculated to double its numbers during the next fifteen years. This country is now, to a considerable extent, in the condition I have already described, but partially advanced from a state of nature: fertile in soil, and fruitful in its latent resources, waiting only the hand of labor and of art for their speedy and easy development.

In this region, a lapse of time of fifteen years, when considered in connection with the characteristic enterprise of its people, and the fact of their having but just entered upon the great business of trade, must exhibit changes and improvements which we can now scarcely appreciate, and the increase in exchangeable wealth, instead of being doubled in the ratio of the population, will more probably be trebled.

If we look forward but the half of a century, we shall perceive that the population, at the same rate of increase, will amount to fifty millions, and will then only equal in density that of Massachusetts and Connecticut at the present time. Whether this ratio of increase will continue, cannot be affirmed: but this we do know, that so long as the purity and simplicity of our government shall be preserved, and the rights of conscience and privilege to pursue legitimate private interest are held sacred; in fine, so long as our country shall continue to maintain the pre-eminent position which it now occupies in the great scale of nations, so long will it continue to increase in population and wealth, and in no part of it will this increase be more rapid, or in the end attain a higher maximum, than in the rich vallies of the St. Lawrence and Upper Mississippi.

To those acquainted with the navigation of the Erie Canal, it will be evident that any material increase in its business could not, in its present state, be accommodated.

The plan of doubling the locks will add to its capacity, but even this improvement will not, it is feared, ten years hence, prove adequate to the demands of trade; and to realize the utmost advantages from it, should be attended with an enlargement of its channel, otherwise much will be lost which might be saved in the force of traction; and what is of still greater moment, the flow of the water upon the longer levels may be found, in extreme cases, insufficient without such enlargement, for the purpose of lockage.

Could the business upon the canal be equalized, the boats freighted uniformly to their maximum tonnage, and their periods of arrival and departure likewise rendered uniform and regular for the whole navigable season, the capacity of the canal in both its present and improved state, would be more than doubled; but such an arrangement can scarcely be effected consistent with the convenience and interest of the community.

The fluctuations of trade, which are ever ceaseless and often great, occasioned by the alternations of seed time and harvest, and the changing character of the seasons, combined with other causes of a political nature, will not admit of subjection to a Procrustean system, without a sa-

crifice on the part of community, which it will be their aim to avoid, by seeking other channels for the transmission of their produce.

The evils arising from restrictions upon commerce, whether natural or artificial, and however transient, are always attended with serious consequences. The country has but recently witnessed the injurious effects of a similar interference in the accustomed flow of its currency; and a like restriction upon trade, in the transfer of the productions of the soil and the various necessities of life, would be attended with consequences still more prejudicial.

The necessity of an improved communication is becoming daily more apparent, not only from the growing commerce of the country, but from the efforts which are making in other sections, to divert the trade of the west into other channels.

On the south, the States of Pennsylvania, Maryland, and Virginia, are each strenuously engaged in overcoming the barrier of the Alleghanies, while on the north, a channel for large vessels has been opened by our Canadian neighbors from Lake Erie to Lake Ontario, and the only remaining obstructions to a descending navigation along the St. Lawrence, to tide water in that direction, are now being overcome by a canal constructed on the same magnificent scale with the one around the Falls of the Ohio.

The competition by which the State of New-York is thus threatened, and which she will soon be compelled to encounter, is truly formidable, and should be met by an increased effort and determination, not only to secure, but to add to the ascendancy which she already possesses over the commerce of the country.

That the proposed steamboat canal from the Hudson to Lake Ontario, is eminently calculated to aid in promoting this object, does not, I conceive, admit of a doubt. This it will accomplish, by its effect, in expediting and in cheapening transportation.

From Lake Erie to the Hudson River, the distance by the Ontario route is 378 miles, and exceeds that by the Erie Canal only 15 miles. Of this distance, 146 miles is along the Niagara River and through Lake Ontario; about 62 miles more of improved navigation along the Oswego and Oneida Rivers and Oneida Lake, leaving only 140 miles from the latter point to the Hudson at Albany.

The increase in lockage by the Ontario route is 240 feet, which being overcome by 30 locks, will occasion a delay of four hours; making the liberal allowance of eight minutes for the passage of a single lock. To compensate for this delay, we have the greater celerity of motion on the Ontario route, which may be rated as follows:

Buffalo to Lewiston,	30 miles,	3 1-3 miles per hour,	9 hours.
Lewiston to Oswego,	146 "	9 "	16 "
Oswego to Albany,	202 "	5 1-2 "	37 "
Total,	378 miles in		62 hours.

By the Erie Canal the distance is 363 miles, which, at 2 1/2 miles per hour, the average speed for freight boats, gives 145 hours; making a difference in favor of the Ontario route of 83 hours, or reducing the time more than one half.

This is, probably, a greater difference than would be proper to assume, if the comparison were made between the canal and vessels propelled solely by wind upon the lake. But if the average is taken of sail vessels and steamboats upon the lake, with steam upon the canal, I believe the truth will not be exceeded by placing the ratio of time at one half, or at most two-thirds,

which the Ontario and Hudson will bear to the Erie route. This saving in time, although produced mainly by the superiority of lake navigation, combined with the use of steam, is due in part to the fact that the continued interruption to their progress, to which boats on the canal are subject in passing each other, is in a great measure avoided, and likewise to the diminished resistance to which boats are subject, when moving in a larger channel: an advantage, which, if it does not contribute to the speed, will be gained in power.

My estimate of the probable relative cost of transportation, is deduced, in part, from a printed tariff of rates established by companies engaged in that business, for the year 1834, and since the reduction of the tolls.

From this tariff, the charge per mile, per 1,000 lbs., for heavy goods, conveyed as described, is as follows:

	Mile.	
New York to Albany,	7.3	Steam on the Hudson River.
Albany to Buffalo,	22.6	By the Erie Canal.
Buffalo to Detroit,	11.3	By vessels.
Buffalo to Chicago,	18.7	By steamboats, to 15th Oct.
Oswego to Niagara,	14.5	By schooners to 20th Sept.
Oswego to Toronto,	13.2	To 15th October.

The preceding exhibits a great difference in favor of navigation by wind and steam upon the larger waters, when compared with a canal.

On the Hudson River the cost is only one third of that upon the canal for the same distance.

On Lake Erie, from Buffalo to Detroit, it is one half by sail vessels and three fourths by steamboats. On Lake Ontario it is two thirds, and from Buffalo to Chicago but little more than one fourth.

The reason for a higher charge upon Lake Ontario than Lake Erie, is undoubtedly in a great measure owing to the less amount of business upon the former, a difference which will not exist when Lake Ontario shall become a more general medium of transportation.

From Lake Erie to the Hudson River, on the Ontario route, one third of the whole distance is lake navigation. It will not, I apprehend, be unreasonable to infer from the facts presented above, that the cost of transportation will, in consequence, be materially reduced.

A very important saving may likewise be anticipated from the greater celerity of motion by which the same amount of fixed capital invested in vessels, &c., will yield a greater annual profit. This is inferred from the fact that age, and not severity of usage, is the principal cause of the decay of vessels.

We may calculate likewise upon a farther reduction, by the time and expense saved in the transfer of freight. On the proposed route through Lake Ontario, with an enlarged steam navigation to the Hudson, there will be no breaking of bulk from the shores of Lake Michigan or Lake Erie to New-York. That this is not an item of inconsiderable importance, will appear, when we reflect that in the process of lading and unloading, much time is consumed, vessels are lying idle, merchandize liable to be injured, and warehouse expenses incurred. It is in consequence of this, that the transportation per 1000 lbs. per mile, from Buffalo to Chicago, is but half of that from the same place to Detroit; the distance in the former case being quadruple that in the latter. It is likewise from this principle, that the rate of transportation at which the foreign commerce of the country, is conducted upon the high seas, is still less than the preceding, although the

charges for insurance are, in general, much the greater in the latter case. In accounting for this difference in expense, it should in part be considered that large vessels are navigated with a less number of men, and, in general, cost less in proportion to their tonnage, than those of smaller dimensions.

An important saving in expense, is likewise anticipated by the use of steam as an impelling power. The experiments which have hitherto been made for navigating the smaller canals by steam, have invariably failed. It would seem, therefore, that if this great and growing power in the arts, can be applied at all, to artificial navigation, it must be on canals of a large size. That it can be so applied, on the portion of the proposed canal from Utica to Oswego, I do not entertain a doubt.

The most economical mode of applying this power, is undoubtedly that of towing, by which one or more vessels are propelled by a single steamer, in the manner at present practised in the navigation of the Hudson. Where there is much lockage to be overcome, this method, from the delay attending the passage of the locks by a train of boats, cannot so conveniently be adopted.

[For the American Railroad Journal.]

New-York.—Her Internal Improvements, present and prospective.

The State of New-York, in her system of internal improvements, is approaching a new era. Her main avenue of communication with the West, the Erie Canal, if not already, will soon be inadequate to the demands of trade. This canal has been in successful operation scarcely ten years, and in that time the business upon it has almost quadrupled in amount—and, what is most remarkable, has been principally derived from within the limits of the State. With the experience of the past to guide us, we can form some idea of the future. For the next ten years, it will not be improper, we imagine, to anticipate a similar and even greater increase; more especially when it is considered that, in addition to the trade within the limits of the State, we may anticipate a very great accession from the States and Territories West, which are now just beginning to furnish a surplus produce, to be exchanged for the manufactures and productions of the East.

The great problem now to be solved is this: What further means must be devised for the cheap transmission and full accommodation of this great and growing trade.

Since the construction of the Erie Canal, a rival method of intercommunication has been introduced, which bids fair to take the precedence of canals in most situations. We allude now to railroads. Their peculiar advantages are obvious—greater economy in construction—very great saving in power under high velocities—available at all seasons—adapted alike to passengers and freight, and possessing superior advantages in the conveyance of the mails, and the various purposes for which a cheap and rapid communication is required.

Under this view of the subject, it becomes a matter of deep interest, requiring careful and profound investigation to deter-

mine which method should be allowed the preference.

Already two lines of communication are projected, to extend from the Hudson to Lake Erie: one through the central, and the other through the southern part of the State. A navigation on an enlarged scale has likewise been projected, suited to vessels navigating the larger waters, and designed to unite Lakes Erie and Ontario, and to connect the latter with the Hudson.

A plan has likewise been proposed by the Canal Commissioners for enlarging the Erie Canal, retaining the present size of the locks, with the exception of a trifling addition to their length, and doubling their number. This improvement, if the canal is made 7½ feet deep and 70 feet surface, will cost the State 6,000,000 dollars. The same amount of money will form a communication of much larger dimensions, by the way of Lake Ontario. This is owing to the fact, that on the latter route, one half the total distance, nearly, is natural navigation.

It is from this circumstance, likewise, that we anticipate with certainty that the cost of transportation will be less, the present rates on the Hudson and the Lakes being from one third to two thirds less than on the canal: such is the superiority of natural water, aided by steam, over artificial. The delay and cost of transshipment will be saved. These points of superiority of the Ontario route are of the utmost importance in securing the "far West" trade; a large portion of which is in danger, from foreign and domestic rivalry, of being diverted to the more northern and southern markets.

The importance of the Ontario route is likewise greatly enhanced from the anticipated connection between Lakes Hudson and Ontario, which is about being accomplished by the Canadians, and which will shorten the navigable distance from the Hudson to Lake Michigan, and the whole country north and west of Detroit, nearly 250 miles.* Considering the vast amount of trade which, fifty years hence, will be required to pass to and from the seaboard and St. Lawrence and Mississippi valleys, it is evident that a navigation on the largest scale possible should be formed.

On no other route can a canal of as large dimensions be constructed, as between the Hudson and Lake Ontario; and on no other can the transportation be conducted at so low a rate.

We have stated our convictions that railroads will supersede canals in most situations; but, whether railroads are successful or not, it appears to us that a navigation on an enlarged scale will be required between the Hudson and the great Lakes.

The extent of natural bears so large a proportion to artificial water, as to require that the chain of navigation be perfected and unbroken throughout (the whole distance inland from the Hudson to the Mississippi).

The Erie Canal has thus far drawn most of its business from within the limits of the State. As the general course of trade is to and from the interior and the seaboard, that portion of the canal nearest the latter point has been the most crowded; the business upon it from Lake Erie is increasing towards the Hudson almost in an unlimited ratio; so that, although it has, as a whole, been supplied with business almost

to the extent of its capacity, the western portion of it is susceptible of a still farther increase, and will not need relief for some time to come.

Under this general view of the subject, it does appear to us that the great interests of the State and the country West will be best subserved by directing the attention and the energies of the State to the opening of a navigation on the largest scale from the Hudson to Lake Ontario, and from the latter to Lake Erie.

When this is completed, a continuous line of railroad will probably be in operation from Albany to Buffalo, and we shall know by actual experiment whether any enlargement of the western part of the Erie Canal will be needed,—which we will venture to assert will not be the case.

By pursuing this course, we shall make sure of the very best navigable communication between the Hudson and the fertile regions of the West; and we shall avoid likewise the great hazard of sacrificing the large amount of money required for the enlargement of the western portion of the Erie Canal, which would be entirely lost in case the expectations as it regards railroads are realized.

The State has thus far acted, in forming its plans for future improvement, without sufficient reflection and investigation.

The project of doubling the locks was hastily planned; but, without enlarging the canal, it has been found an useless measure, and suspended. The present project of enlarging the channel of the canal, in connection with the doubling of the locks, must likewise be abandoned. First, because of the great disparity between the breadth of the canal and that of the locks and boats; and secondly, because it fails to remedy an important defect in the present size of the locks, from their not being large enough for steamboats and vessels navigating the larger waters. It must be abandoned, likewise, because, under the present state of things, no plan for a general system of intercommunication can be judiciously formed, without some regard being paid to the effects and advantages of railroads, and because the Ontario route, the one which will be found the cheaper and preferable of the two, is not embraced or considered in the proposed improvement.

Surely this hasty and inconsiderate mode of legislation does not comport with the dignity of a great and growing State like New-York.

The experience of the few past years, combined with that enlightened forecast which should pervade all the more important acts of the State, should be brought to bear upon this most momentous question.

We have arrived at that point where either a complete revision, or the carving out of an entire new system of intercommunication, is imperiously demanded; and the subject should be approached and examined in the most serious and thorough manner, and with a spirit of liberality and forecast worthy of the State, and of the great objects to be attained.

GOVERNEUR MORRIS.

[From the New-York American.]

The cause of Internal Improvement in this State seems to be retarded in some most inauspicious way; or, if advanced at all, only in the line where already so much has been done—that in and about the Erie Canal. Now, it is the farthest thing in the world from our wish, to object to any reasonable proposition for rendering this

* See Report of E. F. Johnson, Esq., Doc. No. 195, Assembly.

canal still more useful, and tributary to the advantage of the State; for it has proved itself entitled to every additional aid that can be beneficially applied, and we hold up both hands for granting it. But when this feeling of entire confidence and liberality is both felt and expressed towards that great work, is it not fair to anticipate, that something of a corresponding feeling should be evinced by those on the line of the canal, towards other great works under contemplation, or in progress? We refer not now to any one particular project, but to several, which are before the Legislature, and all of which, more or less, seem to meet with an unaccountable—though frequently covert, and therefore more mischievous—opposition, from those who claim to be the friends of the Erie Canal. This is not either politic or just. There is room, and scope, and employment, enough for all; and when a reasonable probability is exhibited, by the investment of capital on the part of private individuals, that any contemplated work may prove beneficial, this State—which has so liberally ventured heretofore, and so largely profited by its liberality—should not hold back.

Our wealth, enterprise, industry, fertility of soil, and the possession of a seaport which, like the city of New York, commands the commerce of the world, all combine to render it obligatory on those who rule the State, to foresee, and provide in advance, for the new outlets and intercommunications required by our rapid growth. Let not a niggard calculation—which in the end is any thing rather than economy—and still less, a spirit of party, which fears to hazard out of its own hands, the application of the public wealth to the cause of general improvement—let no such calculation retard our onward march. Arrest it they cannot, for it will still be onward.—But it may be impeded, troubled, and eventually less assured, than, with the generous aid of the funds of the State, it would otherwise be.

Again, therefore, we press it upon the Legislature, to look with a large and liberal view at the cause of internal improvement, and wherever reasonable probability exists, that the good to be accomplished exceeds the hazard of loss, to go forward boldly.

New-York must look to it, or her communication with the Great West—through her own roads and canals—will fall off. The current of trade now sets in our favor, and if we provide, as we should, new channels as they are needed, it cannot be diverted. If not, it will be.

The Baltimore American—in announcing the final passage of the *Internal Improvement Bill* by the State of Maryland—a bill which gives millions to the *Baltimore & Ohio Railroad*, and to the *Chesapeake & Ohio Canal*—thus breaks forth in rejoicing:

Thus has passed the bill which makes the name of "Marylander" one which may be proudly boasted of. Thus has the State, with a single stride, assumed the highest rank among her sisters; and as, in olden times, the first Magistrate of Venice performed the nuptial ceremony with the sea, which was the source of the wealth of her Republic, so has Maryland now wedded herself to that mighty West, which seems with the elements of her future and ever increasing prosperity."

A daily line of Steam Packets between Pittsburgh and Louisville, went into operation, as we learn from the *Pittsburg Gazette*, on Monday last.

OPENING OF THE CANALS.—We are authorized to say that directions will be given for placing all the canals of the State in a condition to be navigable on the 15th of April next.—[Albany Argue.]

TUBULAR BOILERS.—The ferry boat *Essex*, built for the Cortland-street and Jersey City Ferry, is furnished with two of Dr. Nott's tubular boilers—constructed for burning anthracite coal.

These boilers, a part of which consists of a large number of small *malleable iron tubes*, of about 1½ inch diameter, and three feet in length, placed perpendicularly, are seven feet in length, and three and a half feet in width, by seven feet high. The supply of water, entering at one end, near the bottom, is forced up through the small tubes, between which the heat passes towards the chimney.

The furnace, or place for the fire, is at the side of, extending its whole length, and on a level with, the tubular part of the boiler, about two and a half feet in width by four in height, the flame, or heat, passing in a horizontal direction, between the tubes of the boiler, and thence into the chimney, or smoke-pipe, which is placed on the side of the boiler, opposite to the fire.

The fuel used on Monday last, when a short excursion was made up the Hudson, was entirely of *Lackawana coal*, used mostly in large lumps, resting on a series of moveable grates, similar to those used in Dr. Nott's stoves. When the boat left the foot of Cortland-street, many of the lumps of coal were but partially ignited: the wind being aft, and the chimneys very low, calculated only for crossing the river, as a *Ferry Boat*, the full effect of the fire was not felt until the boat was put about, to return to the city, although she made *twenty-three revolutions* to the minute. It was perceived, however, on going *against the wind*, that the fire had become a perfect mass of glowing heat—at which one could not look, on opening the furnace door, without much the same sensation as when looking at the brightest meridian sun. The interior of the furnace, which is lined with fire-brick, is about six feet in length, by 2½ in width, and four in height. It is difficult for any one who did not witness the trial, to be convinced of its entire success. We have heard much said of the beauty of anthracite coal fires, especially of the Schuylkill, or *Peach Orchard* coal; and we have seen specimens which were all that could be desired; yet we have never seen any thing equal to that made of *Lackawana coal*, on board of the *Ferry Boat Essex*.

There were some gentlemen on board, several experienced machinists; and it was conceded by all, that the experiment was eminently successful—and that it is no longer a question as to the entire feasibility of the use of *Lackawana coal* for steam navigation.

Great credit is due to Dr. Nott for the perseverance with which he has pursued so important an object, and the success with which his efforts have been attended. The public are much indebted to him also for

the construction of a boiler which is safe almost beyond possibility of accident—as if one of the tubes should burst, no danger could occur, as it is inclosed in an iron case, and the water would rather serve to extinguish the fire.

In case of accident, the fire may be wholly turned from the tubes, or boiler, and the cold air made to pass through them, so as to cool them more rapidly.

The engine and machinery were constructed at the Novelty Works in this city, by Mr. T. B. Stillman, and do him much credit. We are promised a drawing and more full description, which we hope to give in a subsequent number.

We have received the following letter from a friend at Albany; and by way of eliciting the information he desires, which we have not by us, we publish his letter entire; and request gentlemen possessing it to furnish us with the statements desired. To the Editor of the Railroad Journal:

Dear Sir,—I take the liberty of making the inquiry whether you have in your possession, or at command, the reports of any railway in England for their last year's transportation and dividends; what I wish access to is official statements. As also the same information in relation to any of the railroads in this country; either of their *actual cost completed*, or their expense-account the last or preceding year.

I shall examine your Journal, but there appears to be a difficulty in getting a statement of the actual cost of works, and the account of a year's business from their books, so that a comparison may be made.

I should be pleased to obtain information as to the cost of the Camden and Amboy railroad, as also the Paterson, the Columbia, the Baltimore and Ohio, or either of them.

I inclose you a year's subscription, \$3, for the Journal.

If you can give me, or refer me to, any information, as stated above, I shall esteem it a particular favor. Sincerely yours,

The whole stock of the Wilmington and Susquehanna railroad, — \$400,000, — was promptly subscribed last week. The portion of stock allotted to Wilmington was taken in half an hour, and the Philadelphia Inquirer states that when the hour arrived for the opening of the books in the latter city, the persons who were in waiting to make subscriptions were informed that all the stock had been already taken. It sold, a few hours after, at four dollars advance per share.

The Railroad in question is designed to connect Wilmington with Simper's Point, at the head of the North East river (a branch of the Susquehanna)—five miles from Havre-de-grace. The length of the road will be twenty-five and a half miles.—[Baltimore American.]

LIVERPOOL AND MANCHESTER RAILWAY.—The annual general meeting of this Company was held on the 22d January, Charles Lawrence, Esq., in the chair. The report of the proceedings of the last half year, ending December 31, 1834, was read by the Secretary, Mr. Henry Booth, which gave general satisfaction. A dividend of 4½. 10s. per share was declared, payable on the 3d of next month.

[From the Journal of the Franklin Institute.]
Report to the Board of Directors of Bridges, Public Roads, and Mines, upon the Use of Heated Air in the Iron Works of Scotland and England. By M. DUFRENOY, Engineer of Mines. Paris, 1834.

Some experiments by Mr. Neilson, Director of the Glasgow Cast Works, led him to think that advantage would be gained by previously heating the air to supply the smelting furnace. He communicated his ideas to Mr. Mackintosh, long known for his inventive genius, and they united in undertaking at the Clyde Iron Works, in concert with Mr. Wilson, one of the proprietors of the establishment, a series of experiments to determine this important question.

In the first experiment, the air from the blowing machine was passed through a rectangular trunk of sheet iron, ten feet long, four feet high, and three feet wide, where it was heated previous to its entrance into the furnace.

Notwithstanding the imperfection of this method, by which the temperature of the air could not be raised above 200° Fahr., it was evident from the experiment that the plan of Mr. Neilson was destined to produce a revolution in the manufacture of iron.

This first apparatus was soon destroyed by the action of the heat, and its renewal being very costly, they substituted a cast iron pipe, having in the middle an enlargement like the bulb of a thermometer.

This second apparatus produced beneficial effects; it lasted much longer, and the temperature of the air was raised by it to 280° Fahr. This increase, though small, produced a visible economy in fuel. Messrs. Neilson, Mackintosh, and Wilson, then understood the advantages which would result from raising the temperature many hundred degrees. They abandoned this heating tube, and constructed a new apparatus, presenting a great number of tubes, heated in many points of their length. By this means, the temperature of the air was raised to 612° Fahr., a temperature above that of melted lead.

Though this temperature was much below that required for smelting iron, (estimated at about 1500°) it produced a considerable saving in the consumption of fuel. Another advantage was obtained of great importance—that of being enabled to substitute crude coal for coke, without injury to the walling of the furnace. The quality of the iron was, on the contrary, improved, and the furnace, which produced but little more than half its quantity of No. 1 and half of No. 2, when fed with coke, gave a proportion much greater of No. 1 iron, after the substitution of crude coal. Besides, the consumption of fuel was considerably diminished. This last circumstance was owing, probably, to the fact, that the temperature of the furnace becoming higher, it was not necessary to add so great a quantity of flux to insure the vitrification of the gangue which accompanied the mineral. It is probably owing to this

elevation of temperature that coal may be substituted for coke.

The better to judge of the progressive increase of economy obtained at the Clyde Works, in the experiments to be noticed, we give for each of them the different consumptions of coal and flux.

In 1829. The combustion being maintained by cold air—

Coal.	1. For fusion, three tons coke, corresponding to	Tons.	cwt.	qrs.
		6	13	0
2. For the blast engine		1	0	0
		7	13	0
Flux		10	2	

In 1831. The furnace being in blast with air heated to 450° Fahr., they still burnt coke for the fusion of the metal—

Coal.	1. For fusion, 1 ton 18 cwt., corresponding to	Tons.	cwt.	qrs.
		4	6	0
2. For the heating apparatus		0	5	0
3. For the blast engine		0	7	0
		4	18	0
Flux		9	0	

In 1833, July. The temperature of the air was raised to 612° Fahr., and crude coal used for fusion—

Coal.	1. For fusion	Tons.	cwt.	qrs.
		2	0	0
2. For the heating apparatus		0	8	0
3. For the blast engine		0	10	0
		2	18	0
Flux		7	0	

At this last epoch, the employment of heated air had augmented the yield of the furnace more than one-third, and consequently had effected a great saving in labor. In fine, the quantity of air required to maintain combustion in the furnace was also found to be sensibly diminished. The blast engine of seventy horse power, which was sufficient in 1829 for only three furnaces, was found of ample power for the blast of four.

By comparing the results which will be indicated, it will be perceived that the economy in combustion is in proportion to the increase of temperature. As to the absolute saving, it varies in each furnace according to the nature of the coal, and the care used in carrying on the operation.

In spite of the complete success of these experiments, the introduction of heated air into the iron works encountered great difficulties. It was necessary to conquer not only the power of habit, but the prejudice generally existing, that the coal is sulphureous, and that its transformation into coke is not only favorable to combustion in the smelting furnace, but that it is indispensable to the making of iron of good quality.

This plan, in use four years in the environs of Glasgow, which it has saved from certain ruin, has scarcely passed the frontiers of Scotland. However, the wonderful advantages which it has pro-

duced, have begun to triumph over these prejudices, and gradually to extend its use in the different provinces of England. I know of twenty-one works containing sixty-seven furnaces, which work with hot air. In Scotland, six; Flintshire, one; Derbyshire, three; Newcastle-on-Tyne, two; Newcastle-under-Line, two; Staffordshire, five; Pontepool, two. Total, twenty-one.

The iron made at these furnaces is generally No. 1, proper for casting the nicest work.

The plan is equally applicable to the metal intended for bar iron. To obtain this quality of metal it is only necessary to change the proportion of fuel and mineral. The forges upon the Tyne Iron Works, near Newcastle—of Codnor Park, near Derby—employ for the manufacture of bar iron, none but the pig metal produced in the hot air furnaces.

In most of the establishments cited, the crude coal has been substituted in place of coke. In some works, where this substitution has not yet been adopted, they assured me, as at Monkland Iron Works, near Glasgow, that the temperature of the air was not raised sufficiently to enable them to pass from the manufacture by coke. In some others, the quality of the coal being extremely bituminous, as near Newcastle, appeared to be an obstacle to the use of coal in the natural state.

The employment of hot air is not yet introduced into the great works at Merthyr Tydvil, Wales. The small consumption of coal which is employed crude, as I shall indicate at the close of this report, and the high price of the patent, has retarded its adoption; but I have no doubt that this plan will produce in this country a sensible saving in the consumption of fuel.

To appreciate the advantage which results from the employment of hot air, I shall give a statistical view of the works visited. I will describe the apparatus as far as they differ from each other; and I will compare the consumptions and expenses incident to the production of a ton of iron, before the introduction of hot air, and at present. This description will no doubt appear tedious, but in so important a question, and one which may have immense influence upon our forges, I think nothing should be omitted tending to instruct our iron masters. I will then give some details upon the coals used in these works, and upon the expenses of manufacture in the Welsh works.

Finally, I will terminate the report by a recapitulation of the principal experiments which have been made in France to introduce the use of hot air in the iron works.

Before commencing this description, I should pay a just tribute of acknowledgment to the proprietors of the works which I have visited. Almost all have procured me, with a noble generosity, the means of studying their establishments with advantage. They have shown, in this circumstance, that the sole rivalry which exists between France and England is that of emulation.

To be continued.]

[From the Genesee Farmer.]

ON DRAUGHT. No. II.—In my last number, I alluded to power, in the abstract, and made some suggestions in relation to the difference between animal and mechanical power. Leaving the subject of mechanical power, as I then proposed, I shall now proceed to consider the application of animal power; and in so doing, shall have reference principally to the power and use of the horse, whose services are in constant requisition, and whose powers are familiar to us all.

The application of the power of a horse, in the ordinary occupations of life, would seem to be a very simple matter, as it really is, and hardly worth a minute investigation; and yet we shall find, as we progress, that the result of every animal effort must depend upon a vast variety of principles and circumstances, connected with the exertion made.

Upon the structure of the animal, much may depend, as I had occasion to notice when treating upon the Horse in vol. ii. Every animal is a beautiful piece of mechanism, made up of exquisitely fine wrought pulleys and levers, which are forced into vigorous action at every exertion of power. A horse, from the very nature of his formation, is peculiarly calculated for draught. To exemplify this, let us consider for a moment the difference in applying the power of a man and a horse. The process of dragging is produced by throwing the body forward, and making its weight available as well as its strength, thus making the feet the fulcrum of a lever, and the weight and strength the effective power. The centre of gravity in both animals is about the centre of the body, to wit, just behind the shoulders in the horse, and just below the arms in the man. Now, supposing the weight and strength of both animals to be the same, the fact, that the hind legs of the horse must be considered the fulcrum, necessarily throws the centre of gravity much further forward in the horse, than it could possibly be done by the man. Consequently, the effect produced must be in proportion to the weight of the body and the distance the weight is applied beyond the fulcrum. This is constantly the case in practice. The muscular strength of a man is nearly as great as that of a horse, but from his upright construction, he cannot apply it in the same way. He can carry a great weight up a ladder, if applied to his shoulders, and yet in the act of pulling, his power is lost, for the want of weight, and its proper application. The horse too, in ascending a steep hill, can produce very little effect, because in that case his whole muscular strength must be exerted against his own gravity and that of the load; while on a horizontal surface, he is enabled to take advantage of his great weight, as well as muscular powers.

Now, although the weight of a horse may remain the same, and be applied under most circumstances with the same effect, not so with the muscles. A constant strain upon them will soon destroy their power of action, and render the animal useless. We are all aware of this from experience,—thus we feel more fatigue by standing than by walking, because one particular set of muscles is then kept constantly exerted. We must therefore vary the resistance, so as to suit the power and gait of the animal. But in varying the resistance, it cannot be elastic or yielding, except at the expense of power; for in that case, if too much power should be applied, the horse would naturally fall forward, and thereby lose his exertion; and if the power should be insufficient, he

would be drawn back by the strain, and it would require a greater effort to restore the motion. This is constantly exemplified in towing canal boats, and in the lead horses of stage coach teams. In the former case, the length and curve of the rope give an elasticity to the strain; and the necessity of keeping the rope out of the water compels the animal to keep up an unremitting pull in an oblique direction. So in harnessing horses one before another, the leader by tightening the traces is constantly relieving the strain from the wheel horse, and the wheel horse from the leader, so that these horses labor under all the disadvantages of a long, elastic, and constantly yielding load, which is not only fatiguing, but prevents their united exertion upon the carriage. A horse therefore, to work to advantage, must have a rigid resistance, but neither uniform, nor without remission. Hence we readily perceive, why a horse works easier on an undulating road than upon a perfectly level one, and also why he will draw more, when attached directly to his load, than when at a distance.

The effect gained by the action of a horse, or in other words his productive muscular power, must depend upon his rate of speed, the power of traction he can exert, and the number of hours he can work. As these are important considerations, connected with the application of animal power, it is desirable to examine them more in detail, and with that view, I shall avail myself, as heretofore, of the statements and calculations of Mr. Tredgold and others.

Neither the speed or power of a horse can be of any avail, unless some useful effect is produced, over and above mere velocity. Now, the limit of speed in any horse is the distance he can accomplish in a given time, for several days in succession, without weight; and the limit of his power, is when the weight can scarcely be moved. The medium point between these two limits is evidently the one most advantageous for the application of his power. This medium is said to be half the extreme or limit of velocity of a horse working unloaded; and the force of traction, half the limit of his power. For instance, if six hours be the length of a day's work decided upon, and if a horse working that time can go six miles per hour unloaded, and therefore producing no useful effect, and supposing the limit of power of the same horse equal to 250 lbs., it is found that he will do the most work in the same number of hours, when drawing a load at the rate of half six, or three miles per hour; and half of 250 lbs. or 125 lbs., will be the strain corresponding to this speed. As the limit of velocity depends upon the time the speed is kept up, the following table, drawn from experiments, will show the proportion of duration of labor, and maximum of velocity, of the average of horses:

Duration of labor in hours.	Velocity in miles per hour unloaded.
1	144
2	104
3	84
4	74
5	64
6	6
7	54
8	54
10	44

This evidently shows the advantage of reducing the speed, and prolonging the exertion. It will here also be seen, that the velocity of horses, corresponding to eight hours' work, is five miles and a quarter per hour; and consequently the rate at which he would travel when loaded is but little more than two miles and an half per hour. But Mr. Tredgold estimates, from long ex-

perience, the time in which the average of horses can accomplish most work without injury to themselves, to be only six hours per day, instead of eight, which will of course increase his average velocity when loaded, to three miles per hour.

But we cannot always control the velocity and time of duration, as here supposed, for our stage coaches, and other conveyances for passengers, have reference only to speed, and the great object of proprietors is to obtain it with the greatest economy. Mr. Tredgold has given a table which shows at once the reduction of effect by increasing the velocity. A force of traction of 125 lbs. continued for six hours at the rate of three miles per hour, is taken as the standard, and considered equal to the arbitrary number, 1,000. The first column will show the velocity or rate per hour, continued for six hours per day; the second represents the force of traction of which the animal is capable; and the third, the comparative effects produced.

Miles per hour.	Force of traction in lbs.	Effect produced.
2	166	888
3	125	1,000
3½	104	972
4	83	888
4½	62½	750
5	41½	555
5½	36½	500

If, however, the hours of labor be lessened, taking the velocity corresponding to the greatest useful effect, the results will be much greater, and the velocity may be raised much higher, as will be seen in the following table.

Here the first column is the length of day's work, the second the velocity corresponding to that time, or half the limit of velocity shown in table first, and the third column the comparative effect produced, the force of traction being in each case 125 lbs.

Duration of labor in hours.	Velocity—miles per hour.	Effect produced.
2	5½	578
3	4½	709
4	3½	813
5	3½	909
6	3	1,000
7	2½	1,063
8	2½	1,110

To attain higher velocity, it is necessary still further to reduce the load, and the following table is calculated upon the supposition of the strain being only one half the last, viz. 62½ lbs.; this is about the average exertion of each horse in a four horse heavy stage coach.

Duration of labor—hours per day.	Velocity.	Effect produced.
4	5½	618
3	6 2-5	534
2	7 4-5	434
1	11	307

In mail or light coaches, where ten, eleven, or twelve miles an hour is attained, the average strain of each horse is barely 40 lbs., and the effect produced, not much more than one half the above, or 160.

These tables are calculated upon the supposition that the roads are good and the resistance small, and therefore allowance must always be made when roads are uneven, for increased resistance, and a corresponding expense of power. It will be observed, too, that in rapid travelling the power is much more expensive, owing to the great loss sustained by increased velocity; and the bad consequences of a uniform strain are more severely felt by the horses, and therefore occasional relief much more urgent.

From all that has here been stated, it will readily be seen how important it is to all persons engaged in transporting property

to understand fully the principles which regulate the increase or diminution of effect produced by their teams, and no persons have a greater interest in this subject than farmers. Their great object, with others, is to obtain the greatest amount of effect, with the least expense, and with the least expenditure of power. Let every man then, investigate this subject for himself, that he may know when and how he is obtaining the greatest possible effect, from the expense and power applied. **QUERCUS.**

No. III.

In farther pursuing our inquiries relative to the application of animal power, the *modus operandi*, or the manner of attaching the power to the weight, forms an important consideration. We have seen that the structure of the animal, his muscular power, speed and bottom, and the quality and degree of resistance, all have more or less influence upon the effect produced; and we shall now find that the mode of harnessing a horse, and attaching him to his load, also has an influence upon his productive labor.

If we could always use our draught horses upon railways, where the resistance is so slight, and its quality exactly what it should be, it would be a matter of little importance, in ordinary cases, how we connected them with their loads; but while we have to encounter every variety of resistance, up hill and down, over rough roads and smooth, it is important to avail ourselves of every circumstance, however trifling, which may increase our products without injury to our animals, or expense to ourselves.

In ancient times the harnessing a horse was a very simple matter. A strap around the neck, or a band around the girth, with a connecting rope or leather, was all that was thought necessary; and even in more modern times, every nation has a mode peculiar to itself, though all depend upon one and the same principle for effect.

But whatever may be our preferences, or however many our expedients, to decorate our animals, or modify their labor, the effect they produce will always depend in some measure upon the arrangement of the traces.

The angle of inclination, or in other words, the direction of the traces from the shoulder to the load, has been a topic of much discussion. There are but three modes of directing the traces: horizontally from the shoulder to the load—an upward inclination from the same point—and a downward inclination. These have all had their advocates; but so far as I can judge, the force of traction is not altered in either case. If the trace inclines upward from the shoulder, then a portion of the animal's weight is borne by the trace, and of course communicated to the carriage; and if the trace is inclined downward, the effect is, that the horse lifts, as it were, a part of the load; while in both cases, the force of traction is the same as that exerted upon a horizontal trace. In the first case, the effect is increased by the weight of the animal; in the latter, by his muscular strength, or capability of sustaining weight. The advantage or disadvantage, then, of either of these modes of application, must depend upon something else than mere force of traction.

But there is, nevertheless, advantages to be gained in the use of these several modes. It is evident, from the very construction of different horses, that their capabilities are essentially different, though their force of traction may be the same. One may be a small, muscular, nervous animal, exerting

an average force of traction of 125 lbs.; another, with large muscular legs, is perhaps calculated to sustain a great weight; while a third may possess an unwieldy bulk of flesh and bone, which of itself is a load, and yet neither of the latter horses be able to exert a greater force of traction than the former. In the first case, comparing one animal with the other, nothing would be gained by deviating the traces from a horizontal direction. In the second, an evident advantage would be gained by inclining the traces downward, for then the effect would be increased by putting a part of the load upon the horse, thereby leaving less weight to be operated upon by his force of traction. And in the last case, a corresponding advantage would be obtained by inclining the traces upward, so as to take the benefit of the animal's weight in addition to his strength. Hence it is evident, that so far as the animal is concerned, the inclination of the traces ought to depend upon his particular capability, and not upon any general rule.

But, independent of the animal, there is another consideration which should influence the inclination of the traces. In the above cases, I have supposed the weight to be moved upon a smooth surface; but it is evident, where the road is rough and the resistance constantly varying, a great advantage may be gained by enabling the horse to lift a part of his load over the obstacles; which will be effected by inclining the traces downward, let the animal's capabilities be what they may. On most of our roads, however, there is a constant variation from smooth to rough, from ascent to descent; and it will, therefore, be desirable for every man to fix upon that inclination which on the whole will best suit his circumstances; for it would be impossible to change the direction of the trace at every change of surface. Hence we find how much more effect wheel horses are enabled to produce upon our common roads, than leaders; for the latter can never apply their strength except in a horizontal direction; while the former exert the same force of traction, and at the same time increase the effect, by their nearness to the load, and relieving the weight. Hence, too, it is evident, that upon ordinary roads, the mode of harnessing horses one before another, as in our stage teams, is not the most efficacious mode of applying their powers. The plan adopted by the New-Jersey and Pennsylvania teamsters, of harnessing four horses abreast, and directly to the carriage, is doubtless the most efficient, if not the most convenient.

The common use of the gig, or dray cart, is another exemplification of this principle. The weight thrown upon the shafts is the same thing as weight applied to the traces by a downward inclination; and it is well known to practical men, that most horses will carry the same load easier in this way, if correctly divided, than where the whole depends upon the animal's force of traction.

The fitting of the trace to the collar is another point worthy of remark. The structure of the horse, however, determines this matter almost wholly; and generally, in this country, it is judiciously applied. The connecting point between the collar and the trace should be about two-thirds of the distance from the top of the collar to its lowest extremity, for there the collar bone is smallest, and the most muscle is presented to sustain the pressure. The old fashioned New-England mode of applying a connected trace around the breast, and sustained by a strap over the neck, was exceedingly irksome to the horse, as the whole strain passed directly over the joint

of the collar bone, and thereby nearly paralyzed the operation of that joint.

In general, then, where the road is smooth and the gait slow, the traces should be as nearly horizontal as possible; unless where an extraordinary exertion is required, and then the traces should be a little inclined downward, so as to put a small part of the weight upon the horse. When the road is rough, and the gait also slow, the traces should be applied still lower down, so as to give the horse the greatest power over obstacles. But where great velocity is required, without much attending weight, the nearer the traces can be brought to horizontal the better, for then the horse is enabled to exert his force of traction without any counteracting influence.

In my next number, I shall proceed to consider, in part, the second branch of this subject, to wit, the *vehicles to be moved*, in connection with the *channels of conveyance*, but with especial reference to Canals and Canal boats. **QUERCUS.**

CHINESE GONGS.—We have been furnished by a friend with several numbers of the *Asiatic Journal*, in which we find the following description of the composition and manufacture of the "Chinese Gong," an article now much in use in hotels. They are, especially to those unaccustomed to early rising, instruments of "horrible music;" yet, to many, an article of considerable interest, as it has often been said, and by many believed, that they cannot be made in this country.

Composition of Chinese Gongs.—In the *Annals de Chimie* for November, there is the following account of the Chinese process of manufacturing gongs and cymbals, translated by M. St. Julien from the *Tien-kong-kae-wei*, a Chinese encyclopædia of arts and manufactures:

"The red copper, used in making musical instruments, must be alloyed with mountain-tin,* which does not contain a particle (*lit.* a vapor) of lead. In order to make gongs (*lo*), &c., eight pounds of copper are alloyed with two pounds of tin. If you wish to make little bells or cymbals, the red copper and the tin must be much purer and finer than for gongs.

"When a gong is to be made, it must not be cast in the form it is to have, and then forged with the hammer. You must begin by founding a thick sheet of metal, which must be cut round, and then beaten with the hammer. For this last purpose, the round sheet of metal must be spread upon the ground, and if the instrument is required to be of large size, four or five workmen must be placed around, to hammer it. The sheet will spread out and enlarge under the hammer, and its edges will rise up. Then the instrument will begin to emit sounds, resembling those of a musical cord. All these sounds proceed from the points which the hammer has struck (*lit.* from the points struck by the cold hammer.) In the centre of this drum of copper, a boss or round elevation is formed, which is struck, and the blows of the hammer give it the tone. Two tones are distinguished in the gong; the *male* tone and the *female* tone. Both depend upon the rising being less or greater than ought to be given, with rigorous exactness, to the boss, according as one or other is desired. By doubling the blows

* The Chinese have two sorts of tin, mountain-tin and river-tin; both are found in the province of Kwang-so.

of the hammer, the instrument acquires a grave tone."

M. Darcet, in a note upon this translation, observes: "The only thing I find correct in this account is the composition of the alloy, of which the Chinese author states these instruments are formed. I have analysed seven gongs and twenty-two cymbals, and I have always found, in 100 parts, about 80 of copper and 20 of tin. It is true, about five or six years ago, an original letter was communicated to me from a missionary, which stated that gongs contained, besides copper and tin, $\frac{1}{10}$ of bismuth; but the properties of this alloy and the result of the analyses just mentioned, show that the workman deceived the missionary on this point. I regard then, as a fact proved, that these gongs and cymbals are composed of an alloy formed with 80 parts copper and 20 of tin; but this is far from sufficient to enable us to fabricate these instruments; for this alloy is as brittle as glass, and if it be used as it comes from the crucible, it would be not only impossible to forge it, but even to use such instruments, merely cast with this alloy, without their breaking. This happened to an untempered gong, which had been made at the school of Chalons for the king of Prussia, and to the gong at the opera, which being cracked, was heated in order that it might be mended with silver solder. The alloy of 80 parts copper and 20 of tin is so brittle, especially when hot, that it may be reduced to powder. This alloy has great density; its grain is very fine, and its fracture almost as white as that of bell-metal. Chinese gongs and cymbals, on the contrary, have a small specific gravity, and a fibrous fracture exhibiting the color of the alloy, of 90 parts copper and 10 tin, used for cannon. Fragments of gongs and cymbals, far from breaking under the pestle, are malleable, and may, moreover, be bent till the two sides of the piece form together an angle of 130 or 140 degrees, without breaking. It follows clearly from this comparison, that gongs and cymbals cannot be fabricated as the Chinese author pretends; that it is only by means of some peculiar process, some sleight of hand, that an alloy of 80 parts copper and 20 tin can be employed in this manufacture. This secret consists in tempering the alloy; in fact, when heated to a dull cherry red, and plunged into cold water, it takes instantly all the physical characters of the gong and cymbals: I have manufactured by this process upwards of sixty pairs of cymbals, and experience has fully justified what I have stated.

Nothing is said in the Chinese account about tempering; yet without this operation, it is impossible to fabricate these articles. As to the mode of making them, the alloy of 80 parts copper and 20 tin, even when tempered, cannot possibly be forced, and especially beaten out. All the Chinese author says about casting the alloy in the form of a plate and beating it out with the hammer, is a mere fiction, imposed upon him by a Chinese artificer, just as our artificers endeavor to mislead curious visitors in our manufactories. The following method is, in my opinion, the true one.

"The model of the instrument is forged in red copper or brass; to this model is given exactly all the desired forms, by making the face of the hammer penetrate more or less on the two surfaces, so as to form that continuity of spherical hollows and salient parts we see upon cymbals, and especially gongs. When the model is finished, it is employed to make a mould in sand, in putty, or in metal. An alloy of 80

parts of pure copper and 20 of fine tin is prepared, which is run into an ingot; it is then re-cast and run into the mould. The piece, when taken out of the mould, is rough-scraped; it is tempered as is done with steel. If it is misshapen, by plunging it red hot into cold water, the shape may be rectified by the hammer and by flattening it with gentle blows. The required tone may be given, either at first, by forcing the temper more or less, or afterwards, by hammering; it is polished by means of a lathe, as is done with saucepans of copper or brass, and the instrument is finished."

Buildings of Canton.—In the buildings of Canton, we have doubtless as great a variety of structure and style, and as fair specimens of Chinese taste and art, as can be found in the whole empire. A large part of the city and suburbs is built on low ground or flats. Special care, therefore, is requisite in order to secure for houses and temples a solid basis. Near the river, and in all the most loose or muddy situations, houses are raised on wooden piles, which make the foundation as secure as brick or stone, and perhaps more so. In some cases, the piles rise above the surface of the ground, and then the buildings, constructed of wood, rest directly on them; but, in other instances, the piles reach only within a few feet of the surface, and the remaining part of the foundation is made of mud, brick, or stone. When this is done, the walls of the houses are usually carried up and completed with the same material. Not a few of the houses are entirely baseless, or have only a slender foundation of mud, of which also their walls are composed; and hence, in severe rain-storms and overflows of the river, many of the walls are prostrated.

Bricks are in most general use for the walls of houses; perhaps three-fifths of the whole city are built of this material; of the remaining part, a very large portion is constructed of mud: most of the Tartars in the old city inhabit houses of this description. Stone and wood are not very extensively used for the walls of houses; the first is frequently employed about gateways and for door-posts; and the second for columns, beams, and rafters. Many of the floors of houses and temples are formed of indurated mud; marble flags are sometimes used for the same purpose, and often tiles. The latter, when made very thin, are used for roofs; they are laid on the rafters in rows alternately concave and convex, and forming ridges and furrows, luted by a cement of clay. Windows are small, and rarely supplied with glass; paper, mica, or shell, or some other similar translucent substances, taking its place. Very little iron is employed in building houses.

Such is the general style, and the usual material, of the buildings of Canton. In passing through the streets of the city, the spectator is struck with the difference he finds in its various buildings—though this diversity does by no means fully exhibit the relative condition and circumstances of the people. A few only are rich; and the external appearance of their houses does not at all exceed in elegance those of the middling class. Many are very poor; and the aspect of their habitations exhibits abundant evidence of their abject state. The poorest people are to be found in the extreme parts of the suburbs, along the banks of the canals, and in the northern part of the old city; their houses are mere mud hovels—low, narrow, dark, uncleanly, and without any division of apartments. A

whole family of six, eight, ten, and sometimes twice that number of individuals, is crowded into one of these dreary abodes. It is surprising that people can live, and enjoy health, and even long life, in these circumstances. To pass through the streets or lanes of such a neighborhood, is sufficient to reconcile a person to any ordinary condition of life. Neither intelligence nor industry could ever be confined in such miserable cells.

In habitations a little more spacious and cleanly than these, perhaps one-third part of the population of Canton have their abodes. These stand close on the streets, and have usually but a single entrance, which is closed by a bamboo screen suspended from the top of the door. Within these houses there are no superfluous apartments: a single room, allotted to each branch of the family, serves for a dormitory, while a third, which completes the number into which the whole enclosure is divided, is used by all the household as a common eating-room. Chinese houses usually open towards the south; but in these, as also in the poorer kind, this favorite position is disregarded. Houses of this description are rented at four or five dollars a month.—[Chinese Repos.]

QUICKSILVER VS. STEAM.—It is stated in the London Times that the Earl of Dundonald (better known as Lord Cochran) was examined last session, before the Common's Committee, on steam navigation to India. His Lordship, among other matters, said he had projected "a substitute for steam," as well as "a new mode of propelling vessels." The substitute for steam is quicksilver; and he employs it "to produce power by exhausting one vessel and compressing air in another, thus forming an atmospheric plenum or vacuum, which will produce the same effect as the plenum and vacuum formed by the generation of steam and its condensation." This plan (superseding the necessity of carrying coals) he added, is peculiarly adapted to agitated water like the sea. The plan may be wholly worked without fuel. The evidence and papers are too long for extract, but his lordship concludes this part of his evidence with stating, that "vessels fitted with quicksilver apparatus might be provided with sails of the usual kind there would be no smoke nor any fire, and there need be no indication from their external appearance that they are equipped in any other manner than as sailing vessels. As to the method of propelling without paddle wheels (his Lordship says), I should be happy to lay it before the committee, were my patentright secured."

HOW TO ACQUIRE KNOWLEDGE.—Young men, would you be intelligent? Carry a book about you *always*. Not a novel—but a work of utility—a work in which you may read of realities, not fiction. Would you be wise? Open and read that book whenever you have a moment of leisure. I recollect to have read an anecdote of a *shoemaker*, even after he worked as a journeyman, who always kept a book open before him, so that he might not lose a moment, but be preparing himself for future usefulness; and the result was, that he became not only one of the most eminent, but one of the most useful men of his day. Why, my young friend, may you not, by pursuing a similar course, also become eminent and useful to your country and your fellow men? Adopt the course, and give it a *fair trial*, and if you do not succeed to the extent of your ambition, I will guarantee that you will not be the worse mechanic, or citizen, for the experiment.

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MARCH 14—20, 1835.

LITERARY NOTICES.

ORMSBY'S PENTOGRAPHIC ILLUSTRATIONS OF THE HOLY SCRIPTURES, &c. &c., Part I: ORMSBY, 22 Nassau street, New York.—We have had occasion heretofore to speak of the ingenious machine—the Pentographer—which does by mechanism, what the combined operation of the human eye and hand, was alone supposed able to effect.

The work now before us, furnishes accurate copies of the remarkable series of medals executed by Thomson of Birmingham, illustrating the Scriptures—and the effect produced by the engravings is really almost equal to that of the medals themselves. The reverse of each medal presented a brief historical extract from the Bible, explanatory of the subject selected. This is given too by the Pentograph, so that the face and the reverse of the medal are equally well preserved.

The whole will be completed in eight numbers, to be issued monthly at, for subscribers 37 1/2 cents each, for non-subscribers, 50 cents.

REPRINT OF BLACKWOOD'S EDINBURG MAGAZINE, THE METROPOLITAN AND FOREIGN QUARTERLY, Nos. 2 and 3: N. Haven, PECK & NEWTON; N. York, P. HILL & Co.—This is, we are told, the only reprint of Blackwood, or the Metropolitan. The three works which this undertaking comprises, would cost, if imported, \$35. They are offered here together for seven dollars! and well printed.

FRANKLIN LIBRARY OF MODERN LITERATURE, Parts XII. XIII. XIV. XV.; N. York, WALLIS & NEWELL.—The Bondman, a story of the time of Wat Tyler, and Tales of Woman's Trials, by Mrs. Hall, chiefly occupy these four numbers, of which the price is only one shilling each.

THE AMERICAN MONTHLY MAGAZINE, New Series, No 1; edited by C. F. HOFFMAN and H. W. HERBERT: New York, D. K. MINOR, & T. & C. WOOD.—This is no new candidate for popular favor, but one that has given proofs of deserving it, and wears well, what it has fairly won. In one respect it does indeed present a new claim, and that is, its having passed into the possession of the author of "A Winter in the West," Mr. C. F. Hoffman. We feel assured that this is a claim which will be readily allowed, and that the talents and acquirements which he will bring to this Magazine, will add to the favor with which, while under the sole control of Mr. Herbert, it has been so deservedly received. Their united labors, aided by contributions from well practiced and well renowned pens—as we have reason to know they will be—cannot fail to establish the reputation and extend the circulation of this periodical. The number before us, has a large share of good papers; the first and the last alone, we apprehend are from the pens of the editors. In "the fortunes of the Maid of Arc," it is impossible not to recognize the glowing pen—the abounding incident—the impassioned style, and the admirable fidelity to historical costume, which made "Some Passages in the Life of Mary Queen of Scots," and other papers on analogous subjects, so eminently attractive and impressive.

In "The Ghost riders," the descriptive powers, the delight in Indian legends, and the vivid imagination, which give to "the Winter in the West" the interest of romance without departing from the soberness of truth, are again exhibited to advantage. It is a thrilling story.

But we find it impossible to speak at length of

all the contents of the Magazine, tho' we will not deprive our readers of one, at least, of its tales. it is not long, and it is exceedingly well told.

A word to the publishers. The paper should be better, and the stereotype more regular and accurate.

An Incident at Algiers,

DURING THE VISIT OF DECATUR'S SQUADRON IN 1815.

The bay of Algiers is one of the most beautiful I have ever seen. The harbor is in a semi-circular form; at the further recess of which the city rises gently from the sea; and her white walls, flat roofs and terraces, from the narrowness of the streets, seem, from the seashore, joined together until they reach the surrounding hills—which are crowned with vineyards, and form altogether a striking and picturesque amphitheatre. On the western point of this harbor, a neck of land projects into the sea, and on its extremity is built one of the strongest castles for the protection of the place. It was from the guns of this castle, that in a few months after the period of which I am speaking, the ship commanded by Admiral Milne, in the gallant attack of Lord Exmouth, suffered so severely. Close in with this fort our boats were obliged to pass on their way from our ships to the landing.

Delightful as was the appearance of all this to the eye, yet from our early recollections of blood and crime connected with the history of the place, we beheld it but as a "whitened sepulchre," and the intimation that we were soon to sail for the ulterior objects of our expedition, was received, I believe, with general satisfaction.

A constant intercourse had been established between the squadron and the shore from the moment when our difficulties with the Dey had been adjusted, and the treaty had been signed "word for word as it had been sent on shore." Crowds of officers were daily visiting the town, and among them the midshipmen of the different ships were always to be seen dispersed over the place, seeking with a perfect unconcern, even in sacred and forbidden ground, for objects to gratify their curiosity; receiving the courtesy of those Algerines with whom, when they were our prisoners, they had become acquainted, with as sincere a good-will as if they had never been enemies, or returning the haughty scowl of some stranger Turk with a smile of reckless indifference.

It was my good fortune, in addition to my ordinary visits on leave to the shore, to attend the commodore as one of his aids, in those which he made to the chief officers of the government; and I often had my feelings strongly excited by the humble looks and broken-hearted demeanor of the Christian slaves, by whom the lemonade and coffee were prepared and handed to us. Although habited in the loose petticoat-drawers, and slippers of the Turk, they were easily distinguished by their long plaited hair, the absence of moustache and beard, and above all by their dejected mein, from their lazy and overbearing masters. I had taken a deep interest in them, and had become familiar with many of their faces. Among them there was a young Italian of about five and twenty, the melancholy expression of whose handsome features had, upon my first seeing him, attracted my attention. There was something in his eye that spoke of prouder, happier days; and the quiet and almost indignant manner with which he calmly received his master's bidding, indicated that his spirit was not yet quelled within him, and was strongly contrasted with the readiness with which that bidding was obeyed when it administered to our pleasures.—It was evident that from some cause his feelings towards us were those of confidence and friendship. It might be that he looked upon us as connected with him by our common faith, or perhaps he felt grateful to us as the victors, who had humbled those who had enslaved him: and perhaps—and more truly as I afterwards thought—the hope of freedom was dawning on his spirit, and he regarded us as friends upon whom he might soon call for aid and protection. But whatever were his feelings, ours had been so strongly interested in his favor, that several of us juniors were at some pains to learn his story; and

through the kindness of Mr. P., of Virginia—who had been detained since the capture of his vessel, a parolled prisoner at Algiers, until released by our squadron—we were enabled to gratify our curiosity. The tale of poor Angelo Salvini has often been told with darker additions, but I thought it gloomy enough, when I first heard it.

It was a beautiful night in the spring-time season, and the breeze, that floated along the coast of Calabria, though rife with a thousand sweets, was not more blithe in its gambols over tree and rock, and moon-tipped wave, than two young hearts which there swelled with rapture, as a bridal party danced upon the strand. An hour afterwards the scene was fearfully changed. There were marks of disorder in the adjacent thicket, as if a large body of men had rushed from them towards the shore, and there were traces upon the beach that could hardly be left by the light feet of a dancer—

"Steps stamped and dashed into the sand,
The print of many a struggling hand!"—

and a silken scarf, or torn mantle, fluttered on the water's edge, or drifted before the rising wind, which now moaned around the headlands, as if unwilling to fill the lessening sail of the Corsair that was springing, with her prey, before it.

Poor Angelo! he knew not—and well he did not—what became of his bride. But like all exiles, who fondly think, that, can they but see their native land again, they may recover all that made it dear, his whole soul seemed bent upon seeing his Italian home once more, when somehow by the blessing of "our Lady," all would come right. He was never seen to smile, and there was that earnestness of expression in his face—that blending of manly resolution and winning gentleness, which had so struck and touched us at once—which, in a word, had interested all of us most deeply in his fate.

The incidents of that cruise were generally so novel and interesting, that the story of Angelo Salvini may have been forgotten by other officers, among themes of a gay and more engaging character. But there are reasons why it can never be erased from my memory.

The arrival and vicinity of our squadron had caused an additional rigor in the treatment of the prisoners, and as a precaution against their escaping to any of our ships, they were compelled to carry about with them a ball and chain, which in our country are only worn by the most desperate felons. Decatur, with that generosity which so distinguished him, did not hesitate at his interview with the Dey, strongly to remonstrate against this degrading sight, which he and his officers were compelled to witness. The Dey replied, that this severity was indispensable, while the Christian ships were in the offing; but that if Commodore Decatur would pledge his word as an American, and his honor as an officer, that he would not countenance the escape of any of the captives, their rigorous treatment should be relaxed, and every indulgence short of liberty should be accorded them during the stay of the American vessels. The pledge was given for the captives' sake, and strict orders were issued throughout the squadron, that no prisoner was to be allowed to enter a boat, or under any circumstances to be brought off to the ships.

It was about noon, one day, when after landing a superior officer on the mole, from the second cutter, we had shoved off, and letting fall our oars, were soon under rapid way. We had proceeded the whole length of the basin, and were just doubling the castle which I have already described, giving it only berth enough to avoid the low rocks, that are piled for some short distance around its base, and behind which a person might easily be concealed. We were so near, as we passed, that the musketoon of the Turkish sentinel was perfectly perceptible, as he paced up and down between the groups of cannoniers, who were eyeing us through the embrasures of two large pieces of ordnance, that nearly ranged with the point towards which I was pulling from the shore. My attention was directed to them, and the water was a little rough, which perhaps prevented me from seeing any object floating near the boat; and I was not a little surprised, when I saw the head

of a man suddenly dart above the gunwale, holding with his teeth a knife, while his hands grasped eagerly at the blades of the oars, as the headway of the boat appeared to be carrying it past him, before he could make good his hold. His hands were on the quarter before my order had saved him from more than one blow with the looms of the oars. I seized the struggling swimmer by the shoulder, and with the aid of my stout coxswain, he was quickly placed beside me in the stern sheets: but what was my horror upon discovering, while the man yet clung to the gunwale, that it was a Christian captive—that it was Angelo Salvini. The instant commotion among the people collected on the mole, told me that it was impossible to screen him for a moment. To carry him off to the ship, in the teeth of the orders I had received, would have been madness. Yet, how could I deliver him up to the hellhounds that were even now opening upon their prey! There was a discordant cry from the infuriated crowd upon the mole, which, although unintelligible to me, yet its dreadful import to poor Angelo could not be mistaken; and in a moment the cannoniers hurried along the walls of the fortress, while a dozen caiques shot from beneath its battlements. The eyes of my gallant crew, that but now melted with pity, flashed defiance, as they beheld this movement around the bristling cannon. But when they saw boats hurrying in pursuit, they curled their lips in scorn, and gripping their oars, with a nerve that made them quiver in their rowlocks, they glanced at me so imploringly for the captive, and so triumphantly for themselves, that pity and pride almost obtained the mastery over duty, in my bosom. A single word from my lips, and the destruction threatened by the Infidels would not have prevented my noble fellows from sweeping beyond the reach of the Corsair boatmen. A single word, and, if we escaped the fire of the Moorish battery, which, from past experience no one dreaded, the hapless Angelo would have been at least in temporary safety beneath the Stars and Stripes. But I knew my commander too well to tamper with an order, that had been so imperative as that in relation to the captives. His honor as an officer, and his duty as a disciplinarian, would alike have insured the surrender of Angelo, and the punishment of myself; an aggravation of misery to the one, and the disgrace attending so gross a breach of orders to the other, would have been the certain consequences of my pursuing a different course of conduct from what I did. Yet, I shall ever remember it as one of the most painful moments of my life, when, as the barge of a Turkish officer hauled alongside of me, I determined to surrender the fugitive. I turned for a moment to look, before the act was done, at Angelo,—there was a resolved fixedness in the expression of his face, as he eyed the exulting look of those who claimed him, that revealed the determined purpose he had formed. Freedom had been almost within his grasp, and yet not a murmur, not an imploring word escaped his lips—they moved, but I thought it was in prayer to that cross, the bright symbol of his faith, and before which he felt the crescent had often paled.

But when I gave him up, and they were dragging him somewhat roughly into their boat, he turned and gave me one parting look, while his eye rapidly moved from my button to my face, as if he almost expected to see my countenance bear witness to what he deemed the tarnished badge of our service. That look, I never can forget. It was a mingled look of contemptuous scorn, and disappointed confidence. And yet, I could not, and I did not blame him. He knew not that I, as well as himself, was the victim of my orders. He knew not that the pledge, given by aschivalric a sailor as ever stepped a ship's deck, was given for the captives' comfort, and must be fulfilled for our honor: but that look, and the appealing murmurs of my men, almost shook my purpose; and, boy as I was, I so far forgot myself as almost involuntarily to seize my dirk, and to threaten, in my own language, as I leaned over the quarter, my impotent vengeance against the officer, in case he harmed the Italian. "The malignant and turban'd Turk" only answered with a scowl, as he turned round after gaining a boat's length from me.

The rapidity, with which the succession of incidents had occurred, prevented me from observing what had become of the knife, which, when I first saw the poor captive in the water, had attracted my attention, and I presumed that in lifting him on board, it had dropped into the sea.

My feelings had been wrought up to such a thrilling pitch of excitement, that ordering my men to drop the boat astern, in order to gain a more distinct view of the landing, we laid upon our oars watching his reception on the shore. A yell of delight told that they had touched the strand with their prisoner. There was an excited movement in the crowd—a rush and a struggle along the mole. My boat's crew sprung to their feet involuntarily,—and the tall bowman swore that he saw the knife of the Italian red with the blood of at least one Moslem, before a dozen ataghans had cut him to pieces.

Poor Salvini! To avoid the horrible fate that he knew awaited him in being bastinadoed to death, he had stabbed the Turkish officer, and had fallen an immediate victim to the vengeance of his men.

We abridge our Review to-day, not unwillingly, to make room for some poetry breathing of flowers and spring, sent to us, too, with a bouquet of most fragrant double violets, of which the odour and the associations—time has been—would have almost moved, even our editorial gravity, to the perpetration of rhyme. As it is, we have only plain prose to thank our unknown lady correspondent—for lady she surely is, not less by the taste of the *envoi*, than by the delicate hand writing of the annexed note—and to insert at the earliest moment the lines it enclosed.

To the Editor of the New York American:

At this season, when exotics are carefully preserved in green-houses, I am often reminded of a sprightly and appropriate effusion, suggested by an admirer of those beautiful and care-demanding favorites. The poetry was sent me by a friend some time since, as having been a source of much entertainment in her vicinity.

Will you be so indulgent, as to distinguish the enclosed by a space in your columns? and oblige an

UNVARIED PERUSER.

Mr. —, after arranging his conservatory for the winter, placed the following lines there, and proceeded on an excursion: upon his return, he found "the complaint."

ON A GREEN-HOUSE.

Here, side by side, in beautiful array,
The blushing plants their various forms display,
Watch the clear sun, and open all their smiles,
When he in courtship with his warmth beguiles.
Gay emigrants! to this fair land they come,
And call this peaceful scene their native home;
The South sends many, some the Tropics' clime,
Here spring reigns ever,—ever in its prime,
Her *Jasmine*, *Catt. lonia* sends from far,
That glitters gay with many an ivory star;
Spangled with gold, *Acacia* richly shines,
Like Sultan decked from bright Peruvian mines;
With scarlet honors, the *Pomegranate* glows,
And fragrant *Daphne* blooms 'mid winter's snows;
Her aromatic shrub *Verbena* sheds,
And various scents meet here from spicy beds;
The gay *Cereus* on the trellis towers,
Spreads the effulgence of his golden flowers;
While modest *Violets*, beneath his feet,
And humble *Ice plant* creep from their retreat;
Hibiscus and *Hydrangia*, watery friends,
Assemble here; this, rich with blossoms bends,
The other, mounts aloft, and high its beauty sends.
With yellow fringe, *Hypericum* is drest,
Purer than snow *Cape Jasmine* wears a crest;
No neck of swan so white was ever seen,
As her chin to flowers enshrined in glossy green;
Camellia, here with vivid-lustrous glow,
And bloom uncessing springs from *China's* Rose;
The ruddy *Orange*, of so gentle shade,
And kindred *Lemon*, join their social shade;
Althea seems a plant that feels, and thinks,
Like a coy maid, from slightest touch she shrinks;
In nightly sleep she closes all her leaves,
But the new morn, expanding, she revives;
Decked with white blossoms, is it the *Rubus* stands,
That looks like careless work, from Chinese hands;
Here shines the *Myrtle*, with *Geranium* pride,
And rich *Cyrentheman* like *Ear* can bride;
The *Polyanthus*, with a diamond eye,
And bright *Osella*, dip in *Tyrian* dye;
With *Pinks*, and tall *Cerastium*, flourish here,
And sisters more, which all too true I leave;
To this retreat, approach with cheerful mind,
Here nature's sweetest, loveliest, forms we find;
Another Eden rises to our view,
With colors ever bright, and ever new.

THE COMPLAINT.

At a full congregation,
Of the leafy creation;
In this once happy garden assembled;
With once voice 'twas agreed,
That 'twas time to proceed,
As our griefs could no more be dissembled.

And though nearly frozen,
A *Jessie* was chosen,
To act as our scribe for the day!
And the plants that were sick,
Were prop'd on a stick,
To hear what the speaker would say.

Resolved, that each flower,
That o'er deck'd a bower,
To our Patron, shall gratefully bend;
And for all favors past,
Every breath 'till the last,
Its sweetness shall cheerfully lend.

Resolved, our complaint,
Though 'twere almost too faint
To speak half the anguish we feel
Should yet be expressed,
That we may be redressed,
That delightful such sorrows to heal.

The who's summer long,
Passed away like a song,
We then were so happy and gay;
The sun in the morning,
Our bloom was adorning,
And retired at close of the day.

But thinned are our ranks,
From the green sunny banks,
Where careless we flourish'd and grew;
Our sisters, and brothers,
And various others,
One, by one, from our circle withdrew.

In the Green-house protected,
While we are neglected,
Secured from the cold chilling air;
Where they sit snug, and warm,
And heed not the storm,
While we are left naked, and bare.

And now, 'tis so sickly,
A "*Pear*" that was "*prickly*,"
Has quite died away with the cold;
And "*Roses*," and "*Lilies*,"
And "*sweet*" scented "*Willies*,"
Have all prematurely grown old.

This sad chilling weather,
And cudy tug, ther,
When we see them so gay, through the glass;
We could march out in "*Phlox*,"
And give them a "*Box*,"
For vexation whenever they pass.

The "*Hydrangia*" too,
Having nothing to do,
Would drink all the day, if he could,
And pretends, (who'd believe him?)
'Twas done to relieve him,
Tho' hard drinking we know does no good.

And 'hen on a shelf,
Thinking only of self,
Sits the little "*Althea*" so shy;
She's so very tenacious,
And so little gracious,
Not one of us dare to come nigh.

Oh! 'tis "*Mormosed*" and "*Rue*,"
Thus to have in our view,
Our once meek, and humble relations;
When such colds in our heads,
Keep us all in our beds,
To mourn o'er our own mutilations.

Our "*Hearts-ease*" is fled,
"*Jump-up Johnny*" is dead!
The "*Larkspur*" no longer can soar;
And the "*Nymph-in-the-Bower*,"
And "*Lav's bleeding flower*,"
Will never feel the morning breeze more.

Oh! how people will change!
'Tis as true as "*the strange*,"
That the sweet "*Evening Primrose*" is fine,
Which was watch'd with delight,
When it burst on the sight,
Now withers and none will repine.

Not even the "*Mint*"
Could buy such a tint,
As deck'd our "*Queen-Margaret's*" cheek;
But I have no "*Thyme*,"
To bring it in rhyme—
Its own faded beauty must speak.

The "*Casterbury bell*,"
Has rung its own knell,
And now to land under the sod!
But from farther west,
His friends to protect,
One plant waves its bright "*Golden rod*."

Oh! now then relent,
Of such treatment repent,
And let us be happy together;
And each graceful vine,
In beauty will twine,
And again wave our gay "*Princess-feather*."

"*Thistle-down* shall be spread,
To pillow thy head,
And never again will we quarrel;
An "*Imp of Pansy*,"
Will bent in the dawn,
And the brow shall be deck'd with the "*Laurel*."

By order of the board. JOHN QUILL, Secy.

We think our readers will be grateful to our fair correspondent for these charming lines. There is yet an answer to the complaint, which our circumscribed limits, compel us to omit.

FOREIGN INTELLIGENCE.

By the packet *Virginian*, Captain Harris, from Liverpool, we have papers of the 11th ult. from that port, and to and of the 10th from London.

Our continental intelligence by the *Rhone*, is later than that by this ship. Our direct advices from England, before, were only to the 2d or 3d.

We find nothing of material interest. The approaching meeting of Parliament, and the effort to be made by the opposition to oust Sir C. Mansel Sutton, (who is still, it would seem, to be the candidate of the Administration,) and to elect Mr. Abercromby, occupy the chief space in the newspaper discussions. The towns and counties were entering so earnestly into the subject, as by public resolutions to instruct their representatives to be punctual in their attendance on the first day of meeting.

The reduction of the armies of the Emperor of Austria, for which we give the official decrees, is estimated by the London Times, not to exceed 20,000 men, which as it well reasons, on a permanent standing army of 350,000, is not much like reducing it to a peace establishment.

"A Winter in the West," is we are advertised in the London papers, as about appearing there from the press of R. Bentley. We predict confidently, a very successful run for it.

The London Courier of 9th pronounces, upon the authority "of a professional gentleman who has reason to be well informed," that the pregnancy of the Queen was certain.

The present King of Great Britain was born August 31, 1765, and the Queen, August 13, 1792. They were married July 11, 1818, and have no children. The present heiress presumptive of the crown, the Princess Alexandrina Victoria, daughter of the late Duke of Kent, was born May 24, 1819.

It turns out to be true that the Marquis of Londonderry has been appointed Ambassador to the Court of Russia.

The British ship Sir Thomas Munro, was lost on the Cape de Verd Islands, the captain, crew and passengers were brought into Plymouth in the American brig Maine, of Boston, Capt. Williams.

The late general election has returned one hundred and thirty-seven military and naval officers to Parliament.

Joseph Bonaparte came to London from his seat in the country, for the express purpose of meeting the Duke of Leuchtenberg, after the Prince had visited and dined with the King, at his palace at Brighton. The Duke and Joseph Bonaparte met at the house of a friend, where they were closeted for several hours.

It appears by accounts received from Vienna, that Austria has come to the determination of reducing her armies to a peace establishment, orders having been given to sell 10,000 horses belonging to the artillery, to send home part of the landwehr, and put the frontier regiments into their ordinary cantonments.

Our news from Madrid is of the 29th ult. at which time a general alarm existed lest a revolution should break out, and fresh troops are ordered into the capital from Extremadura. The greatest vigilance is exerted on the part of the Government:—the post office is strongly guarded, and large patrols circulate through the streets at night. In the *Proceres*, on the 27th, General Quesada attacked Llander in a violent manner, recommending that he should be watched. The ex-minister had left Madrid on his way to Barcelona, where it was supposed he was to remain the Captain-Generalship of Catalonia, but the impolicy of entrusting him with such a command has been so strongly urged on the ministers, that we do not think he will be allowed to retain the post. It was reported, indeed, that he had been actually recalled. The promises to the mili-

nous regiment of Arragon have been broken.—Cadaro and others were ordered to the island of Island of Majorca, but suspecting evil designs against them, they made their escape. The non-commissioned officers were dismissed the service, the men drafted into our corps, and the regiments disbanded.

PACIFICATION OF SPAIN.—The London Morning Herald gives the following as the outline of Lord Wellington's plan for the pacification of Spain:

CONDITIONS.

1. Abdication of Don Carlos in favor of his eldest son.
2. Withdrawal of Queen Christine from the Spanish dominions.
3. Immediate betrothment of the eldest son of Don Carlos with Isabel II.
4. The Government to be carried on in the name of Charles VI. and the *Estado Real* to remain in force.
5. A Council of Regency to be appointed, in order to govern the country until the young Prince be of age, (his majority being fixed at 18,) and to be composed of five members, among whom Zumalacarreaguy and the Marquis de las Amarillas are necessarily to be included.
6. An unconditional amnesty for all political offences.
7. Securities to be given to the people of the Basque provinces and Navarre, for the maintenance of their fueros.
8. All loans or debts contracted in the name of the Anti-Salique dynasty, or in that of Don Carlos, to be acknowledged and considered as the Royal debt of Spain.
9. All ranks, titles, and decorations, conferred by the present Queen or Don Carlos, to be declared the property of those to whom they have been granted.

Lord Fitzroy Somerset is said to have actually left England on this identical mission. Don Carlos is to be allowed £50,000 a year.

RUSSIA AND TURKEY.—The London Morning Chronicle, of the 9th ult., says—

"We venture to state, from circumstances which have come under our own observation, that if ever Lord Ponsonby be invited to submit to Parliament an account of his mission to Constantinople, he will be enabled to show that he has struggled—and not ineffectually—though almost single handed, against the scarcely concealed exertions of Russia for the ruin and final subjugation of the European provinces of the Turkish empire. It will appear, unless we are greatly mistaken, that our present, or rather, perhaps, our late Ambassador to the Porte has ardently devoted all the energies of a powerful and accomplished mind to the solution of the many perplexities by which the Turkish question is still unpappily surrounded. Above all it will be made manifest that his counsels, if they had been followed, would have contributed to save Turkey from the ruin which now awaits her, and would, moreover, have rendered unnecessary the expenditure of blood and treasure by which we must yet rescue Turkey from the fetters of Russia, if eventually we shall resolve not to suffer Great Britain to be excluded from the commerce of the Levant."

THE EUFRATES EXPEDITION.—This expedition which, owing to adverse winds, has been so long detained, is now fairly under weigh, the bark George Canning having sailed yesterday. As soon as this fine ship reaches the coast of Syria a strong detachment of the garrison of Aleppo will be marched across the desert, about eighty miles, to the town of Bir, on the river Euphrates, where additional fortification will be constructed for the protection of the artificers while putting up the two iron steamers, the Euphrates and the Tigris, and as a permanent depot for the stores. Every means will be used to conciliate the Arabs, and we trust successfully. It is only from the smaller wandering tribes that hostile opposition is to be apprehended. With the more powerful tribes, who are chiefly stationary, such arrangements will be entered into as are likely to make them comprehend the peaceable nature of the undertaking. If no untoward accident occur

there is a great probability that the steamers will be completed in time to commence the descent of the river to the Persian Gulf by the middle of May. Although the principal object of the expedition be the opening of steam communication through Mesopotamia with India, it is hoped that the officers of the departments of astronomy, geography, geology, natural history, antiquities, &c. will have sufficient time for prosecuting their researches in this new and interesting field. The result of their labors will be looked for with anxiety by the whole scientific world. The expedition is under the command of Captain Chesney, of the Royal Artillery, who was lately gazetted with the temporary rank of colonel while on this particular service in Asia, and has been long and favorably known by the public for his science and enterprises.

Officers of the steamer Euphrates:—Lieutenant Cleveland, R. N., of H. M. steam vessel Phoenix, fourth in command; Mr. Chaslewood, mate, R. N., of H. M. steam vessel Salamander, eighth in command; Mr. Fitzjames, mate, R. N., of H. M. S. Winchester, ninth in command; one engineman and two assistants.

Officers of the steamer Tigris:—Lieut. Lynch, Indian navy, second astronomer, and second in command; Mr. Eden, mate, now in Syria, making preparation, R. N., sixth in command; Mr. Hector, master, late of the El Bourka, of the Niger expedition; one engineman and two assistants.

Scientific department:—Capt. Estcourt, 43d Light Infantry, pendulum and magnetic experimenter, third in command; Lieut. Murphy, R. E., astronomer and director of trigonometrical survey, fifth in command; Lieut. Cockburn, R. A., assistant draughtsman and surveyor, seventh in command.

Dr. Staunton, R. A., physician and naturalist. Mr. Ainsworth, surgeon and geologist. Mr. Staunton, chemist and assistant naturalist. Mr. V. Germain, draughtsman and assistant engineer.

Mr. Thomson, second draughtsman, and in charge of the chronometers.

Signor Riga, apothecary and interpreter. Hadgi Halil, second interpreter.

By the above arrangement, there is a reserve in every department of duty and science, in case of illness or death.

The following are a few of the details of the steamers:—Euphrates—105 feet long; 19 beam; 2 engines, 25 horse power; weight of iron, exclusive of machinery, 23 tons, 1 cwt. 3 qrs. 7 lbs.; weight of boilers, 16 tons 6 cwt. 1 qr. 18 lbs.; draught of water under 3 feet; weight of engine, 25 1/4 tons. Tigris—85 feet long; 16 beam; 2 engines, 10 horse power, weight of iron work, 14 tons 17 cwt. 2 qrs. 1 lb.; weight of boilers, 7 tons 14 cwt. 3 qrs. 5 lbs.; draught of water under 2 feet; weight of engine 11 1/2 tons.

The George Canning will probably lay in provisions at Cork, and stop a week at Malta; and, thence proceeding, land the heavy baggage, including the iron steamboat, the diving-bell, &c. up the Orontes, most likely at Antioch. A portion of the expedition, however, it is proposed, shall land at Scanderoon.

Arrived at Bir, the first object contemplated is an exploratory excursion down the river, to make friends with the Arabs, both the fixed and the wandering tribes; and examine more minutely than heretofore the general chance of success in the navigation of the Euphrates. It would then sail for Basora or Korna; and, while the larger steam vessel was left for the purpose of keeping up and protecting the navigation of the Euphrates, the smaller one would be employed in assisting the labors in the sciences of geography and natural history, by navigating the Tigris and the Kawun. This, indeed, must be the most novel and interesting episode connected with this very important enterprise.

THE FINEST PEASANTRY ON THE FACE OF THE EARTH.—Again we have to record another of those barbarous murders that disgrace this country. Some time since a Black visited the neighborhood of Carnacon, and occasionally kept a boxing school, to which the young men about the place resorted for instruction. Two of these, Walsh and Byrne, had been sparring, and Byrne

knocked Walsh down and indiscreetly boasted of it. Walsh for this felt offended, and on Christmas day, in presence of many persons, required satisfaction for the offence by fighting him on the spot. Both took off their coats and were about to engage, when a man named Peter Staunton, about twenty-two years of age, came between them, and endeavored to prevent the quarrel, as they were all friends and nearly related. While performing the kind office of peace-maker, he was struck behind on the head with a stick by Walsh's brother Paddy, and instead of resenting this, he turned round, shook hands with him, and kissed him, and said he would never strike him in return. Walsh then struck him again. Some rioting after this took place, and Staunton and some others with him attempted to escape through a potato field, when he was knocked down by another man named Staunton, with a stone, into the furrow, where he lay unable to rise, and there, while on the ground, was struck with a long stone in the head by J. Walsh, the man whom he before attempted to save from being hurt. He was also struck twice on the side with a pair of tongs by one Kilcoyne. On examination it was found that his skull was severely fractured, and his body otherwise injured. An inquest has been held and warrants issued for the apprehension of those concerned.—[Mayo Constitution.]

FACULTIES OF THE EAR.—It is extraordinary what an effort nature makes upon the loss of sight to restore the deficiency by sharpening the sense of hearing and touch; as in the case of Huber the great naturalist, who has made so many discoveries in the minutiae of insects; and also of Mr. Goff, of Kendal, an eminent botanist, who can tell the name or species of any plant or flower by the touch. Dr. Darwin informs us, in his Zoonomia, that the late Justice Fielding walked for the first time into his room, when he once visited him, and after speaking a few words, said, "this room is twenty-two feet long, eighteen wide, and twelve high," all of which he guessed by the ear. Blind people have a peculiar method of presenting the ear, and in some cases acquire the power of moving it when much interested. The incessant use they make of it gives them an indescribable quickness; they judge of every thing by sound; a soft sonorous voice with them is the symbol of beauty; and so nice a discernor is a blind person of the accents of speech, that through the voice he fancies he can see the soul. Sir John Fielding possessed a great faculty of this sort; and he could recollect every thief that had been brought before him, by the tone and accent of his voice, for more than forty years.—[Gardiner's Music of Nature.]

BILLETS DE PART.—Whenever a birth happens in families of gentility, it is usual to send notes to the friends, apprising them of the event, the sex of the child, and the state of its health, and of its mother's. The same formality takes place upon a death, when the note indicates the day, hour, and place of funeral; again, in the case of a wedding, two printed circulars are sent together in the name of the parents of each party, to the respective friends of both families. The most intimate friends are invited to the wedding entertainments, whilst the more distant acquaintances are merely invited to be present at the marriage ceremony at the Church. These notes and circulars bear the common name of *billets de part*, and those announcing a marriage, announcing a marriage, answer to the bride's cake of the English, with this distinction, that the latter are sent after the wedding, while the former indicate when the ceremony is to take place.—[Le Mariage en France.]

THEATRICAL COLORED FLAME.—The Journal des Connaissances Usuelles, gives the following processes for producing various colored flames at theatres; flame of a red tinge, like carmine, is produced by burning three parts of alcohol with one of nitrate or hydro-chlorate of strontium. Red, the same proportion of cinnabar and alcohol; sulphate of soda with alcohol will produce the same light at a less intensity.—Orange color is obtained by the combination of alcohol with hydro-chlorate of calcined soda.—Yellow, by alcohol, and nearly all the hydro-

chlorates, in proportion of one of the first to three of the last. An emerald green, with alcohol and nitrate of copper; green, with alcohol and hydro-chlorate of copper; blue, with alcohol and boracic acid.

M. Dupuytren died in Paris on the 8th of February, after a lingering illness of several months, aged 57. He has left the reputation of being the first operating surgeon in France, and probably in Europe. Domestic affliction preyed upon his mind for the last few years of his life. He has left Madame Beaumont, his only daughter, a fortune of nearly 7,000,000f., besides a legacy of 200,000f., to found a chair of medico-chirurgical pathology. He has also left 100,000 crowns, to found an asylum for twelve aged physicians.

SUMMARY.

THE RIVER.—The Albany Evening Journal of Tuesday says, "the river is nearly free of ice. A sloop has arrived at Hudson."

KENNEBEC ROAD.—This road is now travelled over by very many persons, and we have observed lately a number of the American winter sleighs and carriages in town. The Maine papers and private accounts represent the timber business on the Kennebec and the adjoining streams as the most active for many years past. The demand for hay and oats a little beyond our lines is almost unlimited, and much of it has been supplied by our Canadian habitants at 20 dollars a hundred, and 2s. 6d. a bushel. The demand for lands for settlement on the American side is also very great and the spirit of enterprise which the people of Maine display in advances towards us, is astonishing; a few years must make the route of communication quite frequented, and give Quebec a very expeditious intercourse with the whole of the States and Europe.

[From the Quebec Gazette.]

The troops frequently visit the ice on the St. Lawrence. This afternoon, the Royal Artillery had a *field-day* on the ice, with four pieces of artillery, on sledges, going through a number of rapid evolutions with their guns, firing blank cartridge with great despatch, and affording an excellent idea of the manœuvring of artillery on the field of battle.

Saluting an Earthquake.—We mentioned a day or two since, that an earthquake was felt at Omos, (Central America,) on the 22nd and 23d of January. It was occasioned, as we learn from the Boston Transcript, by an eruption of a mountain, east of Omos—supposed to be the Congreho. The noise was like the sound of distant cannon and continued 18 hours. It was heard at the Belize, Honduras, 200 miles distant, and was answered by a salute from the fort, supposing it to proceed from a man-of-war outside the Keys.

HARD TO BEAT.—We are informed that a female in the lower part of Virginia, has given birth to seven children within the last ten months, four at one birth and three at another.—[Rich. Va. Compiler.]

If this prolific mother was of that complexion, "incompatible with freedom" what a treasure she would be deemed.

[From the Baltimore American of yesterday.]

STEAMBOAT EXPLOSION.—The opening of the steamboat navigation on the Western waters for the present season has already been marked by the occurrence of an explosion and loss of lives. Nothing short of the enactment of a law by Congress, with the strictest regulations and heaviest penalties, can effectually prevent the risk and loss of life and property to which they appear to be especially subject in that quarter of the country.

The Cincinnati Republican of the 9th inst. states "that the steamboat CAVALIER, Captain Thompson, burst one of her boilers, on her passage from New Orleans up the Mississippi, about one hundred miles below the mouth of the Ohio, where she now lies. Mr. Patterson, the clerk, who was standing upon the boilerdeck, was thrown up several feet and landed on the shore with two of his ribs broken. Capt Thompson was confined to his state room by sickness, and

escaped uninjured. The 1st Engineer died a few hours previous of the small pox. Several persons were injured, and, we learn, two more killed. The boat belonged to Ripley, in Ohio, owned in part by the captain and clerk: both very deserving, industrious and enterprising men. The crew have been brought to Cincinnati by the Wyoming, captain Holton."

The Legislature of Ohio adjourned on Monday the 9th—after a session of 14 weeks.

The American schooner Sophronia, Amos Chick, master, from Charleston, South Carolina, laden with pitch-pine lumber, rice and oats, and bound to Martinique, during the strong gale and hazy weather of Friday, struck on the North-west breakers, bilged, and filled immediately.—The Crew and part of the cargo were landed at Mangrove bay, and the hull of the vessel was being towed in yesterday, by four of the Somerset Pilot Boats.

The brig Enterprise, Smith, master, of this port, with a cargo of slaves, from Alexandria, in the District of Columbia, destined to Charleston, South Carolina, after being blown off the coast, put into Bermuda, where the slaves were brought up on *Hobbes's Corpses*, and liberated.

The Bermuda papers state that they all had been provided for as servants in families.

AMERICAN TRADE WITH CHINA.—This trade during the last two or three years, has been rapidly increasing. We have before us a list of the vessels which arrived in China under the American flag, and departed therefrom, during the year ending June 30th, 1834. The whole number is seventy-nine. Of these 33 sailed for New York, 13 for Manilla, 9 for Batavia, 6 for Philadelphia, 4 for Boston, 3 for Valparaiso, 4 for Cowes, 1 for Lima, 1 for Baltimore, 1 for Salem, 1 for the Texel, 1 for Hamburg, 1 for Kamtschatka, 1 for Norfolk Sound, 1 for the United States (port not specified,) 1 for South America (port not specified).—[Journal of Commerce.]

The number of vessels which arrived in the port of Buenos Ayres during the year 1834 from foreign ports, was 261, of which 67 were American (in 1833, 91,) 61 British (in 1832, 74,) 43 Brazilian, 43 Sardinian, 14 Hamburg, 10 French, 5 Bremen, 5 Danish, 4 Portuguese, 2 Neapolitan, 2 Dutch, 2 Belgian, and of Russian, Chilian and Roman, 1 each.

FROM BERMUDA.—By the brig Neptune from Bermuda, we have the Bermuda Gazette of 3d instant. The following are extracts:

The Rhadamanthus, Steam Frigate.—This vessel having made a longer stay here than was expected on her arrival, has given very many an opportunity of visiting her; and the attention of Captain Evans, and his officers, has added much to the pleasures attendant on such an inspection. To those who have not had an opportunity of viewing the Rhadamanthus, we subjoin a few particulars of her dimensions as well as of her machinery, to assist them in forming some idea of the size, power, &c. of this splendid vessel.—The Rhadamanthus has now been from England about nineteen months, and her officers speak in the highest terms of praise of her qualities as a sea boat and fast sailer.

Length	165 feet.
Breadth inside of paddle-wheels	46 "
Tonnage	813
Engine Horse power	220
Paddle-Wheel, diameter	21 feet.
Boilers hold	50 tons.
Coals	390

and consumes on an average when in full power, one ton per hour, and is propelled by every turn of the paddles half a mile; the wheel revolves usually about 18 times per hour.

Armament—6 guns.—1 34 lbs long gun on the fore-castle—1 32 long gun aft.—2 32 short on each gangway.

A Sloop of War's Complement of men.—4 Engineers and 16 Stokers.

Samuel T. Armstrong, who has been elected several years Lieut. Governor of Massachusetts, and is now acting Governor, declines a re-election.

BOUNDARY QUARREL.—Ohio and Michigan, the one a State, the other a Territory, have a dispute about the boundary which separates the north part of Ohio from the South part of Michigan.—Ohio claims to run a line from the South point of Lake Michigan, direct to Lake Erie. This would include the whole of the Maumee Bay, and its surrounding rich lands. These, heretofore, we believe, have been in possession of Michigan. The Legislature of Ohio has ordered its Governor to take possession of those lands. Michigan says she will resist, and—according to the United States Gazette, of Philadelphia—"a law is published, enacted for the occasion, which renders it criminal for any one to hold any office in that territory, or in any part of it as it is now constituted, unless he is appointed by the authorities of that territory, or of the United States. The acting Governor has also given directions to Brigadier General J. A. Brown, to proceed into the disputed territories, and there ascertain whether any officers are holding commissions under the new movement of Ohio, and if so, immediately to enforce the act against them, calling to his aid the *posse comitatus*, if necessary. The acting Governor remarks, that there is but one feeling in Michigan, and that is decidedly against Ohio. Of course his Excellency means out of the disputed territory. In obedience to instructions from the Executive, General Brown announces that the crisis anticipated has arrived, and accordingly he orders out three brigades, and gives notice that if there is an officer in them who is not willing to peril "life, fortune and honor" for the territory, he is at liberty to give up his commission. These general orders conclude with the expression of a determination never to submit quietly to the invasion of their soil, whatever force Ohio may bring against them.

General Brown attended a public meeting held in the disputed territory, and was very roughly received. The meeting refused to hear him and his instructions, though subsequently, those of the meeting who were friendly to the authorities of Michigan, organized themselves, listened to General B. and passed a resolution approving the proceedings of the executive. This is the present situation of the dispute between the sovereign State of Ohio, and the appanage, Michigan.

COMMERCE OF NEW YORK.—The amount of duties which accrued at the port of New York, during the year 1834, was \$10,183,152

Amount of value of Imports for same period,	76,875,365
Value of do for 1833,	60,941,400

Excess in 1834, \$15,943,965
Showing an increase in the amount of goods imported at this port, of more than 25 per cent. in one year, and that a year of unusual mercantile embarrassment.

Condition of the Ohio Banks, January, 1835.

Capital Stock,	\$12,200,000
Capital paid in,	5,847,525
Specie,	2,489,912
Circulation,	4,564,898
Discounts,	6,799,247
Circulation over \$5,	3,382,321
Circulation under \$5,	1,182,577

The whole number of Banks in the State is twenty-seven. The largest capital is that of the Ohio Life Insurance and Trust Co., which is two millions of dollars. The Commercial, Franklin, and Lafayette Banks, all at Cincinnati, have capitals of one million each. Several others have capitals of half a million, and several of one hundred thousand dollars.

Specie.—The Globe states that the whole amount of specie imported into this country

since October, 1833, is \$24,428,594. Exported in the same time, \$3,000,000.

NAVAL.—The United States Frigate Constitution, Commodore Elliot, sailed on Sunday morning.

List of Officers attached to the United States Frigate Constitution:

Commodore J. D. Elliot, Commander.
Lieutenants—J. B. Montgomery, F. Ellery, W. C. Nicholson, E. C. Rutledge, G. F. Pearson, F. E. Neville, L. M. Powell.
1st Lieut. Marines, J. H. Hardy.
2d do. do. Thos. T. Stone.
Surgeon, T. J. Boyd.
Assistant Surgeon, I. Brinkerhoff, R. Woodworth.

Purser, H. Etting.
Chaplain, J. Everett.
Master, J. Ferguson, Second Master, J. M. Berrin.

Passed Midshipmen, J. F. Duncan, C. Steedman, J. W. Rave, J. W. Cook, W. T. Muse, J. L. Henderson.

Midshipmen—G. T. Sinclair, G. W. Randolph, R. N. Maffit, T. Oakes, B. F. Shattuch, W. S. Parkinson, E. C. Anderson, S. D. Trenchard, E. E. Rodgers, R. H. Jenkins, J. B. Lewis, T. S. Haggerty, J. H. Tighman.

J. E. Dow, Schoolmaster.
J. H. Prince, Captain's Clerk.
Geo. C. Thomas, Purser's Clerk.
Boatswain, W. Hart.
Carpenter, J. A. Dickson.
Gunner, T. Riley.
Sailmaker, N. C. L'Hommiedieu.

VICE CONSULS OF PORTUGAL.—The President has recognized John Vaughan, of Philadelphia, and Luis F. de Figanieri, of New York, as Vice Consuls of Portugal for those ports respectively.

Liberty.—The death of John Stocking, Jr. Esq., Mayor, of Mobile, was mentioned some days ago. He was a much esteemed magistrate and citizen, but died leaving a large family without property. A subscription was started for their benefit by some generous individuals, and in a short time four thousand dollars was pledged upon it, and other sums were expected.

There are now between seven and eight hundred slaves, offered by their owners, in various States of the South and West, to the American Colonization Society, for liberation and removal to Liberia, if the Society had the means of sending them. Unfortunately it has not. Cannot the benevolent and patriotic of this opulent nation furnish the means? Let the appeal be made, and we are sure they will.—[National Intelligencer.]

Captain King, of the schooner Despatch, arrived last evening from Omoa, states that a severe shock of an earthquake was felt at that place on the 25th January. An Indian village, about fifty miles from Omoa with all its inhabitants, was destroyed, with the exception of four men, who were up in the mountains. Capt. K. was one hundred miles distant at the time, and heard the report like a cannon. The ashes fell to the depth of an eighth of an inch on the deck of the schooner.

[From the New Orleans Bee, Feb. 26th.]

FROM MEXICO.—By dates from Mexico, the 2d instant, we have received advices of the resignation of Santa Anna of the chief magistracy of the Mexican republic. The Congress having nominally accepted his resignation, they ordered the election of President for a subsequent day; and elected General Miguel Barragan, President during the interval—through the influence of Santa Anna. By a third decree of the Congress, the office of Vice-President was declared null; so that Gomez Farias was obliged to resign.

It is not unlikely that at the election for President as decreed, Santa Anna will be elected perpetual chief magistrate, or dictator, of the fallen republic. There does not appear to be sufficient intelligence in Mexico to warrant a republican form of government. Liberty never existed where knowledge did not prevail.

VARIETIES.

From late Foreign papers.

Steam navigation, by Austrian vessels, has commenced between Trieste and Constantinople, touching at Corfu, Nauplia, Smyrna, and the Dardanelles, from which latter place to the capital the voyage is completed in from 14 to 18 hours. A vessel of 120 horse power is building at Liverpool, for the enterprising house of Chalton, Whittall, and Co., British merchants at Smyrna.—[Hampshire Telegraph.]

INTERIOR OF AFRICA.—In a lecture delivered by Captain M'Conochie at the London University last week, he made the following observations:—"It has been ascertained that some of the nations of the interior of Africa were comparatively in a state of civilization, and that the Governments under which they existed were stable.—Lines of investigation had, by the expeditions of various travellers, been marked out on the tract now sought to be more fully explored, from the east, the west, and the south; it was an expansion of those lines that was required; it was breadth in the future researches that must be given to those lines, and the angles contained between them must be filled up. The continent of Africa had already been penetrated 1400 miles north from the Cape of Good Hope. The countries farther north were found to be the furthest advanced in the art of civilized life. At the distance of 1400 miles from the Cape, the arts of smelting iron and copper, and of carving in ivory, were known. Commerce had penetrated in that direction nearly 1400 miles, and a trade to the amount of £1600 had been carried on in one expedition, though under the disadvantages of the commodities of the trading having been conveyed in wagons, and not by water."

CIVILIZATION AND CHAMPIONSHIP OF ENGLAND.—The discussions respecting this pugilistic dignity have been lately revived in the sporting circles. Some time ago Ward, the present nominal possessor, was challenged by a well known character, Deaf Burke, to sustain his pretensions to the honor. An offer was made to stake £300, besides the right to the title on the issue of the contest, and Ward at first consented; but afterwards refused to enter the lists unless the sum were raised to £300, and on that being agreed to, unless it were made £500—a sum which Burke was unable to collect. This conduct of Ward was by some considered capricious, and by others pusillanimous; so that at a late meeting upon the subject, a resolution was unanimously carried to the effect that the maximum stake in such a contest should be £300, and that if Jem Ward refused to come forward on these terms, Burke should assume the title of Champion of England.—[London paper.]

NATURAL HISTORY.—In a paper read before the Academy of Science at Paris, by M. F. Cuvier, on the growth of feathers, hair, and the quill of the porcupine, among a variety of curious information it was remarked that the hair of certain animals, though not, as has been supposed, a part of the skin, has a very acute sense of touch, as in the cat; for it was observed, if the smallest particle of dust fall on the fur of this animal, it is immediately sensible of it, and endeavors to shake it off.

PRINCESS DE CHIMAY.—The Princess de Chimay, formerly Madame Tallien, so celebrated for her beauty, and the part she played during the first French revolution, died on the 15th of January at her chateau at Chimay. She was born in Spain, and the daughter of M. Gabarus, who was twice Minister of the Finances of that country. Before the Revolution she had married M. de Fontenay, a Councillor in the Rouen Parliament. In 1789, she enthusiastically embraced the prevalent Revolutionary opinions.—On passing through Bordeaux, subsequently to the memorable 10th of August, she was arrested, but the celebrated Member of the Convention, Tallien, being in that city, she captivated him by her beauty, and through his interposition was released. On returning to Paris, she was again thrown into prison, and only restored to liberty in 1794. It was then she became known under the name of Madame Tallien, and acquired that fame which she long retained. On Tallien's

departure for Egypt, Madame Tallien remained in Paris, where she was surrounded with worshippers. Among them was Barras, Member of the Directory, through whose credit, it must ever be said to her honor, she nobly rendered innumerable service to the victims of the Revolution, by whom she was gratefully called *Notre Dame de bon Secours*. She was often a rival of Josephine Bonaparte, but never could obtain the althotat access to Napoleon's good grace. When Tallien returned, she refused to receive him, and declared that all ties with him were severed. In 1805 she married M. de Caraman, who in 1815, assumed the title of Prince de Chimay.

The *bourgeoisie*, and substantial citizens generally, begin to complain of the *exclusiveness* of Louis Philippe's entertainments. At first the *Citizen King*! used to make his invitations very general; but lately at a grand concert at the palace, none but nobles, and now and then a few deputies, were to be seen.

The *Tribune* was again seized and suppressed for the 107th time, on 5th February—not as was said for a biographical article on M. Argout, but for certain statements relative to an alleged arrangement made by Gen. Bernard in New York, on the subject of the 25 million indemnity.

MUSIC makes its nobles we find; for Bellini, for his new opera of the *Puritani* has received the decoration of the *legion of Honor*.

NEVER-BEER, has recently been elected a foreign associate of the *Academie des Beaux Arts* and the King had approved the choice.

We have before us, says a Paris paper, the *Royal Almanac* of Spain for 1835, and find in the list of the *Grand Crosses* of the order of Isabella the Catholic, the name of M. Rothchild. This dignity confers on whoever is invested with it, the title of *Most Excellent*. Hitherto M. Rothchild has been very silent in Paris about this new favor from Maria Christina—a favor conferred upon the eve of his paying several millions. At any rate, the admission of an *Israelitish* capitalist into the Catholic order of Isabella, is a proof of the progress of ideas in Spain, and especially of the irresistible progress of the power of money, over the most inveterate prejudices in the habits of a nation.

The following statement characterizes at once the horrors of the civil war in Spain, and the virtues which such scenes sometimes call into play:

Lately, near Hernani, a Carlist party captured about forty persons, men and women, who were going to St. Sebastian with provisions. In conformity with the orders of Don Carlos they should all have been shot, but the Chief who took them, contented himself with ordering the execution of seven only out of the party. Four men and three women were designated by lot. One of the women had three children at home. She obtained permission, before dying, to see her family, which was near by. After a brief interview with them, her husband, deeming that she, better than himself could provide for their children, offered to take her place as the victim, was accepted, and with the other six—shot!

MR. CORBETT'S ACCOUNT OF HIS ELECTION.—The election over in an hour, and three quarters in the whole! And anything so well, so sensibly, so every way nicely conducted, I never saw before. The returning officer, James Lees, Esq. just as polite and amiable looking a young man as can be imagined. Mr. Fielden was proposed by Mr. Joshua Milne, and seconded by Mr. John Travers. I was proposed by Mr. Alexander Taylor, and seconded by Mr. Hague. Here was sense. We had no placards; we had no address; we asked no man for a vote; we did not ask the collective body. We had nothing of expense of any sort even for our own personal entertainment. Here was no nonsense; no flattery; no coaxing; no

bombast; nor was there any nonsense about "stop-ping the supplies." "We told our constituents that it was their duty to feel grateful to the King for what he had done; and that it would be our duty to take care to avoid every thing tending to thwart his servants, if they appeared to be disposed to act in conformity to the good of his people; and that nothing, we are resolved, should induce us to give our countenance to any factious proceeding, having for its object to lessen the constitutional weight and authority of the King or of the Lords. In all which we had the hearty concurrence of our constituents."—[Political Register.]

NEVER DESPAIR.—A recent London paper gives this account of a whole crew saved by the energy and example of the commander.

In the Mangles from China came passenger Capt. Theaker, of the late ship Earl of Eldon, which was destroyed at sea, by her cargo of cotton igniting, when on her passage from Bombay. The Captain's conduct affords a striking proof of what may be effected under the most distressing privations and difficulties, by skill and self-possession. In the midst of the Indian Ocean, he safely conducted the crew and passengers, amounting in number to forty-five persons, in two boats (one a long boat about 22 feet by 7 feet, loaded to the water's edge with thirty-five persons, bread, water, provisions, chart, compass, &c., the other, a jolly-boat, containing 10 persons,) across a space of the Indian Ocean of nearly 1,050 miles, weathering two storms, and in 13 days carried them into port (Port Louis) without the loss of a single life, or any real extremity of suffering beyond that inseparable from their situation.

ORIGIN OF THE WORD QUIZ.—Very few words ever took such a run, or was saddled with so many meanings, as this monosyllable; and, however strange the word, 'tis still more strange that not one of our lexicographers, from Bayley to Johnson, ever attempted an explanation, or gave a derivation of it. The reason is very obvious. It is because it has no meaning, nor is it derived from any language in the world ever known from the Babylonian confusion to this day. When Richard Daly was patentee of the Irish theatres he spent the evening of a Saturday in company with many of the wits and men of fashion of the day: gambling was introduced, when the manager staked a large sum that he would have spoken, all through the principal streets of Dublin, by a certain hour next day, Sunday, a word having no meaning, and being derived from no known language—wagers were laid, and stakes deposited. Daly repaired to the theatre, and dispatched all the servants and supernumeraries with the word "Quiz," which they chalked on every door and every shop window in town.—Shops being shut all next day, every body going to and coming from their different places of worship saw the word, and every body repeated it, so that "Quiz" was heard all through Dublin; the circumstance of so strange a word being on every door and window caused much surprise, and ever since, should a strange story be attempted to be passed current, it draws forth the expression—*you are quizzing me*.

EXTRAORDINARY SUICIDE IN FRANCE.—A dashing young man, who frequented the best society, conceived the design of committing suicide, which he executed in the following singular manner, a few evenings since:—After having arranged himself in full dress as for an assembly, he lighted six tapers, and placed them in order round his bed, and near the latter was a pan of charcoal. The deluded man gaily said to his neighbors, that he was about to take a long voyage, and immediately entered his room, which he was to leave no more alive. The fatal charcoal was ignited, and, in two hours he was found lifeless.—[Galignani.]

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-1y

RAILWAY IRON.

93 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
200 do. 1 1/2 do.	14 to 18 feet, counter sunk
40 do. 1 1/2 do.	holes, ends cut at an angle
800 do. 3/4 do.	of 45 degrees, with splicing
600 do. 3/4 do.	plates and nuts to suit.

soon expected. 4250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins. Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, 3 1/2, and 3 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. RALSTON, 9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71m-cwr

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly on hand a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 224 Water street, New-York; A. M. Jones, Philadelphia; T. Janvier, Baltimore; DeGrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. 133-am H. BURDEN.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG, Mathematical Instrument Maker, No. 9 Duck st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832. In reply to the inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend, JAMES P. STABLER, Supt of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer. Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad

METEOROLOGICAL RECORD,

Kept at Avoyles Ferry, Red River, Lou. (Lat. 31.10 N., Long. 91.59 W., nearly.)

FOR THE MONTH OF DECEMBER, 1834.

Date.	Thermometer.			Wind.	Weather, Remarks, &c.
1834.	Morn.	Noon.	Night.		
Dec. 1	58	75	68	se	Cloudy—rain in the evening
" 2	61	66	61	calm	clear—at noon U. S. snag-boats went up Red River to clear out the
" 3	44	67	44	N	(raft—three steam and four keel boats.
" 4	32	64	48	calm	cloudy—white frost, and rain in the morning—Red River rising
" 5	53	61	60	sw	.. —heavy rain all day
" 6	42	64	60	calm	clear all day
" 7	44	66	64	s	cloudy—rain in the evening
" 8	38	47	45	NW	.. —white frost—clear in the evening
" 9	39	48	45	N	.. all day
" 10	41	42	43	NE	.. —hail in the morning—rain at noon—clear in the evening
" 11	37	59	56	calm	clear—light white frost
" 12	38	61	56	..	..
" 13	32	61	56	..	.. —heavy white frost and cloudy in the evening
" 14	56	70	60	..	.. all day
" 15	36	70	63	..	.. —light white frost
" 16	43	72	79	..	.. all day
" 17	57	59	57	..	cloudy—rain in the morning and all day
" 18	54	65	61	..	.. —clear at noon—Red River rising
" 19	50	58	60	..	.. —rain morning and noon—cloudy evening
" 20	52	54	42	..	.. —rain all day
" 21	48	52	51	..	.. —foggy morning—rain noon and night
" 22	51	56	54	..	.. —rain all day
" 23	52	57	58	..	..
" 24	58	72	67	..	.. —thunder before day—rain at noon—clear evening
" 25	56	70	58	..	.. all day
" 26	41	50	48	..	clear all day
" 27	31	64	55	..	.. —heavy white frost
" 28	51	65	59	NW	.. all day—Red River on a stand
" 29	38	65	61	calm	.. —white frost
" 30	44	62	60	NW	.. all day
" 31	34	59	54	calm	.. —heavy white frost

Red River rose this month, 21 feet 1 inch.

Below high water, 8 feet 10 inches.

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
MARCH 20, 1835.

	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	118	—
Pateron.....	50	105	104½
Saratoga.....	—	106	105½
Harlem.....	—	91½	91
Boston and Providence....	100	116	114
New-Jersey Railroad and Transportation Line....	100	—	—
Camden and Amboy.....	100	—	—
Providence and Stonington..	100	—	—
Boston and Worcester.....	—	106	105
Philadelphia and Trenton...	100	98	98
Utica and Schenectady....	100	120½	120

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REPOSITORY,**

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NEW-YORK FARMER,
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AND

RAILROAD JOURNAL,

No. 35 Wall street, New-York, and
96 North Pearl street, Albany.

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AMERICAN MONTHLY MAGAZINE,

RAILROAD AND CANAL MAP,

QUARTERLY JOURNAL OF AGRICULTURE,
MECHANICS, AND INTERNAL IM-
PROVEMENTS,

PUBLIC DOCUMENTS,

EULOGY ON LA FAYETTE.

RAILROAD AND CANAL MAP.
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Published at 35 Wall street, N. Y., by
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* * Mr. Thorburn is also Agent, and will at all times receive subscriptions, for the NEW-YORK FARMER and American Gardener's Magazine; QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. MINOR.

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September 19, 1834.

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NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.

August 15, 1834.

A29 1f RM&F

MILL DAM FOUNDRY FOR SALE,

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

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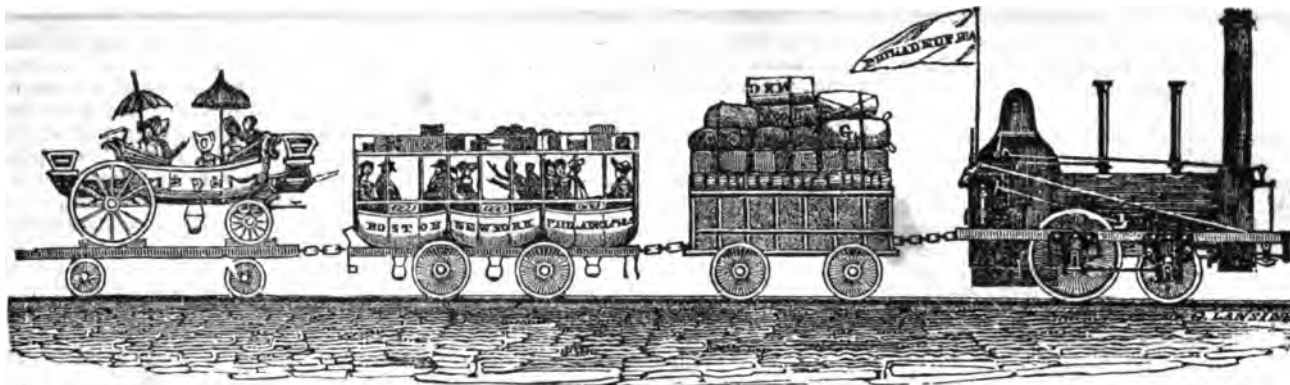
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The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOMAS ECKLEY, Treasr. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, Dec. 29, 1834.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, MARCH 28, 1835.

[VOLUME IV.—No. 12.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MARCH 28, 1835.

AVERY'S ROTARY STEAM ENGINE—*applied to a Locomotive.*—We were much gratified, yesterday, with an excursion to Newark, on the Railroad, the cars being drawn a part of the way by Mr. Avery's Rotary Engine.

This is the first, and we are highly gratified to know that it has proved an entirely successful application, of this ingenious, yet exceedingly simple engine, to Railroad uses. Mr. Avery had, for near two years, one of these Engines in successful operation in his machine shop at Syracuse—which proved to his entire satisfaction that it might be applied to other purposes; and with a perseverance worthy of the success which has crowned his efforts, he has devoted himself to the construction of a Locomotive Engine, which is now in use on the Newark Railroad, performing that part of the route only between the Hackensack and Newark. There being no revolving platform at Jersey City, it does not yet run through the whole line.

Mr. Avery is unfortunate in the road on which he makes his first trial. A straight and smooth road is necessary in order to attain a high velocity; but the Newark road, unfinished as it is, and in some places more or less affected by frost, with one or two very short curves, will not admit of the speed which this engine is capable of attaining. On returning from Newark, however, we noted the time of starting from the

east side of the Passaic bridge—where the engine was stopped, in consequence of having parted the fast by which it was connected with the car,—and of arriving at the revolving platform, within a few rods of the Hackensack, called $4\frac{1}{2}$ to 5 miles, which distance was performed in a fraction less than eleven minutes.

This Engine is an *experiment only*. It is the first and *only* effort to apply it to such purposes, and under all the disadvantages of poor wood, and a road much in want of adjustment, it may be considered as a highly successful experiment.

When Mr. Avery shall have completed another and more powerful engine, which he has now in course of construction, designed to test the principle more effectually, on a more perfect road, we doubt not of his attaining a *greater* velocity than has ever yet been attained in *this* country—or even in Europe—we shall probably be deemed "Rotary Engine mad," when 40 miles per hour is named as not of difficult attainment.

With true Yankee enterprize, Mr. Avery and his associate, Capt. Lynde, are determined to carry the war into the enemy's camp, by taking one of their engines, complete and ready for use, to England.

This engine, though very simple in its construction, can be much more clearly described with engravings, which we expect soon to receive, and therefore we omit a particular description for the present.

Annexed, however, is a short account of the performance of one of the small sized engines built by Mr. Avery, which we obtained when on a visit to Syracuse last fall, and saw the whole in operation.

The Engine, that is, the shaft and arms, weigh, as I learn, only 15 lbs.; the arms from centre of shaft to their ends are 18 inches, and in their revolutions describe a circle of 9 feet 5 inches in circumference; the two apertures at the end of the arms are equal to the eighth part of a superficial inch, and under a pressure of 80 lbs. to the square inch, will balance a weight of 10 lbs. From some experiments made, it is

estimated to carry a load of 8 pounds through a space of 37,666 feet per minute. The boiler has 60 feet surface exposed to the fire, and consumes daily $\frac{1}{2}$ a cord of soft dry wood.

There is in the establishment the following machines in operation, viz: 2 large Engine Lathes; 2 small do. do.; 2 Hand Lathes; 1 Boring Mill for boring Cylinders; 2 Drilling Lathes; 1 Grindstone; 1 Mill for grinding Coal; 2 Bellows, 40 double strokes each per minute, which will force 560 cubic feet of air per minute, under a pressure of $1\frac{1}{2}$ lbs. per square inch.

The Engine had been in operation about 18 months, during which period it did not stop one hour in consequence of the operating part being out of order.

We hope, and expect, soon to be able to exhibit one of these Engines in operation, in printing the *Railroad Journal*, and *both sides of the sheet*, at the same time, or before it comes from the press—and shall be happy to show it to our subscribers, and others (of course we mean those who *PAY IN ADVANCE*.) and do us the favor to call about the first of May next.

The NEW-YORK AND ERIE RAILROAD bill, we regret to say, has been defeated. The cause *why*, and the means *how*, it has been done, we, for the present, shall not refer to. We may, however, be permitted to say that the opposition has not arisen from a spirit of liberal enterprise, or from enlarged views of the importance of securing to our State the immense transit duty upon the Western business. We shall, ere long, refer again to the subject, and in the mean time shall endeavor to obtain, for publication, a full report of the debate upon the subject.

DR. CHURCH.—The attention of many persons was attracted on Saturday to Dr. Church's beautiful steam-engine, which was running on the Covington road. The ground run over was six miles out and six home; and, notwithstanding the roads were in the heaviest possible state, in one of the trips four milestones (i. e. three miles) were passed in nine minutes; and two milestones were passed in the extraordinary short space of two minutes and a half.—[Birmingham Gazette.]

[From the London Mechanics' Magazine.]

The Undulating Railway—Mr. Badnall in Explanation.

Dear Sir: Your readers might naturally expect that I should have taken a much earlier opportunity, either of publishing the particulars of those experiments to which I so urgently invited their attention some time ago, or that I should have given some satisfactory explanation of my motive for withholding them. I am not, however, without a hope that this letter will prove a sufficient vindication of my conduct against any charge of neglect or wilful delay.

In my letter of the 20th August last (1834,) I stated that the Whiston Branch Railway was completed, but that our experiments were unavoidably delayed by the refusal of the Directors of the Liverpool and Manchester Railway to accommodate us by the loan of a suitable locomotive engine. At the same time, I intimated that, under such circumstances, I had no other resource than to endeavor to obtain an engine elsewhere, either on loan or hire.

With this view I made every necessary inquiry; but the only engine which I could hear of as being disengaged was the Manchester, which was built by Messrs. Galloway, Bowman and Glasgow; and though capable of dragging a considerable load, she was, from her particular construction, by no means adapted to the safe attainment of that velocity which could alone determine, on the Whiston line, the comparative superiority of an undulating or horizontal railway. I say upon the Whiston line, because the dip of the undulation was greater than I should ever recommend in practice; which may be judged of from the fact, that a loaded waggon, descending from the colliery by gravity alone, attained, after traversing about 500 yards, a velocity of upwards of 30 miles per hour.

Perceiving, however, that I had little, if any other, chance of trying immediate experiments, I consulted my partner, Mr. R. Stephenson, sen., on the subject, who, from being well acquainted with the capabilities of the engine, strongly objected to her being employed for the purpose in question, it being his opinion that, although a very powerful engine, when in good repair, the Manchester could not be trusted at those velocities which, upon the Whiston undulation, it would be necessary to attain. Mr. George Stephenson was also of a similar opinion.

Thus situated, I resolved on making a second application to the Directors of the Liverpool and Manchester Railway, offering, at the same time, a guarantee for payment of any damage which the engine might sustain, and explaining the difficulty in which I was placed, by having publicly announced the trial of my experiments; which announcement I was induced to make in consequence of a verbal communication which I previously had with Mr. Booth, and from which I had formed, it appears, erroneously, an opinion that, if a guarantee were given, there would be no longer an objection to the loan of an engine being granted me. To this second application I received the following reply:

"Railroad Office, Oct. 13, 1834.

"Dear Sir: I submitted to the Board your renewed application for the loan of a locomotive engine, for your proposed experiments on the Whiston Branch Railway, and am required to inform you that the Directors regret they cannot comply with your request. They gave the matter due consideration previous to their former de-

cision, and they do not see reason to alter the determination they then came to. I am, dear Sir, yours most obediently,

"H. T. BOOTH.

"Richard Badnall, Esq."

Under these circumstances, and finding how impossible it was for me to obtain a suitable engine, and feeling how deeply I had committed myself in your pages, by a declaration that the period was arrived when the whole question should be determined without further delay, I was resolved to adopt the only means which were left me of even partially fulfilling my pledge to the public. On the 21st October, I therefore called on Messrs. Galloway and Co., and solicited the loan of the Manchester engine for a few experiments, under the promise that the maximum velocity attained should not exceed from 20 to 25 miles per hour. With a liberality for which I feel greatly indebted, Messrs. G. and Co. granted my request, merely requiring a guarantee that I would return it in as good condition as I received it. On examining the state of the engine, it was found that the pistons required repacking; but as we could not expect to come to any very decided result, (the velocity being limited,) it was thought unnecessary to make any alteration for a first trial. On the 24th October, Mr. Robert Stephenson, sen., and Mr. Gill, accompanied me, therefore, to Whiston; and the Railway Directors having accommodated us with empty waggons, we proceeded, after loading them with coal, to the trial of such experiments as we deemed compatible with safety, and likely to produce some data, whereon an opinion, pro or con, could be formed.

It is necessary that I should here state, that the Whiston branch line was completed by Mr. McKenzie, under contract. That gentleman had previously given me a section, and although, upon that section, the summit levels were, no doubt, accurately defined, no intermediate levels had been denoted, either on the section or by stakes, on the ground itself; our only course, therefore, was to start from such parts of the descending line from the colliery, as would prevent our attaining a dangerous velocity, and to ascertain how far the train would rise on the opposite ascent; marking the starting and resting points, until future levels could be taken. Had the inclinations been regular, this precaution would have been unnecessary, as the measurement of the distances would, in such case, have determined the elevations. But the Whiston line forming one extensive undulation, varying according to the surface of the land, no criterion could be formed from such calculation.

An accident, which some time ago occurred to the Manchester engine, which left the rails, when descending the Sutton inclined plane, had unfortunately given her the character of an unsafe engine at high velocities; and it was evident that, on the present occasion, both the engineer and fireman were afraid of her. We, however, made eight experiments; Mr. Stephenson, myself, or Mr. Gill, accompanying the engine-man on each occasion. Our load was 80 tons; which, considering the condition of the engine, was an ample one, as she was proved to be only capable of drawing on that day about 15 tons up an inclination of 1 in 84, her steam being at from 40 to 50 lbs. on the inch pressure, though partially escaping between the piston and cylinder.

By these experiments, we were enabled to prove one very satisfactory circumstance—

which was, that, notwithstanding the many disadvantages under which we labored, the train invariably rose to a higher summit than that from which she had previously started. For instance, in the first experiment, the train started from a given point, which was carefully denoted, and rose to a higher point on the opposite ascent, which was also denoted; the total distance being 760 yards—time, 2' 35". The power then being reversed, the train rose 34 yards higher than it had originally started from; again being reversed, the train rose 64 yards higher than on the first experiment; total distance 862½ yards, time 2' 26". The power being again reversed, the train rose 38 yards higher than before—total distance 900 yards; when again reversed, the train rose 171 yards higher than before—total distance 1071 yards; and on the next occasion the total distance was 1167 yards.

On the 7th trial, no accurate result could be deduced, as some of the brakes were on the waggon wheels.

On the 8th experiment, the steam was brought down to 10 lbs. upon the inch; and I have every reason to believe, that when I am enabled to transmit to you a precise statement of the level from which it started and at which it rested, it will be found that the 80 tons were conveyed at that low pressure, very nearly, if not quite, from summit to summit.

Your readers will, I fear, be disappointed, and by no means satisfied with the rude statement which I now feel it imperative upon me to publish; but until I have a better opportunity of deciding the full merits of the question, I can only put them in possession of facts as they really occurred—this I have done myself. In justice to myself, however, and to the cause which I have conscientiously advocated, and still continue to advocate, I ask them, what could I have done more? or what, under existing circumstances, can I do? All men of science must, I am persuaded, sympathise in my regret, that experiments of such a nature should be delayed, when such delay could be so easily avoided; and with regard to any chance of a satisfactory conclusion being come to, by employing the Manchester engine, I need only refer to Messrs. Galloway & Co. themselves, who, I am sure, will bear testimony to her being in every point of view unsuitable to the purpose. She is, as before observed, an engine capable of drawing heavy loads at moderate velocities, but her many moving parts and general construction, render her altogether unfit for the trial in question. It was my wish to have sent with this letter a correct section of the Whiston branch, with the exact distances denoted thereon, which the train traversed at our recent experiments; but severe indisposition, which has, since the end of October, with the exception of a few days, confined me to the house, has prevented my paying that attention to the subject which I should otherwise have done. Wishing, however, to have an impartial survey of the line made, I wrote to Mr. Hall, of Warrington, begging him to prepare the necessary sections, showing the various levels, &c.; but he has not yet been able to undertake it, owing to his time being entirely occupied in completing a survey of the Grand Junction line, to deposit for Parliament: when the section alluded to is completed, I will forward you a copy of it. As a proof of the unfitness of the Manchester engine, for the trial of experiments on the Whiston line, I need only remark, that over a great portion of each undulation, her power was not only

ineffectual, but she was almost an incubance, owing to the loaded waggons attaining, by gravity, a greater velocity than she could effectually command in advance of them. This will easily be understood by those who consider the difference in the friction of a railway wagon, and a locomotive engine of her description. It also shows, that upon deep undulations, such as the Whitson line (where we have a fall of more than 30 feet in 500 yards), none but engines capable of sustaining an excess of speed above that which is produced by gravity, can be employed with full effect. Such was my view when, in allusion to the Whitson line (see page 214, No. 516), I said, "the full effect of practical experiment must depend upon the momentum acquired by the combined forces of gravity and steam being safely and effectually maintained down the descending line of each undulation." For the same reason, also, I have before mentioned that, for general practical purposes, a dip of about 15 feet in a curve of 1,000 to 1,200 yards, would be the proportion I should most strongly recommend: though exceptions might, of course, be advantageously made, where the nature of the ground required it—especially in passing under or over cross-roads, canals, &c., or where the inclined planes would not be so deep or so extensive as to produce a dangerous velocity without the employment of the brakes—considering, as I do, that velocity on railways is always dangerous when the engine (her full power being employed) is not able to keep up a dragging influence on the succeeding carriages, or, if behind the train, a propelling influence on the carriages in advance.

So convinced did I feel that no further impediment would be thrown in the way of a full and impartial trial of the undulating railway theory at Whiston, that at the meeting of the British Association at Edinburgh, in September last, I as publicly announced my intention of immediately bringing the question to issue, as I had previously done in your pages. I hope, therefore, I shall not be accused of any disrespect to your readers, to yourself, or to the public at large, for a breach of engagement which it has been entirely out of my power, for the present, to obviate. I am, Sir,

Yours most respectfully,

RICH. BADNALL.

Farm-hill, near Douglas, Isle-of-Man,
Dec. 31, 1834.

I take the earliest opportunity of laying before the readers of the Journal Mr. Mills' Report of his survey of the route for the Rochester and Olean Canal. A part only is given in this, and it will be continued in the next number.

Report of Frederick C. Mills, Engineer, to the Honorable the Canal Commissioners of the State of New-York.

GENTLEMEN—

In compliance with instructions received from your Board, also from Jonas Earl, jr., acting Commissioner, and in accordance with the "Act, passed April 30th, 1834," I have made a survey and examination for a navigable canal "from Rochester up the Genesee valley to Olean on the Allegany," and also for "a side cut from the village of Dansville, down the Canascraga Creek, to the aforesaid canal, at or near Mount Morris," and very respectfully submit the result of my examinations in the following report, illustrated by the requisite maps, profiles, and plans.

In examining the country, embracing all the routes possessing claims to consideration (within the provisions of the act), I have been ably assisted by Henry Stanley Dexter and J. Clements Stocker, and feel bound to acknowledge my obligation, for the intelligent and assiduous performance of the several duties assigned them; I also received material aid from the result of former surveys, and from residents, who for some time have been alive and thoughtful on the subject.

Having learned that the principal difficulties on the route were south of Mount Morris, and that the most important were the slide banks on the Genesee River, above Portageville; the pass round the falls of the Genesee, in the town of Nunda; the summit and the amount of lockage thrown together at the village of Mount Morris; my attention was early directed to those points, and before making a permanent location of any portion of the main line, and with the hope that I might find a route which would avoid the greatest part of these difficulties, I made my examinations upon an extended and liberal scale, and after traversing much of the country on the range of high grounds, forming the dividing ridge between the waters that flow into the Ohio on the south, and Lake Ontario on the north, I was fully persuaded that the Oil and Black Creek summit presented the most favorable point of connection with the Genesee and Allegany. In the atlas accompanying this report, to which reference will be made, you will find, first, a general map of the country from Olean to Rochester, including the surveys of Lime, Beaver, Mud, and Fish Lakes, in the north part of Cattaraugus county.

Secondly, a map upon an enlarged scale, upon which I have delineated the profiles of all the different routes.

Thirdly, plans of locks, aqueducts, culverts, bridges, &c. In addition to which, I have executed in a condensed form and annexed to this report, a general map of the country in the vicinity of the canal route, on a scale of 2½ miles to the inch.

The line which I have selected as the basis of my estimates, has been located with unusual care. It commences near the boathouse on the level of the Allegany River, at Olean Point; thence (to avoid high lands) the line winds round the easterly side of the village of Hamilton, following up the Olean Creek valley, upon the west side, over very favorable grounds for the construction of a canal, to the junction of the Ischua feeder with the summit level, and is 9¼ miles in length from Olean Point.

Estimated cost, \$109,619.87.*

Upon this portion of the route I have located 10 levels, varying from 4.55 chains to 3 miles 46 chains in length, 9 locks of 8 feet, and 1 of 7 feet, 1 culvert, 18 bridges, 3 waste-weirs, and 1 wooden aqueduct, 60 feet long, on stone piers, in crossing the Ischua, about 50 chains north of Hinsdale.

If necessary, a feeder from Olean Creek may be added at a very small expense, about one mile below Hinsdale. The Olean is a very sluggish stream, formed by the union of the Ischua with Oil Creek at Hinsdale, flows through fertile alluvial flats, about half a mile wide, and 200 feet below the tops of the hills on either side. From the summit level, there is a descent to the Allegany River at the confluence of Olean Creek, of 79 feet, and at the boathouse (37 chains below) of 80½ feet.

SUMMIT LEVEL.

This level commences on E. Wood's

land, and following up the Oil Creek valley, through parts of the towns of Hinsdale, Cuba, and Haight, terminates on the head waters of Black Creek, about 4 miles 51 chains from the village of Cuba. On this summit, between the Genesee and the Allegany, a little east of Cady & Baldwin's Mills, there is a swamp of about two miles in length, principally covered with timber, the waters of which drain both ways, forming tributaries to Oil and Black Creeks. (Deepest cut on the summit, 12 feet.) From Cady's Mill, the line was carried down on the north side of Oil Creek valley, to the first lock, descending south near Mr. Wood's, where, from a feeder of 2½ miles in length, the whole of Ischua Creek can be received into the summit; 3 waste-weirs, 11 farm and 6 road bridges, will be required.

Cost of summit level, \$31,555.22.

The summit pond might be extended down either side of the creek with facility, obtaining generally a choice of cut without running much upon the face of the steep side hill; and on first travelling over the ground (having in view the accommodation of villages on the line), I thought most favorably of the south side; but on a more minute examination, found that the expense would be materially increased, owing to an additional aqueduct, and very high and long embankment necessary for conducting the Ischua feeder over Oil Creek valley, at which point the surface of the creek is 32.65 feet below bottom.

On Oil and Ischua Creeks, there are 5 saw mills, 2 carding machines, and 2 grist mills, which will lose all their water by the canal in the dry season. Six saw mills and one grist mill on Olean Creek will sustain a proportionable loss of water during the same season. It is supposed, however, that the damage (if any) will be small, inasmuch as the saw mills are seldom run, except in the spring and fall, when there is an abundance of water.*

The summit will be eleven and a half miles in length, is 79 feet above the Allegany at Olean Point, 978 feet above the Erie Canal at Rochester, and 1,484 feet above low tides.

A passage here from the Ohio valley to the Genesee valley is less elevated than any other passage that has been examined, except the route up the Conewango valley, via Lake Erie, Buffalo, and the Erie Canal.

According to Mr. Whippo's survey, this summit is 724 feet above Lake Erie, and as L. Erie is 568 feet above the ocean, it results that the said summit stands 1,292 feet above tides; 192 feet lower than that of Oil and Black Creeks.

It is, however, observable, that in all the examinations that have been made from the Ohio valley, either to the Potomac or the Susquehanna valley, no passage has been found so low as the one I have adopted, by some hundred feet.

That of Blair's Gap summit on the Pennsylvania Canal route, is 2,291 feet, and that of the Chesapeake and Ohio Canal, 1,998 above the Atlantic. To pass the latter, a tunnel of 4 miles in length will be required. The former is effected by a railroad 36.69 miles in length (from Johnstown to Hollidaysburgh), overcoming an aggregate ascent and descent of 2,570 feet; 1,398 of which is on the eastern, and 1,179 on the western side of the mountain.

From the summit, the line takes a north-easterly direction down the valley of Black

* Smith's mills will sustain serious injury, and an appraisal of damages will be necessary.

Creek. For about 5 miles (except some few points where the high bank approaches the creek abruptly, which points may be avoided by turning the channel of the creek at a very small expense,) a favorable route can be obtained over a regular surface, gradually descending at the rate of 12 feet to the mile to Bruce's mill, where a rapid fall takes place. In $2\frac{1}{4}$ miles, which brings us to the point of leaving Black Creek valley, there are 11 locks of 8 feet each.

Lock No. 20, is at the head of this rapid descent, in a narrow defile caused by the sudden approach of high rocky banks on either side of the creek. In passing this point considerable rock excavation will occur, owing to the necessity of cutting the body of the canal into the steep side hill for about 20 chains, on the north side of the creek. The embankment must be protected by a stone wall. The rock is principally gray sandstone, and easily quarried. It is fine building stone, and will be useful in the construction of locks.

Upon this rapid, Willard Bruce, the proprietor, has erected a saw mill, fulling mill, and grist mill, with two run of stones, which, together with 100 acres of land, is valued at \$2,800.

He has 12 feet head and fall, and water sufficient in the driest season to turn one run of stones. The mills will be injured by the canal, and be a subject of claim for damages; but the land will be enhanced in value.

Between the mouths of Black and Crawford Creeks on the Genesee River, there are several slide banks of a serious character, which are entirely avoided in the present location. At the point of leaving Black Creek, about one mile above its junction with the river, is a favorable valley putting thro' the high grounds, which bound Black Creek valley on the north, through which we pass (2 miles), in a very direct line, coming out upon the Genesee River one fourth of a mile south of Ketchum's, near Crawford's Creek, by which we not only avoid the slides, but save nearly two miles in distance. Here, from a feeder of 20 chains in length, and a dam of small elevation, the whole of the Genesee River may be received into the canal.

The distance from the summit to this point is $9\frac{1}{2}$ miles—the descent 242 feet. To overcome this fall, it will be necessary to construct 27 locks of 8 feet lift, 2 of 7 feet, and 2 of 6 feet.

There are 3 culverts, 5 waste-weirs, 6 road and 14 farm bridges, required on this portion of the route. Estimated cost, \$223,052.35.

Following down the river from this to Portageville, 20 miles, the valley is often wide, free from high, precipitous, rocky shores, and (with the exception of some obstructions by slip banks of clay) presents unusual facilities for the construction of a canal, and (as will be seen by reference to the estimates of each section in detail) bears a remarkable comparison with the same distance on the east side of the Genesee River from Mount Morris to Rochester, lockage excepted.

The principal, and indeed the only serious slide bank we have to encounter, is on section No. 33. It is a high steep bank, and embraces several acres of ground. At this point (as seen on the map) the Genesee runs nearly at right angles from the east to the west side of the valley, and after washing the base of the slip bank, continually increasing its depth (now 20 feet), as well as increasing the tendency of the bank to slide, it makes off again across the

valley, touching the eastern hill within 22 chains of the point of leaving it.

To secure against these slides is difficult; great disasters are often occasioned by them, and in order to get by this point with safety to the canal, I propose changing the bed of the river, and constructing the towing path on the opposite bank of the old channel.

Near the hill on the east side of the valley, is a natural ravine, through which, by the erection of a strong dam across the river, and cutting down a narrow ridge 54 chains in length, the Genesee River may be turned at comparatively small expense, which is the most feasible plan of avoiding all danger from the slide.

The Genesee sends forward 5,007 cubic feet of water per minute at the point proposed to take it into the canal, as a feeder above Crawford Creek.

From Crawford Creek to Portage we cross Canadeas, Cold and West Koy Creeks, all fine permanent streams, discharging in the driest season 2,800 cubic feet of water per minute, which may be received into the canal with facility.

The least expensive mode of crossing these streams would be by the construction of dams with wooden towing paths; but as the crossing of ponds of this description is often attended with great inconvenience from the strong current in the time of freshets, I prefer, and have adopted, the more expensive plan of crossing in aqueducts, and introducing the several streams by short feeders, with appropriate bulkheads.

In case it should be deemed necessary hereafter, the Genesee River may be taken in at several points between Cold and West Koy Creeks.

On this 21 miles and 30 chains, there will be 3 aqueducts with wooden trunks, 1 with stone arches in cement, 14 culverts, 3 waste-weirs, and 20 road and 35 farm bridges.

PORTAGE HILLS.

At Portage the continued high grounds which come down from the east and west sides of the river, and enclose the valley and fertile flats above the falls, are separated only by a deep chasm through which the river passes, with high perpendicular banks on both sides, descending 274 feet by 3 successive falls in the distance of two miles.

The perpendicular banks generally are of aluminous shale or gray wacke, with occasional strata of sand rock of a texture sufficiently hard for building purposes, and at some few points between the second and third falls, the banks are 400 feet above the level of the river.

Judge Geddes, in his report of 1826, proposed passing this point by going round in the bed of the river. Mr. Jones' plan was to tunnel the hill at a favorable point. To pass this ridge, by either of those routes, appeared exceedingly difficult and expensive. Different plans were proposed, various routes suggested, and many examinations made on both sides of the river, with the view of finding some one more feasible, but without success.

Finding no alternative, but the adoption of one or other of those routes, and having some doubts which was the most favorable, I deemed it advisable to make a minute survey and estimate of both, which has resulted in favor of the river route, although it increases the distance above the one through the tunnel, nearly $1\frac{1}{2}$ mile, the river at this place making a long circuit round the hill.

The estimated cost of the tunnel route

upon the first plan, (which I would recommend) is a fraction less than that of the river route; but the hazard of encountering unforeseen difficulties, in tunnelling through a hill where quicksand occurs, has induced me to give the preference to the latter route.

The canal crosses the river at Portage by an aqueduct 280 feet long, and to maintain the best elevation for passing the ridge on either route, it must be 36 feet above the bed of the stream. The trunk to be of wood on stone abutments, and piers 42 feet apart laid in hydraulic cement. The site for an aqueduct is a very favorable one. The bed of the river is a flat horizontal rock, with high banks, and stone in abundance may be quarried near the spot.

In the village of Portageville the line will run west of the main street, crossing it at a point where two buildings only obstruct the passage, if the line should be located on the river route; but should the tunnel route be adopted, it will be necessary to remove four buildings.

The lines diverge at Portageville, the one pursuing an easterly direction for 65 chains, over the upland slope near the foot of the hill, passes the ridge by a tunnel 26 chains in length; the other following round by the river, runs under a steep bank or precipitous hill, requiring a very high embankment, principally formed in the bed of the stream, and protected from the floods by a heavy stone wall, until it gains the table or upland slope at the end of section 52, immediately below the first falls.

About 50 chains further on, another spur of the hill comes out abruptly to the deep defile, in which runs the Genesee river, not less than 380 feet below the top of the bank.

After passing this ridge, which rises above the bottom of the canal 98 feet to its summit, and is 22 chains through, the hill suddenly recedes to the east, and leaving the river's bank, the line follows along the north slope of Portage ridge, over tables of very favorable elevation, to the north end of the tunnel, which is 2 miles and 684 chains from Portageville.

In making the survey with a view to a line through the hill, it was ascertained that the summit of the ridge was 204 feet above bottom, and that the tunnel would not exceed 26 chains in length.

The soil or upper covering of the hill is of clay and gravelly loam, the hill steep at each end of the tunnel, with a valley below, offering great facilities for the deposit of surplus excavation. From the appearance of the rock upon the banks of the river, and in all the ledges of that vicinity, there were strong indications that the excavation for a large portion of the tunnel would be through rock lying in horizontal strata, easily broken up, yet sufficiently hard to support the archway without the aid of masonry, and had it not been proved by subsequent examination, that the contrary was the fact, the superiority of this route would have been unquestionable.

To determine this point, and to show the character of the excavation in the interior, shafts were sunk on the slopes of the hill near the ends of the tunnel, where quicksand made its appearance in such quantities, as rendered it quite impracticable to sink the shafts to the level of the canal. It was still the opinion of some that rock would be found after passing the slopes of the hill. To put an end to all doubts that might arise upon the subject, I directed another shaft to be settled near the centre of the ridge, which was carried down through sand and gravel to within 20 feet of the

bottom line of the canal, at which point we again encountered quicksands.

To construct a work of this magnitude through such materials, would undoubtedly prove very expensive, and any estimate that can now be made of its cost, must in some degree be founded on conjecture, and of course liable to vary from the truth. However, for the purpose of comparison, I have estimated for a tunnel wide enough to pass two boats, the arch-way to be constructed of permanent stone masonry, with a wooden horse path, and in the following statement present the approximate cost, from the aqueduct to the north end of the tunnel.

Cost from aqueduct to south end of tunnel, - - \$4,474 45
Total cost of tunnel, - - 140,106 52

Aggregate, - - - \$144,580 97

To pass the point of rocks or deep cut of 98 feet by the river route on section 53, two plans were proposed, one a thorough cut, the other a short tunnel of 16 chains in length. The line here is far enough from the margin of the gulf to insure the safety of the canal, and yet so near that the surplus materials may be conveniently discharged into the bed of the river, which will tend very much to diminish the expense on either plan.

The estimate for the tunnel is \$14,240 less than cutting down the hill, and should this plan be adopted, (which I would recommend,) the whole cost for the river route will be \$163,232 49, being \$18 651 52 more than via the long tunnel.

In the detailed estimate marked H, for the eastern or long tunnel, will also be found an estimate for a tunnel of less width, calculated to pass only one boat at a time, the cost of which is \$56,228 57 less than the other; and should this mode of construction be deemed suitable for a work of such magnitude, this may possibly be the cheapest way of overcoming the obstacles at Portage.

From Portage tunnel to the Dansville side cut at Mount Morris, the descent is 549 feet.

[To be Continued.]

The annexed extract from Mr. Johnson's Report gives a comparative statement of the distance, lockage, and cost of transportation from the Ohio River to New-York, on three different routes.

Routes of communication to the Ohio Valley.

In order to exhibit the comparative advantages of the different routes proposed and in use from the Atlantic cities to the Ohio River, I subjoin the following account of the distances, lockage, cost, and time of transportation on them. It will be seen by a reference to these statements, that the expense of transportation upon the Allegheny River and Pennsylvania Canals, will preclude the possibility of the trade of the Rochester and Olean Canal being drawn through that channel, or through any other injurious to the interests of this State.

1st. To New-York from Portsmouth, via the Ohio Canal, Lake Erie, and the Erie Canal.

	Miles.	Lockage in feet.
Ohio Canal,	303	1,207
Lake Erie,	190	
Erie Canal,	383	689
Hudson River,	145	
Total	1,006	1,896

2d. To Philadelphia from Pittsburgh, via Portage Railway and the Pennsylvania, Union, and Schuylkill Canals.

	Miles.	Lockage.
From Pittsburgh to Johnstown,	105	474
Portage Railroad,	36½	2,570
Pennsylvania Canal,	153	646
Union Canal,	80	503½
Schuylkill Canal,	60	182½
Total	434½	4,345½

Thence to New-York as follows:

	Miles.	Lockage.
Delaware River,	30	
Delaware and Raritan Canal,	43	112
Raritan River and Staten Island and Sound,	40	
Total	113	112

Add from Pittsburgh to Philadelphia, as above,

434½	4,345½
------	--------

Total from Pittsburgh to New-York,

547½ 4,457½

To New-York from Olean, via Rochester and Olean Canal, Erie Canal, and Hudson River.

Rochester and Olean Canal,	105½	1,057
Erie Canal,	270	630
Albany to New-York,	145	

Total, 520½ 1,687

Chesapeake and Ohio Canal.

From Wheeling to Georgetown,	310	3,153
From Pittsburgh to Georgetown,	341½	3,215

From Pittsburgh to New-York, via the Chesapeake and Ohio, the proposed Maryland, the Delaware and Chesapeake, and the Delaware and Raritan Canals, will be 615 miles. Lockage 3,661 feet, which, reduced to a level, will be=146.44×615=761.44 miles total distance.

From the above statement it appears that the length of the route now in use from the City of New-York to the Ohio River, through this State, is 1,006 miles, with a lockage of 1,896 feet; which, considering 25 feet of lockage equal to a mile in distance (including unavoidable detentions at the locks), is equivalent to a distance of 1,081.85 miles, of which 335 are steamboat navigation. By the route which is the subject of the present report, the distance from Olean to the City of New-York will be 520½ miles, and a lockage of 1,687 feet, making in all 587½ miles, of which 145 miles is steamboat navigation. From Olean to Pittsburgh by the river, is 290 miles, and there is an average fall of 2½ feet per mile. The transportation from Pittsburgh to Philadelphia is effected by canal, with the exception of 36½ miles of railroad over the Allegheny Mountains. The distance is 434½ miles, in which a rise and fall of 4,345½ feet is overcome by means of locks and inclined planes, with stationary power, equal in all from Philadelphia to Pittsburgh to 608.58 miles, and from New-York to Pittsburgh to 726 miles, including lockage.

Summary of the length of the preceding routes:

	Miles.
From Portsmouth, on the Ohio River, to New-York, via Erie and Ohio Canals, (including lockage,)	1,081.85
From Pittsburgh to New-York, via	

Rochester and Olean Canal and Erie Canal,	867.60
From Pittsburgh to New-York, via Pennsylvania and Delaware and Raritan Canals,	726.00
From Pittsburgh to New-York, via Chesapeake and Ohio, Maryland, Delaware, and Raritan Canals, &c.,	761.44

The following calculations of the cost of transportation upon different canals are founded upon information received from gentlemen engaged in the forwarding business, and upon the Erie and Ohio Canals, conform to the tariff agreed to at the meeting of the forwarding merchants at Buffalo, on the 9th inst.

The cost of transportation from New-York to Portsmouth, on the Ohio, by the Erie and Ohio Canals, is as follows, viz.:
Heavy merchandize, per 100 lbs., \$1 86
Light " " 2 00

Returning.

Flour, per barrel, 1 80
Whiskey, pork, butter, beef, lard, &c., per 100 lbs., 0 90

The average time required to make a trip to New-York, is from 18 to 24 days.

The cost of transportation from the City of Philadelphia, by the Pennsylvania improvements, is as follows:

Heavy merchandize, per 100 lbs., \$1 25
Light " " 1 50

Returning.

On produce, (to Philadelphia,) 0 70
Price of transportation from Philadelphia to New-York:
On light goods or merchandize, via canal, 0 25
On heavy " " 0 12

Returning.

On produce, 0 10
Making the total cost of transportation from the City of New-York to Pittsburgh, as follows, viz.:
Heavy merchandize, per 100 lbs., \$1 37
Light " " 1 75

[Returning.

Produce, 0 80
The average time required to make a trip to Philadelphia, is 15 days, and it requires about the same time to return: but to get goods from New-York by this channel, I am informed by Judge Griswold E. Warner, (a gentleman residing in Pittsburgh, requires from 20 to 25 days, some delay being unavoidable in making an extra transshipment upon the Schuylkill River into the canal boats.

The probable expense of transportation from New-York to Olean, via the Rochester and Olean Canal, would be as follows:

On heavy goods, per 100 lbs., \$0 96
On light " " 1 07

Returning.

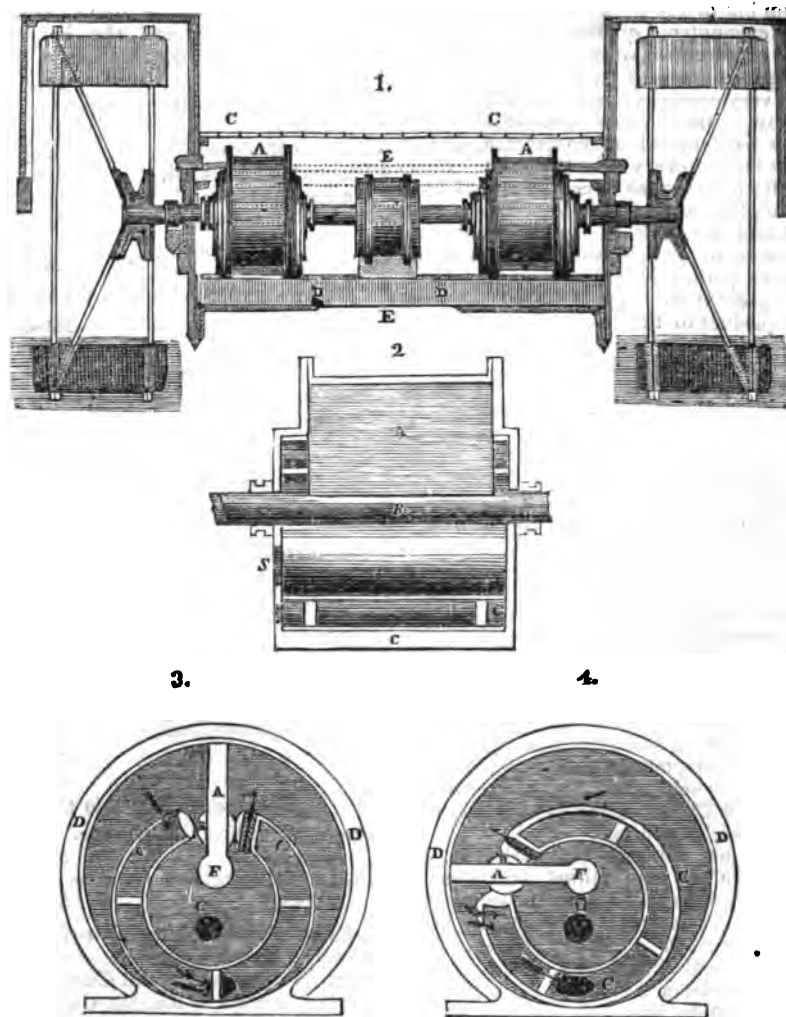
On produce, per 100 lbs., 0 55

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
MARCH 27, 1835.

		PER CENT.	
	Par.	Ask.	Offer.
Mohawk and Hudson.....	100	117½	117½
Paterson.....	50	103	103
Saratoga.....	—	106½	106
Harlem.....	—	80	78
Boston and Providence....	100	115½	114
New-Jersey Railroad and Transportation Line....	100	115	115
Camden and Amboy.....	100	146	—
Providence and Stonington..	100	148	—
Boston and Worcester.....	—	103	103
Philadelphia and Trenton..	100	98	98
Ulster and Schenectady....	100	117	117

[From the London Mechanics' Magazine.]

THE EARL OF DUNDONALD'S REVOLVING STEAM ENGINE.—The engravings on the preceding page exhibit the construction of a rotary engine, which has been recently patented by the Earl of Dundonald, and the manner of its application to the propulsion of vessels. The Earl himself describes it in a circular, with a copy of which we have been favored, as surpassing in efficiency every thing of the kind hitherto produced—as being, in fact, so perfect, that perfection can no farther go. “The cause,” says his lordship, “of the uniform failure in the construction of rotary engines, has been the great difficulty of obtaining, within the machine, a base of resistance on which the steam might act in propelling the moveable piston. The means by which this has been hitherto attempted, have consisted of a variety of very imperfect mechanical contrivances, all of which have proved quite inadequate to the successful employment of this sort of engine; but in the REVOLVING ENGINE now offered to notice, this great difficulty is *completely overcome*. This engine is constructed on a principle that gives the *most perfect fulcrum* or resisting base, in a manner that leaves nothing on this head to be desired—indeed, it is as perfect, and nearly as simple, as the fixed cover or bottom of the cylinder of the ordinary reciprocating engine. The great and paramount difficulty of obtaining a suitable fulcrum being thus *completely overcome*, all other obstacles to the employing of this sort of engine at once disappear; in truth, from the result of numerous trials, during two years' experience, it may be affirmed that this engine is constructed in such a manner as to render it *equally perfect and efficient as the best reciprocating engine*!” Nor does the perfection of this engine rest on the noble lord's own testimony; for that very ingenious engineer, Mr. Alex. Gordon, in his “Treatise on Elemental Locomotion,” 2d edition, 1834, speaks of it in the following *equally encomiastic terms*: “Of the many rotary engines none have stood the test of long trial; and, indeed, as yet there is none in *practical use*, if we except that of the Earl of Dundonald, (the gallant and ingenious Lord Cochrane,) which bids fair to rival the best reciprocating engine.” * * * The cause of uniform failure of other ingenious persons, in the construction of rotary engines, has been the difficulty of obtaining, within the machine, a base of resistance on which the steam might act in propelling the moveable piston. The means by which this has hitherto been attempted, have consisted of a variety of very imperfect mechanical contrivances, all of which have proved quite inadequate to the successful employment of this sort of engine; but in the REVOLVING ENGINE now under notice, this difficulty is *completely overcome*. This engine is constructed on a principle, that gives a *perfect fulcrum*, or resisting base; indeed, it is as perfect, and nearly as simple, as the fixed covers or heads of the cylinder in ordinary reciprocating engines, &c. &c.



The great and paramount difficulty of obtaining a suitable fulcrum having been thus *completely overcome*, all other obstacles to the employing of this sort of engine at once disappear: in truth, from the result of numerous trials, during two years' experience, this engine is constructed in such a manner as to render it *equally perfect and efficient as a reciprocating engine*.” ‘Equally encomiastic terms!’ we think we hear the reader exclaim—‘Why they are literally the same terms—his lordship's own words over again.’ So, gentle reader, in truth they are. What Lord Dundonald says, and all he says of his engine, Mr. Alex. Gordon says, and little more; not a tittle of difference is there, in three of the four sentences we have quoted from Mr. Gordon's book, save just as much as might serve to make it appear, [no quotation marks being used,] that Mr. Gordon's words are his own words, and not merely a parrot-like repetition of those of his lordship. But though the identity of the language employed in the two quotations be certainly very singular, it is, after all, but an identity in language, not necessarily extending to the matter of the extracts themselves. Mr. Gordon may have felt unable to say what he honestly thought of the engine in question, in better terms than those previously used by the noble inventor himself; and if so, can he be to

blame that he made use of the same terms over again? Obviously not. His lordship's patent covers only the engine itself—not the words employed by his lordship to describe its perfections. There could be no piracy in the case—only a *little convenient appropriation*. But, it may be said, if Mr. Gordon was driven by such a sense of fitness to employ the same words as his lordship's, he might at least have had the candor to acknowledge that they were the same, in order that his readers might be enabled to judge for themselves whether they are actually so fit—so peculiarly appropriate—that no person desiring to give a *discriminating, independent, and impartial* opinion of the invention, could employ any better; or whether the identity is but such as might be expected, where a person has lent himself to puff the pretensions of another, without any care for truth, honor, or reputation. We confess there is something in this; and, therefore, it is that we have done our best to make up for Mr. Gordon's not very candid omission. No one—of our readers at least—will now be at any loss to determine for himself the degree of weight which belongs to Mr. Gordon's opinion in the present instance. Mr. Gordon, it will be observed, goes on one material point considerably further than the Earl himself. The Earl speaks only of “numerous trials” of his

engines; Mr. Gordon talks of its being "in practical use;" and the words are put in the original, as here, in italics, to impress them more forcibly on the minds of the reader. The obvious intention of the phrase used by Mr. Gordon is to make the public believe that Lord Dundonald's engine has not only had many "trials" by his lordship himself, but has been thought so well of by others—by practical persons, requiring the use of a steam-engine for practical purposes,—that they have had engines made on this plan, in preference to reciprocating engines, and are now actually using them with great advantage. But what truth is there in this? What "practical use" can Mr. Gordon specify? Can he name a single vessel—not a "trial" one merely—where a marine engine, on his lordship's plan, is employed? Or refer us to a single mill or manufactory, where a revolving-engine of Lord Dundonald's is employed as the moving power? We are greatly misinformed, if it is in his power to do any thing of the kind.

It is not, certainly, as an engine in "practical use," nor even as one very likely to be so, that we now bring it under the notice of our readers. We think by no means so highly of it as either his lordship or his echo, Mr. Gordon. We give a place to the present description of it in our pages, for two reasons, very distinct from admiration: first, because of the considerable talk there is about it, owing partly to the celebrity, (for other things than machine inventing,) of the noble inventor, and partly to his prodigiously confident representations of its amazing capabilities; second, because if we are wrong in the opinion we have formed of it, (which not being persons of such infallible stuff as his lordship, nor of such ready faith as Mr. Gordon, we admit to be a possible case)—if it has really left "nothing to be desired," in the way of producing an effective rotary engine—it were a thousand pities that the knowledge of an invention, calculated to confer so much benefit on the mechanical world, and to save so much trouble and mortification to hundreds of ingenious mechanics, who are now occupied with the solution of that problem, of which it is said to furnish the best possible practical solution, should not be as speedily and as widely diffused as possible.

Fig. 1 is a representation, copied from Lord Dundonald's circular, of two engines of this description applied to the propulsion of a vessel. A A are the engines; B the air-pump; C C the deck; D a strong beam on which the engines and air-pump rest; E the space for the boiler. Figs. 2, 3, and 4, are sectional views of one of the engines, exhibiting, under different aspects, the peculiar mode of construction by which Lord D. flatters himself he has "completely overcome" the "great difficulty" in the case. We copy these views from Mr. Gordon's book; and shall copy also from it the following explanatory details:

"Fig. 2 is a longitudinal section, with the blade or piston A in one part of its

course (a lunette space). Fig. 3 is a cross section, showing the blade or piston A. Fig. 4 shows the piston in a different part of the lunette space; F is a fixed centre or axle, upon which the piston A turns—the radius sweeps round the inside of the larger circle D D; G is the mathematical centre (for there is no axis through the centre of the inner cylinder C C C, &c.) around which the cylinder C C turns. The piston A works in a ball-cock or stuffing at B; and in traversing the lunette space formed between D D and C C C, is obliged to slide out and in through B. At one time this piston A will have a larger portion protruding from C C C, as in fig. 3; and at another time it will protrude less, as in fig. 5. At one time, in each revolution, A will be at a point where there is no part protruding. The piston *crawls* out of and into the cylinder C C C (through B) constantly. The steam from the boiler is admitted through the hole S, and rushes along the opening Y, in the direction of the small arrow: it cannot escape where the cylinders C and D are in contact, and therefore it forces round the piston A in a contrary direction. The other part of the lunette space *evacuates itself* in the direction of the double arrows. Of course the power of the engine is always varying, because the surface of the piston is always either increasing or diminishing. To compensate for this variation, two cylinders are used; the one to be in full activity, while the other is passing the dead point. As the one decreases the other increases; and thus a continuous and rotatory motion is maintained, which can be applied in every case where the reciprocating engine is used for rotatory purposes."

We cannot say that this description of Mr. Gordon's is very clear or intelligible; it is, in truth, extremely loose and confused—in some parts, indeed, nonsensical. However, such as it is, we must leave our readers to digest it as they best can. It has all the appearance of being done to order, like the encomiums we before quoted from the same pen; and it would be presumptuous in us to attempt to offer any thing in the way of explanation or emendation. The engravings, at least, are plain enough; and, with their help, the intelligent reader will, we dare say, be able to arrive at a tolerably clear notion of all that is meant by *mathematical centres, crawling pistons, spaces evacuating themselves, &c. &c.*

Mr. Gordon adds, that "by some recent alterations in the steam-ways, the patentee has been enabled to use two pistons in one cylinder, and thus to save weight to a still greater extent. By this new arrangement, one piston increases in power in proportion as the other diminishes in power."

Supposing the engine to be as efficient as it is represented to be, the following are, according to Lord Dundonald, the principal advantages to be expected from its adoption:

"1st. It will not occupy one-sixth part

of the space required for the reciprocating engine.

"2d. It may be placed so low in a vessel as to be quite out of the reach of gunshot; or the cylinder may be made shot proof, without the slightest disadvantage.

"3d. The revolving engine does not require any valve or slide, consequently there is no waste of steam thereby; neither is there any loss, as in the space left at the top and bottom of the cylinders or reciprocating engines.

"4th. There is much less friction than arises from the sum of all the bearings required to convert the rectilinear force of the common engine to circular motion.

"5th. There are no beams, cranks, side rods, connecting rods, parallel motions, levers, slide valves, eccentrics, &c., with their nicely adjusted joints and bearings; therefore the revolving engine is not liable, even in one-tenth degree, to the accidents and hindrances of other engines.

"6th. The working of the revolving engine, in a steam-vessel, is much more pleasant to passengers, by the absence of tremor, now occasioned by the alternating of a ponderous mass of moving matter, twice in every stroke of the engine.

"7th. The revolving engine being contained within a cylinder, may be completely finished and united in the manufactory; and may be lowered into a vessel, and fixed in fewer days than weeks are now required to erect and adjust a reciprocating engine.

"8th. As the moving parts of the revolving engine pursue their course in perfect circles (without stop or hindrance) this engine is capable of progressive acceleration, until the work performed equals the pressure of steam on the vacuum, or on the atmosphere: an advantage which the reciprocating engine does not possess.

"9th. The revolving engine is completely under the control of the commander of a vessel, without the intervention of an engineer; simply by connecting a rod or line, from his usual station on deck, to a cock, by which he can set the engine going, stop, or reverse its motion.

"10th. The diminished bulk, weight, and absence of tremor, add to the capacity, buoyancy, velocity, and durability of vessels in which the revolving engine is placed.

"11th. This engine can, with equal aptitude, be constructed to propel the largest vessel, or the smallest boat; to pump the ship, weigh the anchor, embark or discharge the cargo, and perform the most laborious duties of a crew.

"12th. It is peculiarly adapted to locomotion on land; there being, in the revolving engine, no part requiring to be oiled,* exposed to the adhesion of dust or grit, now so destructive to the rods, joints, and bearings of locomotive engines.

* "The offensive smell, so much complained of in steam-vessels, arising from the decomposition of grease and animal oils, split in lubricating the bearings of the numerous parts in motion, may be greatly diminished, and, with care, may be wholly avoided where the revolving engine is used."

"13th. The revolving engine, from the solidity of its parts, the simplicity of its construction, and the uniformity of its impulsive action, can be kept in repair at less expense than the reciprocating engine; and, if used for mines or manufactories, an engine-house is not required; a simple shed or covering being sufficient."

"Lastly. One quarter of the capacity of ordinary steam-vessels (or half the engine room) is restored to useful purposes; whilst the vessel can be navigated by the same number of engineers and seamen, and with the same consumption of fuel. Thus the comparative cost of building the useful portion of a steam-vessel, and the expenses of all kinds, are diminished one-third; whilst the profit from an increased amount of cargo or passengers, or the facility of proceeding to more distant parts, is in the like ratio augmented."

[From the New-York American.]

Rejection of the Bill for Aiding in the Construction of the New York and Erie Railroad.

Since our notice of this subject on Monday, in which we gave an analysis of the final vote, we have been furnished with a statement of the vote in Committee of the whole, on the amendment proposed by Mr. Sibley. It was by this vote that the strength of the parties was shown and the fate of the bill decided. It was the object of this amendment, to remove all doubt as to the sufficiency of the security to be given by the Railroad company, before the issue of the stock which was to be loaned by the State. It provided, that when the Company had constructed and finished a single track of their Railway from the Delaware and Hudson Canal, to a point as far west as Binghamton, \$500,000 of stock should be issued; when they had finished a single track from the point above mentioned, to a point as far west as Elmira, a further issue of like amount should be made; when they had extended the track as far west as Olean, a third half million, and when the remaining portion, extending to Lake Erie was completed, a like amount should be issued.

We are informed that it was understood by the members generally, that this amendment would be proposed, and many of the friends of the measure considered the adoption of these provisions essential to the success of the Bill. The amendment was rejected by a majority of 2 only, as will appear by the following statement:

For the amendment.	Against it.
Allegany, 1	Albany, 3
Broome, 1	Cayuga, 3
Cattaraugus, 1	Clinton, 1
Cayuga, 1	
Chataque, 2	Columbia, 3
Chenango, 2	Genesee, 1
Cortland, 2	Green, 1
Delaware, 2	Herkimer, 1
Dutchess, 2	Lewis, 1
Franklin, 1	Madison, 2
Genesee, 2	Montgomery, 3
Green, 1	New York, 4
Jefferson, 3	Oneida, 5
Livingston, 2	Onondaga, 4
Madison, 1	Oswego, 1
Monroe, 3	Otsego, 2
New York, 4	Queens, 1
Niagara, 1	Rensselaer, 2
Ontario, 3	Saratoga, 2
Orange, 2	Schenectady, 1
Orleans, 1	Schoharie, 2
Otsego, 2	Seneca, 1

Rockland, 1	St. Lawrence 2
Seneca, 1	Suffolk, 2
Steuben, 2	Washington, 2
Sullivan, 1	Wayne, 2
Tioga, 2	West Chester 3
Tompkins, 3	
Warren, 1	55
Washington, 1	
Yates, 1	

53

Immediately after this vote, three of those who voted for the amendment left the House, and four others, on subsequent motions joined the majority, which reduced the minority to 46.

Of the members who had gone to their homes, it is believed that one from Chenango, 1 from Erie, two from Dutchess, and two from Ulster, would have voted for the amendment, and for the bill, had they been present; and likewise several of those who were out of the house, probably on the supposition that no question would be taken at that sitting.

It will be observed that of the members who voted against the bill, thirty were from fourteen counties on and adjacent to the Erie Canal route; seven from four counties north of that route; thirteen from five counties east of Hudson River, (including Queens and Suffolk,) and five only from counties south of Albany, on the west side of the River.

Of the members who voted for the amendment, 41 were from twenty-five counties west of Hudson River, and south of, or intersected by, the Erie Canal; six from four counties north of the Canal; and six from two counties east of the River.

Supposing the four votes of members from this city against the amendment to have been so cast on account of their "pledge," it will appear that 25 counties supported the measure, 19 opposed it, and the votes of six were divided. If the four votes from this city were owing to the pledge, and not to any opposition to the bill, then a just estimate of the strength of the opposition requires that they should be deducted from the 55 votes above stated, which would reduce the number to 51, and leave a majority of two in favor of the measure. Add to this, six votes of absent members, above referred to, and the majority in favor of the claim of the Southern counties would be eight.

We ask attention to these facts, in order that our readers may be enabled to follow us, in the remarks which we propose from time to time to offer, in explanation of the great interests thus contemptuously disregarded by the Assembly—and of the motives for their course—which we mean thoroughly to probe, and hope to be enabled to lay bare—names, and manœuvres, equally.

AGRICULTURE, &c.

MEANS OF INCREASING THE PRODUCTIVE POWERS OF SOILS.—The means at our command of increasing the productive powers of soils may be comprehended under the general following heads:

1. Supplying to the soil those organic and earthy substances which may be required.

2. Altering its texture, depth and properties, by tillage and other means.

3. Changing its relation with respect to moisture.

4. Changing its relation with respect to temperature.

Vegetable and animal matters, in a decomposing state, appear to act in various ways, in increasing the productive powers of the soil. They improve its texture, and they may be supposed to increase its power to absorb and retain moisture: but above all, they supply that matter, which, in whatever form conveyed to the organs of plants, tends to nourish them. This matter being absorbed by the roots of plants, it must be supplied when exhausted,

Experience has in every age accordingly taught the husbandman to supply those substances to the soil; and the doing so forms one of the most important means at his command of maintaining or increasing its fertility.

Besides the animal and vegetable matter which is mixed or combined with the mineral part of the soil, and is essential to its productiveness, the mineral parts themselves, it has been seen, require to be mixed together in certain proportions, and in certain states of division, in order to produce the greatest degree of fertility.

Silica and alumina form the principal mineral part of the soil. If one or the other of these earths be in excess, the soil is defective in its composition. If the alumina prevails the soil is too adhesive; if the silica prevail, it is too loose. A medium is seen to be the best; and although the precise proportion in which the alumina and silica should exist have not been determined, it is safer that there be a tendency to an excess of alumina than silica.

Further, the fertility of the soil depends on the state of division, chemical or mechanical, of these minerals.

It would appear, then, to be a means of improving the composition of a soil, to add to its silicious matter when it is found to be too stiff, and aluminous matter when it is found to be too loose; and, further, to reduce the substances to their greatest degree of mechanical or chemical division.

Sometimes, accordingly, we have the means of improving the constitution of soils, by mixing sand with clay, or clay with sand. But, in practice, the direct mixture of these two substances, for the purpose of producing a soil of better texture, is rare; First, because the expense of this species of improvement is considerable; and, secondly, because in the state in which sand and clay are usually available for this purpose, it seldom happens that the aluminous matter of the one, or the silicious matter of the other, is in that state of minute division which is favorable to fertility.

It is otherwise with earth lime. This can, in all cases, be reduced by heat to that state of minute division which is favorable to the productiveness of soils; and hence can always be applied with benefit to those soils in which it is wanting.

Lime is sometimes mixed, in its natural state, with aluminous and silicious matter. It then forms a marl, a substance which is frequently applied to soils as a means of improving them; it is chiefly to the lighter soils that lime is applied; for then, is not only lime applied, but alumina, to improve the texture of the soil. It is by means of this mixture that some of the greatest improvements on silicious sands, that have taken place in Europe, have been effected.

There are cases in which even calcareous matter is in excess in soils. This occurs especially in districts where the chalk formation exists. When the earthy stratum resting upon chalk is very thin, the chalky matter becomes mixed with it, and being then in excess, forms a barren soil.

An obvious means of amending the composition of a soil of this kind, is by adding any of the other earths, whether silicious or aluminous. We need not here scruple to apply them, because the clay is coarse or the sand silicious. We may add them in almost any form in which they can be conveniently procured; for the effect will be to improve the composition of the soil.

There is another case in which, in like manner, silicious and aluminous matter may be applied directly in almost any state in which it may be found. This is in the

case of peat. Here the vegetable matter is in excess, and the addition accordingly of any other earths is an amendment of the composition of the soil.

We see then, that the composition of soils may be improved by the addition of animal and vegetable matter, and also in many cases, by the addition of the earths in which they may be deficient, and in an especial degree of lime, which we can always apply in the form of minute division best suited to improve the composition of the soil. This is the first of the means referred to of adding to the productive power of soils, and will be considered in detail under the head manures, and other divisions of the management of the farm.

The second mean referred to of increasing the productive power of a soil, is altering their texture, depth and properties, by tillage and other means.

The mere effect of that communion of the parts of soil which it undergoes in the common operations of tillage, is seen to have a beneficial influence on the productive powers of the soil. Whether the soil imbibes from the atmosphere any thing but aqueous vapor or not, it is known that the exposure of the matter of the soil to the atmosphere, and the communicating of its parts by tillage, add permanently to its fertility. Thus we learn from experience the good effects of tilling lands well; soils once tilled are rendered for the most part more productive by the process. Peaty turf, if suffered to remain in its original state, may continue to produce nothing but heath and the most useless plants; but, if merely ploughed, and exposed to the influence of the atmosphere, it will at once tend to produce grasses of a better kind, and of greater variety; and again, if a subsoil of coarse clay be exposed to the atmosphere, for the first time, it is generally at the first very unproductive, and it is not until after long exposure to the air that it becomes productive. This is most remarkable in the case of clay marl, a substance in itself containing the materials of a fertile soil, but which is often barren, until after pulverization and the influence of the atmosphere.

It is, indeed, conformable to analogy, as well as to experience, that soils should be improved by pulverization and exposure to the atmosphere. In our examination of the constituent parts of soils, we have seen that their fertility is in a great degree indicated by the proportion of minutely divided earthy matter which they contain.

The effect of tillage, therefore, may be reasonably supposed to promote this division, both by the mechanical action of our instruments, and by exposing the particles of the earth to the action of the air.

Another object sometimes produced by tillage, and subservient to the amendment of the soil, is the deepening of the upper stratum.

The subsoil, it has been seen, is distinguished from the soil so called, by its containing less vegetable and animal matter, and so being less suited to the nourishment of plants; and in many cases it is even found to be injurious to vegetation. It is generally important, however, that there be a good depth of soil, and thus it is often expedient, as a means of effecting a permanent improvement of the surface, to plough up and mix with it a portion of subsoil, even though that subsoil should in itself be infertile.

These, then, are the principal mechanical means by which we can improve the soil, and they will be considered in detail, under the various heads which relate to the operations of tillage.

Another mean, indeed, of changing the composition of soils, is incineration, commonly called *paring and burning*. This process will be described as connected with the operations of tillage, and may be considered as one of the mechanical means possessed by us of adding to the productiveness of the soil.

The third mean referred to, of adding to the productive power of soils, is changing their relation with respect to moisture.

In warmer countries the soil is comparatively little injured by an excess of water, and more frequently suffers from the insufficiency of it. In climates like that of Britain, however, the operation of conveying away the water which is in excess is an essential one, and, if neglected, the best devised scheme of improvement may fail. The surplus water is either stagnant upon the surface, or penetrates below the surface. The freeing of cultivated land of water upon the surface, gives rise for the formation of land into ridges, by which the water escapes without stagnating upon the ground, or sinking into the subsoil below. This is an object necessarily connected with tillage, and will be described when the manner of cultivating land is treated of.

The freeing of the soil again from that superfluous water which is contained below the surface, forms a peculiar branch of agricultural improvement, and will be described under the head Draining.

As draining is more required in colder countries, so irrigation, or the watering of land, is less required than in those countries where the heat and evaporation are greater. Irrigation, however, is a curious and interesting branch of rural economy, derived by us from very ancient times. In this country it is chiefly employed in watering the lands in grass during the months of winter and spring.

The last of the means referred to of adding to the productive power of soils, is by changing the relation with respect to temperature.

This mean of adding to the productive power of soils, is less within our control than any of the others. It is only by slow degrees that we can improve the climate of a country. It is chiefly by draining, and the raising of hedges and wood: all of these, accordingly, form important objects of rural economy, and will be partially treated of in this work.

The means, then, of adding to the productive powers of the soil,—namely, supplying the organic and earthy substances which may be required,—altering its texture, depth, and properties, by mechanical means,—and changing its relation with respect to moisture,—will all be treated of under the different divisions of our subject; and we shall begin with that which is most closely connected with the nature and property of soils, the nature and property of those substances which we apply to the soil under the name of manures.—[Cultivator.]

ITALIAN RYE GRASS.—The following communication relates to a grass of great promise, if it will withstand our winters. The French and Scotch commend it as highly as the Germans, though it is of but recent introduction among them; and our personal observation tallies with the high character which all give it. We sowed some in Sept. 1833. It promised remarkably well—but the winter killed it. We supplied some friends with seed, which was sown last season; it is of course not yet known what effect the winter has had upon it. The State Society have directed a quantity of seed to be provided for distribution, with

the view of giving it a fair trial among us.

Description and Culture of the Italian Lolch.—(Translated from the German.)—The Italian Lolch, (*Lolium perenne italium aristatum*), yields the most abundant fodder of any kind of grass that is known. Its extraordinary yield has, for several years past, extended the culture of it, in one part of Germany and Switzerland, very rapidly, and also in France some agriculturists have made experiments with it which were completely successful.

If sown in October,* its growth being very rapid, before winter sets in, it makes a thick sward equal to that on old grass land, and the first crop of hay is double to that of a common meadow. The Italian Lolch is entirely different from the English ray grass, which latter serves only as a means of making a sward on the land for pasturage, does not grow over 2½ feet in height, and gives but two ordinary crops in one season, while the former commonly grows to a height of 4 feet, on a soil more moist than dry, and gives always four abundant crops in one season, and frequently more.

The haulm is covered with leaves of a light green color. The most proper time to sow it, is in the fall. After a crop of grain is taken off from the land, turn the stubble over, harrow it and sow the seed. And frequently it grows large enough to cut before cold weather; but it is advisable not to cut it, because it will take better root if left. Such a meadow shows itself before winter thick and well overgrown, like an old one, and the first year's crop was, by haying time, a full one. Sowing it in the spring, or month of April, requires moist weather and more seed. The plant is lasting. And at the end of the seventh or eighth year, these meadows are as vigorous as they were in the first year. If, however, light places are to be seen, they may be renovated by letting the seed get ripe, and shell out, on such places, or they may be sown with new seed. A soil more moist than dry is generally best adapted for this plant, but it has been tried on high lands and on the Alps, where it likewise perfectly thrives.

After grain or potatoes, (or other hoed crop,) a shallow tillage is sufficient. After clover or lucerne a deeper tillage is necessary, but on old meadow it is advantageous to cultivate first a crop of potatoes or grain, and after these being harvested in the fall, sow the Lolch. These meadows are treated like other meadows; every three years they receive a manuring—top dressing—and the first one is incorporated with the soil at the time of sowing the seed. The ground ought to be well harrowed. The seed is sown broad-cast—about 40 lbs. to the acre. If sown in the spring, 8 to 10 lbs. more are necessary, and one chooses as much as possible a wet time to sow it. After the seed is sown, harrowing may be dispensed with, but the ground ought to be rolled with a heavy roller. This operation has the double advantage to press the seed into the ground, and smooth the land for mowing.

H. D. GROVE.

Hoosick, Rens. co., N. Y., Jan. 31, 1835.

* Note by the translator.—The winter in those parts of Germany where the lolch is cultivated, does not set in so early as in this section of the country.

“They won't stay put.”—The subjoined articles of intelligence may be relied on as accurate.

Divorced by the Supreme Court on Friday, 20th Feb. 1835, for intolerable severity, Mrs. Nancy Tyler from Mr. Samuel Tyler.

Married, on Monday, 23d Feb. 1835, Mr. Samuel Tyler to Mrs. Nancy Tyler.—[Green Mountain Democrat.]

CULTURE OF THE MULBERRY.—It seems to be a matter well established, that at least the white mulberry will do well in our state. We wish we could affirm as much of the *morus multicaulis*, but our experience compels us to say, that its success in the northern section of the State is at least doubtful. The next question to be solved is, can the silk business be rendered profitable? That it can, in families who have females and children, who will gather the leaves and take care of the worms, we have no manner of doubt. The last Farmer's Register contains an interesting letter upon the subject of silk culture, translated from the French, which the restricted limits of a monthly sheet prevents our publishing in detail, as it does many other articles of interest. It is written by M. Carrier, of Aveyron, into which department the silk business has been recently introduced, to M. Bonafous, director of the royal garden at Turin, giving an account, among other things, of the product and profits of his silk business in 1833. This is stated in the following extract:

"I will now show you," says the writer, "the account of the sale of my silk of 1833. I shall take care to subtract the expenses, and you may see the clear profit.

29 1-5 kilograms white silk, at 63 francs the kilogram, . . . 1,830f. 60c.
2 11-12 inferior silk, at 18 fr. the kilogram 53 95

Deduct for portage 1,834f. 55c.

. 16 00

1,868f. 55c.

Value of the different remains, coming from the remains of the filatures used at my house, 115 00

Sum realized . . . 1,983f. 55c.

For the expense of management, . . . 171f. 75c.

For filature, reeling, 263 85

435 60

Profit . . . 1,548f. 95c.

"To appreciate the advantages of the cultivation of the mulberry, one must remember that this sum, 1,548 francs of profit, (after deducting all the expenses,) is the product of leaves furnished by trees which have occupied for eight years, on an average, a piece of ground rather less than half a hectare, or at most two seterees, a local measure."

The kilogram is two pounds two ounces and four grains, avoirdupois; the franc is 18 $\frac{2}{3}$ cents; the c. (centime) one hundredth part of a franc; the half hectare is about 1 $\frac{1}{2}$ acres. Hence, the gross product in silk, from one and a quarter acres in mulberries, was 69 $\frac{1}{2}$ lbs. which sold for \$350.25, or about \$5 the pound, and after paying all expenses afforded to the proprietor a net profit in one year of about \$290.40.

We quote again from M. Carrier's letter: "The proprietor who wishes to occupy a plantation of mulberry trees, supposing he had already at his disposal a quantity equal to those which I stripped last spring, and in the same condition, that is, producing 160 quintals of leaves, at four francs the quintal. Well, this proprietor could have obtained from half a hectare (about 1 $\frac{1}{2}$ acres) of ground, with no other expense than that of cultivating the trees, a revenue of 640 f., or 920f. for each seteree, composed of 640 square fathoms.

"The person who would have bought this quantity of leaves, to devote himself

only to the raising of silk worms, would have had (as I did) 928 pounds of cocoons, and would have sold them at 1f. 50c. a pound, according to the course of that time: this sale would have produced 1,392f. 00c.

Deduction of expenses, purchase of about 8 ounces of eggs, at 5f. the ounce, 24f. 00c.

Expenses of all kinds for the management 171 75

Price of 160 quintals of leaves, at 4f. 640 00

Rent of the room, 60 00

895 75

His part of the profits for 40 days' attendance 496 25

The filateur, who buys the cocoons, obtains a quantity of silk equal to mine, and sells it in the same manner, . . . 1,868 55

He draws from the remains . . . 115 00

Total, 1,983f. 55c.

It is necessary to deduct from this sum, as the cost of 928 pounds of cocoons, at one franc 50 c. . . 1,392f. 00c.

Expenses of the filature 263 85

1,655 85

Clear gain of the winder . . . 327f. 70c.

"The laborer, with a family, takes for his share the remains of this filature, employs his wife and children to prepare and wind the low and different qualities of silk, which are in much request and readily sold. These products can be valued, after having received all the suitable work, at . . . 165f.

Deduction for the purchase of the first materials . . . 50f.

Hand work, although gained by the family 30

80

Profit, without including his work, already paid, . . . 85f.

"A simple recapitulation will make the result better understood than this division of the labor, which division certainly agrees, in many cases, with the taste or situation of persons who neither wish, nor are able, to undertake all parts of the business.

The land owner, who sells 160 quintals of leaves, at 4f. receives . . . 640f. 00c.

The person who buys them, and manages the raising, gains 496 25

The winder, who takes charge of the cocoons, winds them, and receives for his labor . . . 337 70

The laborer who works up the remains, does the labor for 30f. and gains besides . . . 85 00

Sum equal to the total profit which I have made by the union of all these operations 1,548f. 95c.

"The calculations which I have just presented, speak loudly enough without my adding the least observation to make the evidence more sure; I will only say, one of the great benefits of this direction of industry is to make a considerable mass of work for all classes of society, and for all ages."

A plantation of mulberries may soon be obtained, by procuring the young trees from the nurseries, or by sowing the seed. An ounce of seed will produce from two to three thousand plants. Sow early in May, upon a bed of good earth, well pulverized, in drills a foot apart; cover with half an inch of fine mould, compress the surface slightly with a hoe, that the soil may better

retain moisture, and come in [contact with the seeds, and if the weather is dry, water occasionally, to aid germination, and to enable the young roots to get firm hold of the earth; keep the bed free from weeds, and after one or two years, prune out the plants in nursery rows, three feet apart, and in two years more they will be fit to set out where they are to remain permanently. —[Cultivator.]

THINGS A FARMER SHOULD NOT DO.—A farmer should never undertake to cultivate more land than he can do thoroughly; half tilled land is growing poorer—well tilled land is constantly improving.

A farmer should never keep more cattle, horses, sheep, or hogs, than he can keep in good order; an animal in high order the first of December, is already half wintered.

A farmer should never depend on his neighbor for what he can, by care and good management, produce on his own farm; he should never beg fruit while he can plant trees, or borrow tools while he can make or buy; a high authority has said, the borrower is a servant to the lender.

The farmer should never be so immersed in political matters, as to forget to sow his wheat, dig his potatoes, and bank up his cellar; nor should he be so inattentive to them as to remain ignorant of those great questions of national and state policy which will always agitate, more or less, a free people.

A farmer should shun the doors of a bank, as he would an approach of the plague or cholera; banks are for men of speculation, and theirs is a business with which farmers should have little to do.

A farmer should never be ashamed of his calling; we know that no man can be entirely independent, yet the farmer should remember, that if any one can be said to possess that enviable distinction, he is the man.

No farmer should allow the reproach of neglecting education to lie against himself or family; if knowledge is power, the beginning of it should be early and deeply laid in the district school.

A farmer should never use ardent spirit as a drink; if, while undergoing severe fatigue, and the hard labors of the summer, he would enjoy robust health, let him be temperate in all things.

A farmer should never refuse a fair price for any thing he wishes to sell; we have known a man who had several hundred bushels of wheat to dispose of, refuse 8s. because he wanted 8s. 6d.; and after keeping his wheat six months, was glad to get 6s. 6d. for it.

A farmer should never allow his wood-house to be emptied of wood during the summer months; if he does, when winter comes, in addition to cold fingers, he must expect to encounter the chilling looks of his wife, and perhaps be compelled, in a series of lectures, to learn, that the man who burns green wood has not mastered the A B C of domestic economy.

A farmer should never allow his windows to be filled with red cloaks, tattered coats, and old hats; if he does, he will most assuredly acquire the reputation of a man who jarrs long at the whiskey, leaving his wife and children to freeze or starve at home.

There are three things of which the man who aims at the character of a prosperous farmer will never be niggardly—manure, tillage, and seed; and there are three things of which he will never be too liberal—promises, time, and credit. W. G.—[Gentle Farmer.]

NEW-YORK AMERICAN.

MARCH 21—27, 1835

Cousin's Report on Education in Prussia, as translated by Mrs. Austin, and republished in this city by Wiley & Long, is a book of so much value, that we gladly make room for the annexed paper—founded on its recommendation of normal schools—by J. Orville Taylor. We wish we could induce all who either have children to educate, or any connection with schools, to read Cousin. Yet, strange to say, while a novel, frequently more likely to corrupt, than to improve, the mind, is eagerly sought, this admirable book has found few or no purchasers in this city.

SEMINARIES FOR TEACHERS.

By J. Orville Taylor.

Mrs. Austin, the accomplished translator of M. Cousin's Report on "Public Instruction in Prussia," says "there are two or three other points which I would fain recommend to the peculiar attention of the reader. One of the most important, is the absolute necessity of securing a constant supply of well-trained schoolmasters. Time and experience have, it is to be supposed, nearly removed the illusion of "mutual instruction" as a substitute for the instruction communicated by a mature to an immature mind—as an auxiliary in certain mechanical details, no one disputes its utility. Observation long ago convinced me of the entire truth of the maxim laid down by the Prussian government, and approved by M. Cousin, that, "As is the master, so is the school." There is no truth more evident than the one expressed in this maxim. The schools must grow from the necessity of the case be like their teachers, hence the absolute necessity of using proper means to qualify them for the profession of teaching. In this department of instruction, Prussia is far in advance of the United States. That despotic government (though at present paternal in administration) requires the teachers of elementary schools to pass through certain stages of preparation in a normal school, before they can assume the difficult and responsible station of Instructor. The organized school system in neither of our State governments, makes no such requirements. We have not till very lately given any encouragement to young men that would induce them to make suitable preparations to teach even a district school. The State of New York has just made some provision for the education of teachers; the plan we shall speak of before we close this article. There have been a few private seminaries which have made the education of teachers their principal object; but these have received no assistance from government, and have done very little towards supplying the schools of the United States. The Seminary at Andover, conducted for several years past by the Rev. S. R. Hall, has done much good, both as presenting a model for such institutions, and by sending out many able instructors. At present it seems to be generally admitted that such institutions are indispensable, and that it is the duty of the State governments to establish and sustain them.—Since we are about to open seminaries for teachers among us, it is fortunate that we have a full and faithful report by M. Cousin, of the workings of the Teachers' Seminaries in Prussia. The American edition of this work will furnish our Legislature, School Committees, and School Teachers, with instruction, not only from the highest authority, but also from the most enlightened source. While speaking of the necessity, nature, studies and benefits of seminaries for teachers, I shall avail myself of such parts of this report as will give light and interest to the subject, for says M. Cousin: "The true greatness of a people does not consist in borrowing nothing from others, but in borrowing from all whatever is good, and in perfecting whatever it appropriates."

M. Cousin's remarks on the training of primary instructors he says, "the best plans of instruction cannot be executed except by the instrumentality of good teachers; and the State has done nothing for popular education, if it does not watch that those who devote themselves to teach-

ing be well prepared; then suitably placed, encouraged and guided in the duty of continued self-improvement; and lastly, promoted and rewarded, in proportion to their advancement, and punished according to their faults. Such is the object of title 6, of the law 1829. We translate that, as we did those which preceded. A schoolmaster, to be worthy of his vocation, should be pious, discreet, and deeply impressed with the dignity and sacredness of his calling. He should be thoroughly acquainted with the duties peculiar to the grade of primary instruction in which he desires to be employed; he should possess the art of communicating knowledge, with that of moulding the minds of children; he should be unshaken in his loyalty to the State, conscientious in the duties of his office, friendly in his intercourse with the parents of his pupils, and with his fellow-citizens in general; finally, he should strive to inspire them with a lively interest in the school, and secure to it their favor and support.

"Of the Training of Schoolmasters".—In order gradually to provide schools with masters of this character, the care of their training must not be abandoned to chance; the foundation of primary normal schools must be continued. The expenses of these establishments should be defrayed partly by the general funds of the state and partly by the departmental funds for schools."

Here Cousin unequivocally declares that the "State has done nothing for popular education" if it does not see that the teachers are well qualified. The legislature of each state should immediately make provision for the education of common school teachers. That Prussia has done this, is the whole secret of her superior schools. But teachers must not only be "prepared," they must also be, and this by the government, "suitably placed, encouraged, guided and rewarded." How far short are we of Cousin's advice and Prussia's practice!!

The establishments for educating teachers in Prussia are supported by the government funds and by the smaller and local divisions of the government. With as the school fund of each state, may erect suitable buildings, remunerate the professors, furnish a library and apparatus, and bear a part of the students expenses while preparing himself for teaching. This would give encouragement, to make teaching a study and a profession for life.

The following extract is from Cousin's report, and is translated by himself from title 6 of the law of 1819. We make this extract to show the design which the Prussian government had in establishing teacher's seminaries, or to use the Prussian name "Normal Schools." "The principal aim of the primary normal schools should be, to form men, sound both in body and mind, and to imbue the pupils with the sentiment of religion, and with that zeal and love for the duties of a school master which is so closely allied to religion." It is seen that their design is to make their pupils men, in knowledge and in person, and not only this, but religious men, and men in love with their business. The next extract designates the length of time to be spent, and marks out the course of studies to be pursued in these seminaries.

"In each primary normal school the length of the course shall be three years, of which the first is devoted to supplemental primary instruction, the second to specific and more elevated studies, and, the third to practice and occasional experiments in the primary school annexed, and in other schools of the place. When the supplemental instruction is not required, the course may be reduced to two years."

The plan proposed for this State in the report of, and adopted by, the regents of the University, is to select one academy in each of the eight Senate districts of the State; to appropriate five hundred dollars to teach, for the purchase of a library and apparatus adapted to the use of those who are preparing to be teachers, thus reserving six thousand dollars out of the permanent fund of ten thousand dollars now on hand, for future contingencies; and from the annual surplus revenue of the literature fund, (estimated at three thousand five hundred dollars,) to appropriate four hundred dollars to each of the Academies, to provide a special source of instruction in the art of teaching.

The following academies have been selected for this purpose.

For 1st Dist., Erasmus Hall Academy, King's Co.,
 " 2d " Montgomery " Orange Co.,
 " 3d " Kinderhook " Columbia Co.,
 " 4th " St. Lawrence " St. Lawrence Co.,
 " 5th " Fairfield " Herkimer Co.,
 " 6th " Oxford " Chenango Co.,
 " 7th " Canandaigua " Ontario Co.,
 " 8th " Middlebury " Genesee Co.,

In regard to the course of study to be pursued, it is remarked in the report, that the standard should be raised "as high as possible," because "the qualifications of those who follow it will incline to range below, and not above, the prescribed standard." It proposes that none should be allowed to enter on the course, who are not acquainted with reading, writing, arithmetic, grammar, and so much of geography as is found in the duodecimo works on this subject, usually studied in our schools. The following are the subjects of study proposed for the teachers' course, which are required to be thoroughly taught, and while they are not intended to exclude others, shall not be allowed to give way to any.

1. The English language.
2. Writing and Drawing.
3. Arithmetic, mental and written; and Book-keeping.
4. Geography and general History, combined
5. The History of the United States.
6. Geometry, Trigonometry, Mensuration and Surveying.
7. Natural Philosophy and the Elements of Astronomy.
8. Chemistry and Mineralogy.
9. The Constitution of the United States, and the Constitution of the State of New York.
10. Select parts of the Revised Statutes, and the duties of Public Officers.
11. Moral and Intellectual Philosophy.
12. The Principles of Teaching.

Although the Regents have not excluded other studies than those contained in this programme, yet I am surprised that Botany, Zoology, and Agriculture, and even Physiology, are not included.

What more interesting and useful studies for our young farmers than Botany, Zoology, Agriculture? And how important is it that they should have teachers who are well acquainted with these departments of Natural History.—Composition likewise is not mentioned; one of the most important parts of every man's education.

To secure the services of those who have been educated by the State, to make such follow the business of teaching as a profession for life is the most difficult thing of this part of Legislation. The graduates of Teacher's Seminaries will be qualified to demand a much higher compensation for their services, than the employers of district schools will feel disposed to give them: and unless there is something to prevent, the laborers will go where they are best rewarded. There are two ways of securing the services of those who have been educated in the teacher's seminary. The first is, by creating a disposition in parents to reward their teachers with an adequate compensation. If parents are disposed to pay these teachers as much as they will be able to get at any other employment, they will secure them as teachers; but they will not teach unless parents pay more than they do at present. This rests with parents; and we do hope that they will adequately reward those who have spent much time and money in preparing themselves to teach.

The other way is adopted by Prussia. I think the feelings of the people and the spirit of our government would forbid this. I do not think that it can be adopted in this country. It may perhaps in part. The following extract from Cousin will show the laws regarding those who have been qualified to teach by the government. "Every pupil of a normal school is obliged, at the expiration of the term, to accept the master ship to which the provincial consistories may appoint him; the prospect of advancement being, however, always set before him as the consequence of continued good conduct." This compels every one who is competent to become a schoolmaster. If they are not competent, they

are either rejected altogether or sent back to review their studies. This will be seen in another part of the same work referred to above.

"Every young man whose competency is admitted shall receive a certificate, delivered and signed by the whole commission, his examiners, by their president, and by the head master of the primary normal school or other establishment in which he was trained to his calling. It must state his moral character, and his degree of aptitude for teaching, such as prove incompetent shall, by a formal decree, be wholly rejected, or sent back to continue their studies."

The Prussian government is careful not to admit those into the normal schools who are physically or morally disqualified from making good teachers. To show this we make another extract from Cousin.

"The normal school is by no means designed for those who are unfit for any business, and think, if they can read and write, they are capable of becoming schoolmasters. This notion is so deeply rooted, that you hear fathers declare with all the simplicity in the world—"My son is too delicate to learn a business," or "I don't know what to make of my son, but I think of getting him into the normal school." We reply to such, that the pupils of the normal school must, on the contrary, be sound both in body and mind, and able to brave the toils and troubles of a career, as laborious, as it is honorable. Much neglect unfortunately, still exists, on a subject which is of the highest importance, the methodical preparation of these young men for the calling which it is desired they should embrace. A false direction is often given to their preliminary studies. A young man is believed to be well prepared for the normal school, if he have passed the limits of elementary instruction, and if he have acquired a greater mass of knowledge than other pupils. It frequently happens, that candidates who come strongly recommended from school, pass the examination without credit, or are even rejected. The most immediate and the most important aim of all instruction, is to train up and complete the man; to awaken the energies of his soul, and to render him not only disposed, but able, to fulfil his duties. In this view alone can knowledge and talents profit a man; otherwise, instruction, working upon sterile memory and talents purely mechanical, can be of no high utility. In order that the teacher, and particularly the master of the primary school, may make his pupils virtuous and enlightened men, it is necessary he should be so himself. Thus, that the education of a normal school, essentially practical, may completely succeed, the young candidate must possess nobleness and purity of character in the highest possible degree, the love of the True and the Beautiful, an active and penetrating mind, the utmost precision and clearness in narration and style." The board of examiners connected with our seminaries may obtain some valuable hints from the preceding extract.

Attached to every teacher's seminary should be a department for teaching the elementary branches of an English education. This is necessary that those who are preparing to teach may make a practical application of their instructions. On "Practical Teaching" hear Cousin. "All the studies and all the knowledge of our pupils would be fruitless, and the normal school would not fulfill the design of its institution, if the young teachers were to quit the establishment, without having already methodically applied what they had learned, and without knowing by experience what they have to do, and how to set about it. To obtain this result, it is not sufficient that the young men should see the course gone through under skillful masters, or that they should themselves occasionally give lessons to their school-fellows; they must have taught the children in the annexed school for a long time, under the direction of the masters of the normal school. It is only by familiarizing themselves with the plan of instruction for each practical branch, and by teaching each for a certain time themselves, that they can acquire the habit of it without method."

At St. Louis, (Mo.) at 8 o'clock on the morning of the 7th Feb. the mercury stood at 18 degrees below zero, and on the morning of the 8th, at the same hour, it was down to 22 below zero.

SUMMARY.

Congress at its last session adopted a resolution that a gold medal be presented to Col. Croghan, and a sword to each of the officers under him for their gallantry and good conduct in the defence of Fort Stephenson, during the late war. To the ability and bravery of Col. Croghan and those under him on this occasion is ascribed the discomfiture of the British plans on Lake Erie in 1813. But for the gallant defence of Fort Stephenson the military stores of the American Army and the fleet with which Perry afterwards gained his glorious victory would have fallen an easy prey to the British. The defence of the Fort was not only one of the most brilliant, but it was also one of the most important achievements of the war. The names of his companions to whom, or their eldest male heirs, swords have been voted are, Capt. James Hunter, Lieut. Benjamin Johnston, Cyrus A. Baylor, John Meek, and Ensigns Joseph Duncan and Edmund Shipp.—[Baltimore American.]

Cylinder Cannon.—Messrs. Allen & Ball, of Springfield, Mass., have invented what they call a cylinder cannon; upon the cylinder may be placed as many barrels as may be desired, each barrel capable of making two discharges a second. It was built for a company in Lowell, who have procured a patent in this country and France, and have now an agent in England for the purpose of getting it patented there. "It was to us, says the Hamden Whig, "altogether a novel piece of machinery, and the idea of a cannon being fired, gun after gun, by an operation like that of a boy turning a grindstone, struck us as strangely singular."

The Spanish authorities at the Island of Porto Rico have subjected American, in common with other foreign productions, to an increase of duties, amounting almost to prohibition.

The Antiquaries Humbled.—The British Museum recently purchased a splendid specimen of the Saurian or lizard tribe, one of the "monsters born before the flood," and paid for it the sum of \$2500. It has been proved within a few weeks to be an ingenious fiction, in plaster.

If a certain contingency takes place in relation to the present Royal Family of England, the Queen would become, on the death of the King, Regent of the Kingdom, by a law passed in 1830. 1 Wm. 4, Chap. 2d.

There is Iron enough in the blood of 42 men, to make a ploughshare weighing 24 pounds. The quantity of Brass in their faces cannot be ascertained with accuracy.—[Buffalo paper.]

Marrying Daughters.—The Spaniards say—"at eighteen marry your daughter to her superior at twenty to her equal—at thirty to any body that will have her."

[From the *Rarhadian*, February 7.]

We have this morning received by Mail boats papers from the colonies of Demarara, Tobago, Trinidad, Grenada, and St. Vincent. The apprenticed labourers seem to be acting their parts well every where except in Demarara.

The *Ottomani* papers mention the death of the venerable *Bisnur* McKENZIE, of the Methodist Episcopal Church, which occurred on the 5th instant. Nothing is said of the place or cause of the Bishop's demise.

Among the business transacted by the Legislature of New York, is the permission given to *Posteritas* Pope Benton, to take and use the name *Posteritas* Benton *Forever*. They should have made his first name last.—[U. S. Gazette.]

The Duke of Wellington's Father.—The first and last Lord Mornington (Garrett Welsley) had always a strong partiality for the harpichord, and contrived to steal intervals of practice in spite of his sister's assertion that he only spoiled the instrument. His father about this time declaring his intention of having an organ for his chapel, Garrett undertook to officiate as organist the moment the instrument should be finished. This was accomplished in less than a year and a half; and at the expiration of that period he sat down at the maker's, and played an extempore fugue, to the astonishment of all present, who did not imagine that he could have executed a bar of a single tune.—[The Georgian Era volume IV.]

The Quarrels of Benevolence.—The following is a liberal exemplification of the doctrine of provoking one another to good works. We take it from the *Cazenovia*, New York, Monitor:

A strife, of rather an unusual character, was carried on in Buffalo, during the last cold weather. The Mayor, Ebenzer Johnson, gave public notice in the city papers on the 10th February, that he would furnish 25 cords of Wood to such poor families as were unable to supply themselves, with a proviso, that "none need apply whose poverty has been caused by intemperance."

This brought out Manly Colton, Esq., on the 18th, who gave a like notice, that he would give "to the shivering mothers and children of the city, who have become poor and destitute in consequence of the beastly crime of intemperance on the part of their protectors," 25 cords of Wood.

The next day, O. H. Dibble gave notice that he would furnish 25 cords of wood to such families as were unable to purchase it, without requiring them to prove either that are they "beastly drunkards," or "that they have never expended money in intemperance."

The day following, Samuel Twitchell, jr. offered to give 25 cords of wood to such as were destitute, and unable to purchase, "no matter from what cause they became so."

On the same day, Alanson and Julia Palmer announced, that they would give one hundred dollars, in provisions and clothing, to the needy. They say, "It is enough for the applicants to be poor—we wish not to know the cause of their misfortune, but wish all to be temperate, industrious, and happy."

John Wheelock, a butcher, also gave notice on the same day, that he would give to the suffering poor of the city, 25 pounds of beef, for every cord of wood that the Mayor should furnish—and would "not go into a detailed examination of how they became needy."

GREEK FIRE.—Constantinople was indebted for her preservation to a new and fortunate discovery which chemistry accidentally opened to the Greeks at a time when there was neither courage, patriotism nor talent in either commander or men sufficient to repel so formidable an enemy. An inhabitant of Heliopolis, (there were two towns of that name, one in Syria, the other in Egypt,) named Callinicus, discovered a composition of naphtha, or oil of bitumen, pitch, and sulphur, which, once set on fire, could not be extinguished by water; which adhered to wood with destructive activity, and consumed with equal facility a single ship or a whole fleet; and which, when thrown on the combatants, insinuated itself between the joints of their armour, and destroyed them by a death of torture. Callinicus, a subject of the khaliphs, but a Christian, brought his secret to Constantinople and used it in defence of Christendom. This secret was preserved till the middle of the fourteenth century, when it was superseded by the still more tremendous invention of gunpowder. Its qualities are very imperfectly known to us. The Greeks called it "liquid, or marine fire." The prows of vessels and the ramparts of towns, were furnished with tubes by means of which this blazing oil was thrown to a large distance; a piston projected it with great velocity into the air, as soon as it came into contact with which, it became ignited by some process unknown to us; the devoted victims saw it approaching in the form of a fiery serpent, till at last it fell in a burning shower on vessels and men. An hour's fight would cover the sea with this flaming oil, and give it the appearance of a sheet of fire. The Saracen fleets were repeatedly destroyed by it, and their most valiant warriors, whom the near aspect of death had never daunted, recoiled from the terrors and tortures of this liquid, which crept beneath their armour and clung to every limb.—[Lardner's Cyclopaedia.]

Discovery of a Sinking Vessel. DRUNKEN FRENCH.

The Eddystone light was just dipping on the verge of the horizon, when the bright flash of a gun was seen broad on her starboard bow, which was quickly succeeded by another. Old Blowhard had the watch, and it was immediately reported to the Captain. "Can you make out any

thing with your glass, Master?" inquired the skipper. "No Sir," returned the old man, "nor have we heard the reports, which makes me think it must be some vessel in distress."—"What rate is she travelling at, Mr. Blowhard?" asked the Captain. "The mate of the watch has just hove the log, Sir," replied the Master, "and she was going eight and a half; but I'm thinking, Sir, with a head sea, we cannot give her more than eight knots." "By hauling up a point or two, it will throw us more to the windward, certainly," said the Captain, speaking to himself, "and if there are fellow creatures in danger, it would be cruel to leave them to perish. Still my orders are positive not to be turned out of my course for anything. Do you really suppose, Mr. Blowhard, that it is some craft in distress?" "It is not possible for man to say for aartin," answered the Master, "but I've been all my life upon the ocean, Sir, and it seems to me as if the Creator had given the creatures he designs to witness his wonders on the deep a nat'ral instinct to discover many things that are not revealed to the outward eye; and so when I saw the flashes, it seemed to strike my mind that they came from one who needed a friend." "Haul up in the direction, Master," said the Captain; "I'll be on the deck directly." "Aye, aye, Sir," replied the old man; "we shall soon make out what it is." He closed the cabin-door and ascended to the deck. "The watch trim sails—starboard cat-head there! have you seen any more flashes?" "Yes, Sir," answered the man, "and there seems to be a sail in that direction." "Why, where else should a flash come from you lubber?" grumbled the master: "you may run upon that course till the card of the compass slues itself end for end, and never touch a bit of land large enough to grow a gouseberry-bush! Brace up the yards!" he vociferated through his speaking trumpet; "get a pull of the main fore sheets; trim the jib there, forud! and after-guard, haul in the boom sheet. Port, boy—port a little." "Port it is, Sir," replied the man, putting the tiller to leeward: "shall I bring her to the wind, Sir?" "Yes, luff her up, boy! full and by; remember so as to let her walk. Forud, there! steady the weather leeches by the bow-lines—tant d'ye hear? Keep a good look-out before for the stranger, and don't let your eyes get plugged up with your night-caps." At this moment the Captain made his appearance on the quarter-deck. "We must have the hands up, Mr. Blowhard; for if we hug the wind, we shall want another reef in the topsails. Quartermaster, how does she head?" "W. N. W., Sir, clean cap full," answered the man; "and I just seed a flash about a point to leeward of the bowsprit end."

The hands were turned up: every soul took his station; and as mine was on the forecastle, I directed my eager gaze towards the point where the stranger was supposed to be: but I could make out nothing, so very dark was the night. The top-gallant masts were bending like coach-whips, and the sweet little brig was dashing along the seas, and throwing aside the waters like a grampus in sport. "Do you see any thing of the stranger, forud?" hailed the Captain. "No, Sir," replied I; but at the very moment I had answered, another bright flash broke out of the gloom, and a heavy report of a gun came sullenly booming over the dark waters, and was borne away to the leeward on the gale. "There's another gun!" I exclaimed, "and she must be about a point and a half under our lee, as we are heading now." "Keep her W. b. N.," cried the Captain to the helmsman; "Mr. Derrick, let them give her a foot or two of the sheets." The brig felt the freedom she was enjoying, and bounded away at a more rapid pace. "Man the fore and main clew garnets, and the t'gallant clew lines," continued the skipper; "and before the watch is called again, Mr. Derrick, we'll double-reef the topsail. A good look-out, before, there!"

The "aye, aye, Sir," had scarcely been uttered, when I discovered a dark log-like object, occasionally appearing and disappearing as it rose on the summit of a sea, or sunk into the hollows between the rolling waves; it laid directly a head of us, and we neared it so rapidly, that I had barely time to sing out "up with the helm—keep

her away!" and have the order obeyed, before we had shaved the hull of a large vessel so close that our weather-quarter was struck by the stump of his bowsprit—the only remnant of a spar they had left standing. The shock staggered us for a moment or two; but the Captain's voice shouting "up courses—in top-gallant sails—square away the main yard," aroused the people; the sails were reduced, and the brig came up to the wind on the starboard tack; but having ranged a considerable distance away from the stranger, we wore round, and passed under his lee. "Ho, the ship a-hoy!" bellowed the Captain. "Halloo!" was the response. "From whence came you?" inquired the skipper. "From Goree, on the coast of Africa," was the reply.—"Where are you bound to?" continued the Captain; "mind your weather-helm, boy, she's running up into the wind's eye. Where are you bound to?" "To the bottom unless you'll take us aboard," answered the person addressed; "our hold is filling fast, one of the pumps is choked, and the men are completely worn out." "Hoist the boats out, Mr. Derrick, and come aft here, and lower the jolly-boat down," said the Captain. The orders were promptly obeyed, and I was directed to board the stranger and act according to circumstances. There is something peculiarly affecting in viewing a mastless vessel rolling her heavy sides in the trough of the sea, with nothing aloft to steady her: it is a melancholy spectacle, awakening the most painful emotions in the mind of a seaman; and I felt it so when I had reached her deck, and found the sky every where above me without a rope yarn to checker the dreary monotony of the blackened clouds that flew noiselessly on the wings of the wind. The seas beat over the devoted vessel as she rolled her gunwales in, and the phosphoric light of the salt water glistened like a thousand stars, as if the waves in mockery would array their victim in bright gems previous to the sacrifice. Yet what a strange compound is man! In the midst of this devastation, whilst the grim king of terrors was threatening to break the hour glass of time to many a hapless being, the man who, above all, should have retained his self-possession—the master of the ship—was beastly drunk.

The mate informed me that her name was the Neptune, of Liverpool; they had visited the coast of Africa and had collected a valuable cargo of ivory, some sort of wood (I forget the name) used in dyeing, and gold dust; they had lost their masts during the gale of the preceding days. "And is there no chance of saving her?" said I; "whereabouts is your leak, and how much water have you in the hold? A lantern here, my lads, and bear a hand with it." "It's of no manner of use, Sir," replied the mate.—"Hark for a moment, and you'll soon discover she's near her flury, if you are any way skilled in the death-moans of a sinking ship."—There certainly was something extremely appropriate in the term "death-moans," for the struggling of the water against the pentup wind in the hold did produce sounds like the groans which may be supposed to proceed from a strong giant in the last convulsive pangs of expiring existence. Nevertheless I was determined to examine into the state of the vessel myself, as I had heard much of the tricks employed to cheat the underwriters, though in the present instance there certainly was nothing to lead any one to entertain the least suspicion but that the whole had been caused by the violence of the weather, to which also might be added the neglect of the master, through confirmed habits of intemperance. Calling Peters to my side with a lantern, I went down below, had the hatches removed, and found the hold was fast filling from the pumps having been totally deserted. "Well, I'm blessed, Mr. Oldjerk," said Peters, "but I should like to get a little gold-dust, for they tell me it's a capital thing to clean the teeth with; and, talking about teeth, my dear eyes, do look at them elephant's tusks and what not, as Mr. Warner would say. Arn't it a pity they should all go to the bottom? Well, I'm blowed, if old Davy won't have enough in his locker to set up a dentist's shop for whales, and such like; and there's some on 'em big enough for the krakens off the North Cape. Do, pray, Sir, let me take

half-a-dozen aboard for Mr. Blowhard—he's rather short of ivories, and I could pick 'em out just to fit his jaw?" "Be silent, Peters," said I, "and attend to your duty; this is no time for cracking your jokes!—see, the water rises fast. Away there on deck all of you, and bear a hand into the boats." I soon became sensible of the utter impossibility of saving the ship, and therefore directed the whole of my attention to the preservation of the men, especially as the greater part of them were more or less in a state of intoxication, and, with the characteristic recklessness of sailors, were getting up their bags, instead of thinking about the immediate danger that surrounded them. I had not seen the master, but descending the companion, I entered a very handsome cabin panelled with mahogany, against which the bright cutlasses, bayonets and pistols were arranged in exact and pretty order; a noble pier glass was affixed to the rudder case, and the curtains of the bed-places as well as those of the stern windows were tastefully festooned with green silk. The master was on his knees scrambling against the bulk head, (and receiving many a severe bruise as the heavy vessel rolled, endeavoring to get hold of one of the numerous weapons, and at the same time muttering blasphemous curses against himself, his men, and even his Creator. He had contrived to pull down a bayonet which laid by him on the deck, the point having become fixed in the timber, which secured it from fetching away. I directed some of the people to remove him upon deck, but he grasped the bayonet and tried to raise himself up, swearing, "No d—d man-of-war's man should usurp his authority," and that his men were a set of mutinous dogs, who had deserted him:" he then called to the mate and ordered him "to hoist the jack forud for a pilot." To reason with a wretched creature in his state was useless, and therefore I had him seized and carried up the companion. Nothing could exceed the horror of his look when the light from the lantern flashed upon his face, and, supported by two men who seated him on the sky-light, he beheld his vessel—that beautiful creature which a few hours before stemmed the waves in grandeur—now a complete wreck: it sobered his reason for the moment, but only for the moment; a yell of bitter anguish escaped him, and reason took her flight; for he became a perfect madman, and his ravings were dreadful to hear, whilst the violence of his paroxysms rendered it very difficult to hold him fast. Under all circumstances I did not think it prudent to secure his arms and legs by lashings, as, in case of accident, he would have been entirely deprived of the powers of self-assistance; but I determined to pinion him the moment we had got away from the ship, as his unceasing struggles might endanger the safety of the whole; but his own conduct rendered my intentions unavailing. I was holding on at the gangway, and hurrying the ship's crew into the boats, when a cry from Peters aroused my attention, and, turning my head a little, the wind, from a heavy blow aimed with a handspike, came rushing down upon me, and the next instant the maniac master, overpowered with the force of his own exertions, and missing the resistance which he would have met with had his design taken effect, darted over the side head-foremost into the sea—the roil of the ship throwing him beyond the boat that laid alongside. Every exertion was made to save him, but without avail: he arose after a short distance, as we could judge by the commotion in the water, and then disappeared forever. The spectacle that had just been witnessed rendered the ship's crew more tractable, and, after some difficulty, I got them all into boats except one man who could not be found, and it was conjectured he had fallen into the hold and been drowned; but after we had shoved off we could hear the most piercing shrieks, and I was about to put back when the heavy mass rolled into the sea, an explosion like the discharge of artillery succeeded, and the following wave curled up its head unburthened—she had gone down. We were soon on board the sloop, the boats were hoisted in, and the brig kept away S. W. with as much canvas as she could stagger under, and by daylight we were well in with Ushant, running at the rate of ten knots an hour.

UNITED STATES.

GOVERNORS OF THE STATES.

GOVERNORS' SALARIES, &C.

REIGNING SOVEREIGNS OF EUROPE.

* In Connecticut the Senators have two dollars per day, and the Representatives one dollar fifty cents.

[From the Washington Globe.]

Head Quarters of the Army.

DEPARTMENT OF WAR,)

Allowance to the officer disbursing money at the seat of Government, under the regulation of

ROGER JONES, Adj. General.

Bridgewater,	56 52
Clinton Gr. School,	31 00

Hamilton,	198 48
Lowville,	69 26
Ononda Institute,	198 65
Rensselaer, Oswego,	105 73
Sess. of O. & G. Conferences,	
Cannonsville,	349 00
Union, (Jefferson Co.)	43 85
Utica,	195 06
Whitesboro,	193 95
	\$1500 00

SIXTH DISTRICT.

Cherry Valley,	207 50
Cortland,	551 05
Franklin,	189 33
Hartwick,	145 03
Ithaca,	53 87
Oxford,	227 92
Owego,	60
	\$1500 00

SEVENTH DISTRICT.

Auburn,	209 55
Cannonsville,	109 55
Cayuga,	119 71
Onondaga,	56 58
Ontario Female Seminary,	289 35
Ovid,	113 08
Palmyra H. School,	269 45
Pompey,	36 58
Yates Co. Academy and Female Seminary,	206 21
	\$1500 00

EIGHTH DISTRICT.

Fredonia,	279 62
Lewiston,	204 03
Livingston Co. H. School,	75 60
Middlebury,	241 82
Rochester H. School,	513 78
Springville, (Erie Co.),	185 16
	\$1500 00

A true copy. GIDSON HAWLEY,
Secretary of the University.
Albany, Feb. 25th, 1835.

New Census Law.

An act to amend chapter third, part first of the revised statutes, entitled, of the census and enumeration of the inhabitants of the State, Passed March 16, 1835.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. It shall be the duty of the Secretary of State, so to extend the blank returns for enumerating the inhabitants of this State, contained in chapter third, part first, of the revised statutes, that the blind inhabitants of this State shall hereafter be enumerated in the same manner as is now provided by said chapter for the enumeration of the deaf and dumb, and also the number of glass factories, rope factories, chain cable factories, oil cloth factories, dyeing and printing factories, clover mills, paper mills, tanneries, breweries, and the quantity and the value of the raw material manufactured in each, and the value of the manufactured article manufactured in each the preceding year, together with the quality and value of the raw material, and the manufactured article used and manufactured the preceding year in such other manufactures as are enumerated in the revised statutes.

§ 2. The Secretary of State is hereby authorized to forward to the clerks of the different counties, the blank returns and copies of the third chapter of the revised statutes, together with a sufficient number of copies of this act, in such manner as he may deem proper, instead of transmitting them by mail, as required by the third section of said chapter.

§ 3. This act shall take effect immediately after its passage.

FRANK'S MAGAZINE.—In an article entitled "The Songs of Italy," we find a translation of Petrarch's sonnet to the Fountain of Vaucluse, so beautiful that we cannot refrain from extracting it.

Visions of love! ye dwell
In memory still enshrined.—
Here, as she once reclined,
A shower of blossoms on her bosom fell!
And while th' enamored tree
From all its branches thus
Bathed odoriferous,
She sat, unconscious, all humility.
Mist with her golden hair, those blossoms sweet
Like flowers under sunset
Saw their allegiance doated

Due to her flowing robe and lovely feet:
Obey! departing took
Their course adown the brook
Others slept, waited in airy spot,
Seemed to proclaim, "To-day Love holds his merry court!"

TO —

Ou, tell me not of dance or song, of banqueting or ball,
Or of the bright eyes beaming round thy fairy festival;
Oh, tell me not those eyes were blue and holy "like the light
Of cloudless climes and starry skies," or dark eyes still
more bright.

Oh, tell me not of rosy lips, of sunny smiles that weave
Their spell of deep enchantment round—the brightest may
deceive;
Oh, tell me not of braided hair, of spirits bright and free,
They speak of earth and happiness, and what are these to
me?

Oh, tell me not of spring's bright flow'rs, I've seen them all
decay;
Have seen the winds of autumn come and sweep them far
away;
And they who watch'd them in their pride of beauty, can
they tell
Where now may be the dwelling place of all they lov'd so
well?

Oh, tell me not of sunshine's mirth, the murmur of the bee,
Or the glad song of summer birds, for what are these to me?
They do but speak of vanish'd hours of happiness that never
Can reach the heart when blight and wrong are darkly
breeding there.

Oh, tell me not of happy homes,—you little know the sting.
The burning thought of agony that little word can bring.
The darkest bird that tries its wing can find at eve a nest,—
How weary in the spirit, then, that finds no place of rest!

Oh, tell me not of starlight hours, oh, tell me not of love
Oh, tell me not how bright the moon is beaming from above;
Oh, tell me not of youth and hope, but look upon my brow,
And tell me if these words can chase one dark shade from
it now.

Then tell me not of all these things, nor wonder if I seem
To thee a thing so "changeable,"—remember where the
stream

Is deepest, there 'tis darkest too, and o'er its gloomy breast
The sun's bright rays may glance awhile, but never, never
rest!

AGENTS FOR NEW PUBLICATIONS.

HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications:
The New York American Daily, at \$10.00—Tri-Weekly, at \$5.00—Semi-Weekly, at \$4.00 in advance.
The American Railroad Journal, Weekly, at \$3.00 per annum.

The Mechanics' Magazine, two volumes a year, at \$3.00 per annum.
The Quarterly Journal of Agriculture and Mechanics, at \$5.00 per annum, or \$1.25 per number.

The Family Magazine, 416 pages a year, at \$1.50 in advance.

The Monthly Repository and Library of Entertaining Knowledge, of 36 pages a month, at \$1.00 in advance, new in the 5th volume, bound volumes \$1.25

The Ladies' Companion, of 54 pages a month, at \$3.00 per annum, in advance.

The Rochester Gem, at \$1.50 in advance.

All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 19, 1834. n66 Cif.

SUPERIOR GARDEN AND AGRICULTURAL SEEDS.

The Subscriber has now on hand a full supply of Garden and Field Seeds growth of 1834; among which are all the finest cabbages, cauliflower, broccolis, radishes, peas, &c., that are cultivated in England, France, and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store I warrant genuine and fresh.

Also, skinkless oats, potatoe oats, 44 lb. weight to the bushel, perennial rye grass, white clover, lucerne or French clover, orchard grass, Herd's grass, white mulberry, and yellow locust seeds, spring tares or vetches, genuine mangel wuzel, and ruta baga, and field turnip, seeds well worth the attention of farmers.

Canary, Hemp, Rape and other bird seeds; wholesale dealers supplied on accommodating terms. Price lists by the pound and bushel furnished on application, so also catalogues of whole collection.

The flower seed department embraces the choicest variety to be found in this country, in which are included choice double double Dahlia seed, carnation and choice Pinks, German and China Anters, splendid double balsams, with an addition of several new varieties, accompanied with a printed direction for culture and management.

Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable, it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money.

W. THORNBURN, 347 N. Market st. (opposite Post Office.)

* Mr. Thornburn is also Agent, and will at all times receive subscriptions, for the New York Farmer and American Gardener's Magazine; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. Muro. F—Feb 11

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. N.Y. 1834

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.
Leveling instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J21 St.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J35 if

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1833. A29 (C) RMAF

MILL DAM FOUNDRY FOR SALE,

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 20, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 130 feet by 40, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 60 feet by 45, with a superior air Furnace and two Cupolas. Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Gears, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 300 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Y and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggon, could be made per annum.

For terms, apply to

THOM. J. ECKLEY, Treasr. &c., Boston, or to ROBERT RALSTON, Jr., Philadelphia. Boston, Dec. 20, 1834.

[From the New-England Farmer.]

COLD WEATHER.—The facts stated by Mr. Breck, in your paper of January 14, respecting the difference of cold on the high and low land in still cold weather, are undoubtedly true, although I am not aware that it has been generally known. I have conversed respecting it for many years, but have found almost all persons incredulous.

My house is elevated from fifteen hundred to two thousand feet above tide water. And I learned from my feelings, many years since, that in still cold weather, the cold in the night and early in the morning was much more intense in the valleys than on the high lands. I have many times left my house at sunrise, when the cold was not uncomfortable, and in an hour descended a thousand feet, where I found the cold very intense. I have as often, in very cold still evenings, when the weather was constantly growing colder, ascended from the same valley, when I was almost frozen, and constantly as I ascended grew warmer until I came to my house.

Every person acquainted with the business of making maple sugar, knows that frost is necessary to the manufacture of it. The sap will not run from the tree more than twenty-four hours after it is thawed, until it is again frozen. In the sugar season, which is in this country from the middle of March to the middle of April, the trees are generally frozen in the night and thawed in the day, when the sap runs. In one fourth part of the year, there are many days in succession in which no sugar is made very near me from the want of frosts. Whereas, at the same time, people living not more than six hundred rods distant, but on ground a few hundred feet lower, make it constantly with great success. This happens only in still, calm weather. This circumstance cannot lie, however variant and improper the construction of thermometers may be.

I now come to the observations made on different thermometers, and I can only compare those in this vicinity, except so far as they have been communicated from different places this winter.

I will first remark, that my thermometer generally indicates a less degree of heat, or greater degree of cold, than the thermometers in the valleys in this vicinity. The average difference for this year is six to seven degrees.

I see it stated in your paper of Jan. 14, that the thermometer at Montpelier, in Vermont, stood on December 26th, in the morning, at 28 degrees below zero. Of this I had heard before. Mine, which is also Fahrenheit, stood at 11 degrees below; a difference of 17 degrees. I am eleven miles from Montpelier, and elevated probably twelve or fifteen hundred feet above that place.

At 9, P. M., of January 3d, my thermometer was at 20 degrees, and at sunrise of the 4th, it was 23 degrees below zero. At Montpelier that morning, the mercury was frozen, as it was also in another valley four miles from me. In another valley, in a different direction, five miles from me, the thermometer was 40 degrees below zero. This last thermometer, by a comparison, ranges exactly with mine. The two last mentioned valleys are, probably, a thousand feet below me. On the morning of January 11th, my thermometer was 14 degrees above zero. In the valley five miles from me, it was 11 degrees below at the same time, and the same at Montpelier, a difference of 25 degrees. On the morning of January 12, mine was 16 degrees above

zero. In the valley five miles from me, it was 10 below; a difference of 25 degrees.

Mr. Breck put his thermometer, on the morning of Jan. 10, at 14 degrees below zero; mine was seven above, although two degrees further north.

After the cold morning of the 4th, my thermometer the five succeeding mornings stood as follows:

Jan. 5, zero. For a fortnight, commencing before the cold weather, and ending after it, the air was unusually still.

6, 14 below.

7, 19 do.

8, 12 do.

9, 1 do.

The thermometer on this day, Jan. 9th, was 10 degrees above zero at 1 P. M.

My thermometer is at the north end of my house, facing directly to the north, and three feet from the ground.

During the last six years the thermometer has been lower two or three times in each winter, in still cold weather, in the valleys, than mine was at the same time. But the difference that has come to my knowledge, has never before this winter been more than thirteen degrees.

There has been but one colder morning here than that of the 4th of January for the last six years, and that was the 19th of January, 1853. The cold was then 26° below zero.

As to the cause of the unusual depression of the mercury in the valleys, which Mr. Breck seeks to learn, I do not profess to have much knowledge. However, I am willing to show you my opinion.

It is known that the air is generally heavier, and more dense in the valleys, than on the adjacent high lands, and it is therefore capable of containing more cold and frost.

As to the other branch of Mr. Breck's inquiry, "Whether, if there had been any wind the cold Sunday morning, there would have been any difference between the temperature of the hills and valleys?" This question I answer in the affirmative, without any hesitation. But the difference would have been the other way, if there had been much wind. It is a question that cannot be settled by theory, but it may by facts. And the facts which I shall adduce will show that the cold, in a cold windy time, is greater on the high lands than in the valleys, by several degrees.

From observations I have made for several years past, I have found that my thermometer has stood in the morning in very cold windy weather, eight or ten degrees lower than those in the valley before alluded to. Indeed, whenever the thermometer is below the freezing point, and the wind strong, the cold is greater here than it is in the valleys. But the extent of the difference depends on the intensity of the cold, and the strength of the wind. And a greater difference in such cases than ten degrees has not come within my knowledge, and then the thermometer on the high lands was 20 and 22° below zero, and that in the valleys 10 and 12° below.

I think the cause of this difference is not so easily accounted for as in the other case. If it should be said, as I have often heard said, that the high wind blows the dense cold air to the high lands, how would the less dense and warmer air descend into the valleys to take its place? This would be against the laws of gravitation.

To be continued.]

RAILWAY IRON.

25 tons of 1 inch by 1 inch,	Flat Bars in lengths of
200 do. 1 1/2 do.	14 to 15 feet, corner sunk
40 do. 1 1/2 do.	holes, spaced at an angle
800 do. 3 do.	of 45 degrees, with splicing
800 do. 3 do.	plates and nails to suit.

soon expected.
250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.
Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 32, 36, and 41 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. BALSTON,
9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71maww

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale every extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent), are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory, for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1851.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

132am

H. BURDEN.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy; also a Railroad Goniometer, with two Telescopes; and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG.

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1852.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee, the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1853.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

German town, February, 1853.

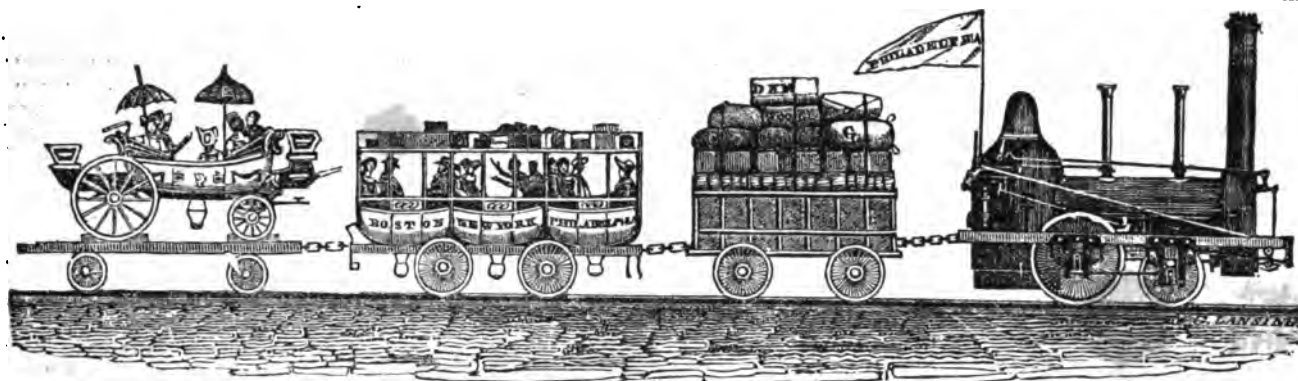
For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a "level" with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

Germany, and Norristown Railroads

mlly



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, APRIL 4, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, APRIL 4, 1835.

We tender our thanks to the Hon. C. F. MERCEUR, for a copy of his Report on Roads and Canals, to Congress, in April, 1824.

Also, to Col. WETMORE, of the Assembly, and to JOHN B. JERVIS, HOLMES HUTCHINSON, and FREDERICK C. MILLS, Esqs., for copies of their Report relative to the cost of Canals and Railroads.

NEW-YORK AND ERIE RAILROAD.—The first feelings of indignation towards those who caused the rejection of the bill to aid and expedite the construction of the New-York and Erie Railroad, having subsided, the liberal mind naturally seeks for the cause why those citizens who have been so much benefitted by the canal system, are so hostile to a project which promises so greatly to facilitate the business and intercourse of the State? Is it purely out of charity to their less enlightened neighbors, who have been so unfortunate as to "reside in those counties so largely infested by wolves?" Or is it for want of intelligence, and a just knowledge of the true merits of the question? Or rather, Pure selfishness—which induces them to believe that the route past their doors must of course be the most direct to market—even if it should be the farthest way round?

It is true that the favored many, who have been made so, and become so, by the liberal policy heretofore adopted by liberal men, and by them designed to be continued as the settled policy of the State, have mingled more with society, and may therefore be more courtly and polished in their manners; but we should doubt exceedingly

of their being more honest, or more deserving; and therefore we shall see whether they will vote their noble selves the necessary amount to complete those now constructing—to enlarge those now in use—or to commence new works?

The following paragraph from an Oswego paper does credit to the Editor.

"It is with feelings of mortification, disappointment and regret, that we announce the defeat of this bill in the Assembly, on Friday of last week. The vote stood 61 to 45! Who could have calculated upon such a result? Who, in view of the strong claims which the southern tier of counties have upon the State, and the acknowledged importance of the proposed road, who could have anticipated such a course, at the hands of a Legislature claiming to be honorable and high minded? No one. We do not hesitate to say, that their conduct has been illiberal and unjust in this matter, and dishonorable to them as legislators.

But we console ourselves with the conviction, that the matter is not going to rest here. This road must and will be built. The intelligent and enterprising citizens of the south western counties will never suffer themselves to be duped in this manner. They have RIGHTS, which they will be bold to assert, and we trust found able to MAINTAIN. If treated in this way, they will be driven to the ballot box for redress. There they can make themselves heard—and there they will be found. For our humble self, we would wave every political consideration, rather than submit to a system of persecution, so unjustifiable and so dishonorable. No man shall have our vote, whether for Governor, or a less responsible station, who has not foresight enough, and firmness enough, and independence enough, to come out boldly and independently in favor of this grand improvement."

IMPORTANCE OF INTERNAL IMPROVEMENTS.—Does any person desire a more convincing proof of the immense value of works of internal improvement, than the annexed paragraph?

The extent of the Coal trade prosecuted on the Schuylkill may be inferred from the fact stated in a paper presented to the Legislature of Pennsylvania in reference to the removal of the Seat of Government to Pottsville—"That the aggregate of all shipments to foreign countries from the seventeen Collection Districts, commencing with Amboy and ending with Wilmington, (N. C.)—which included all Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, and the chief ports of North Carolina,—barely exceeded the shipments of coal alone from Schuylkill county in 1833, ton for ton; and that if the trade of the Schuylkill had its station among the 'total value of exports' of the United States, her shipments of coal alone (including toll and freight

to Philadelphia) would amount to one eleventh of the whole."—[Baltimore American.]

If they do, they must be operated on by a wonderful degree of self-interest.

AVERY'S ROTARY ENGINE.—In our brief notice of this Engine in the last number of the Journal, we omitted to state a very important fact in relation to the construction of its boiler and chimney.

It has been deemed a very important matter, and great efforts have been made, to construct locomotives in such a manner as to avoid the danger arising from sparks from the chimney—with what success others have met, we cannot say; but in this respect Mr. Avery has been eminently successful—as when we were with it, in running near ten miles, not a particle of fire was discovered to issue from the chimney—and we are told that neither fire nor cinders ever annoy passengers, as they never come out of the chimney.

From farther experiments and investigation in relation to this engine, we are disposed to predict—although no pretensions are made to the gift of prophecy—that a Locomotive Engine will be constructed upon Avery's plan, within the next six months, which shall make a trip from Jersey City to Newark, and back again to the Ferry, in 45 minutes, with 100 passengers—passing the Bergen Hill, with an elevation of 152 feet to the mile.

Chesapeake and Ohio Canal.—The Uniontown Democrat has the following paragraph in relation to this important work:

"The Legislature of Maryland has appropriated two millions of dollars for the prosecution of the Chesapeake and Ohio Canal, which it is thought will secure its completion eighteen miles above Cumberland."

This will bring the termination of that great work within about ninety miles of Pittsburgh, and there is already a good road throughout the whole intervening distance. From the same point to Wheeling, the distance will not be less than one hundred and thirty miles.—[Pittsburgh Gazette]

Remarks and Calculations on the best form for Railway Bars, and on the defects which exist in the present method of supporting the same. By R. STEPHENSON, Engineer.

It is abundantly proved, both by experiment and mathematical demonstration, that when a beam is supported at both ends, and sustains a load, either uniformly distributed over the whole length, or placed at any point between the supports, it is of equal strength throughout, if the form be a semi-ellipse. In practice, this form is al-

most invariably adopted as the most economical, giving the greatest strength with the least quantity of material, especially in cast iron, which admits of the elliptical shape being accurately given to the beam. So long, therefore, as cast iron was employed for railway purposes, the elliptical rail was adopted by common consent. The circumstance, also, of this kind of rail, when carefully proportioned, scarcely ever breaking in precisely the same part of the length, proved experimentally that the form given to them was a close approximation to that of equal strength.

On the substitution of malleable for cast iron for railway bars, it was considered impracticable to give the elliptical shape to the rails; the first malleable iron rails were, consequently, made parallel, or uniform in depth, throughout the whole length between each bearing. This deviation from the elliptical form was deemed, by some engineers, a serious defect; so much so, that the extension of the use of the malleable iron for railway bars, was for some time retarded: this difficulty, however, was surmounted by an ingenious application of an eccentric roller, by which a form was produced, which, though it did not correspond accurately with the equation of the ellipse, yet approached it so nearly as scarcely to admit of any deviation being made with advantage.

Since the introduction of this form for malleable iron rails, some engineers have returned to the original parallel rail, conceiving that the application of the eccentric roller tends to destroy the uniform arrangement amongst the fibres of the iron, which in the parallel rail may be reasonably considered to extend uninterruptedly from end to end of the rail, which is, consequently, better prepared to withstand the kind of strain to which it is to be subjected.

Now far this anticipation is correct, is evidently more a matter of experiment than of calculation; it may, however, be interesting, in the first place, to compare the relative theoretical strengths of the elliptical and parallel rails, on the supposition that they are of the same weight for a given distance; and afterwards to compare the theoretical deduction with experiment, which will show the dependence to be placed on the application of the formula to cases where experiment is not within reach.

It is well ascertained that the transverse strength of beams varies directly as the breadth and square of the depth, and inversely as the length. It may be represented thus, $\frac{b \cdot d^2}{l}$; when b = breadth,

d = depth in the middle of the length, and l = length. In comparing the parallel and elliptical rails, the breadth and length may be taken as constant; the relative strength will therefore vary as d^2 . Now, if d = depth of the elliptical rail in the middle, and x = the difference of depth between the middle and the ends, (or what is usually denominated "the belly of the rail," $d - \frac{1}{2}x$ will be, nearly, the depth of a parallel rail of equal weight; the relative strengths of the two rails will therefore be as $d^2 : (d - \frac{1}{2}x)^2$, or, $1 : \frac{(d - \frac{1}{2}x)^2}{d^2}$.

The last fraction is clearly less than 1; consequently, the strength of the parallel rail must always be less than the elliptical, and will depend on the magnitude of x , or the swell of the rail.

In the view just taken, it will be observed that the projecting ledge on each side of the vertical rib, forming the surface of the rail,

has made no part of the consideration, because it is common to each kind of rail. It is not difficult to introduce it, but it would add to the intricacy of the formula, and would give a result a little more in favor of the elliptical rail, as it would elevate the neutral axis, and thus operate in favor of that rail which has the greatest depth.

The above formula applies merely to a vertical pressure; but as railway bars are also subject to severe lateral strains, it may be well to point out, in this respect, where the elliptical rail still has the advantage.

A lateral strain upon a railway bar is evidently nothing more than a vertical pressure, if the rail be supposed laid upon its side; the same formula then applies, making b and d change places; for what was the breadth in the former case, now becomes the depth, and as the depth and length are supposed the same, the relative strengths will be directly as the breadths; that is, as $b : (b - \frac{1}{2}x)$.

These results are, however, only applicable to the calculation of the ultimate strength; but in considering the relative advantages of railway bars, the ultimate strength of which ought, in all cases, far to exceed the working strain, it would appear that the quantity of deflexion, rather than the breaking load, ought to be the measure of their comparative merits.

It will be readily admitted, on a little consideration, that great, if not absolute, rigidity is extremely desirable in a railway bar; and, though it may be impossible to attain this object, we are justified in making every effort to approach it, by adopting that form of rail which possesses the greatest stiffness, with the least quantity of material. It is in this respect that the increased depth of the rail, obtained by making the longitudinal section a semi-ellipse, produces a very sensible advantage, and places the merits of the latter form in a much stronger light, than the comparison of the ultimate strengths.

The stiffness, or rigidity, of beams has been proved by Barlow, Young, Tredgold, and others, by a great variety of experiments, to vary directly as the breadth and cube of the depth, and inversely as the cube of the length. When, therefore, the lengths and breadths of the two beams are the same, the relative stiffness will be as the cube of the depth only. Now, the depths at the middle of an elliptical and parallel rail of the same weight, have already been stated to be as $d : d - \frac{1}{2}x$. The relative stiffness will therefore be as $d^3 : (d - \frac{1}{2}x)^3$, or as $1 : \frac{(d - \frac{1}{2}x)^3}{d^3}$, a proportion much

more in favor of the elliptical rail, than that previously stated as representing the ultimate strength.

This ratio, it must be observed, requires modification, owing to the circumstance of a parallel beam being more rigid than an elliptical beam of the same depth in the centre; this deduction, however, is not such as to interfere in a great degree with the result indicated by the formula, as will be shown by the experiments adduced in the sequel of these remarks.

In determining the form of railway bars, little, if any, attention has been paid to the question of deflexion; it appears, therefore, the more necessary in this instance to consider its effects, as it is apprehended that it is productive of several injurious consequences, which have hitherto been attributed to a wrong cause. The usual method of uniting the rail chairs and blocks, by keys and pins, tends clearly to form the whole into an inflexible line, no one part

being capable of changing its position, without producing a corresponding change, or distortion, in the adjoining one. Immediately, therefore, on the slightest deflexion taking place in the rail between the supports, the position of the key which connects the rail and chair is disturbed, as it necessarily has a tendency to assume the same angular position as the rail. If this tendency is resisted by the grooved recess in the chair, for the reception of the key, the effect is merely to transfer the tendency from the key to the chair, which is thereby made to rest on one side, or arris, of its base, and on the other alternately. This continual transfer of strains from the rail to the key, from the key to the chair, and, finally, from the chair to the block, or sleeper—originating from the deflexion of the rail—never fails to destroy one or both of these connections; thus giving rise, not merely to perpetual expense in replacing keys, but to a continual jarring noise when carriages pass over them, from the looseness of the rail and key in the chair. Now, it being absolutely impossible to make the rail between each two supports perfectly inflexible, it seems only reasonable to conclude that every attempt to connect the parts, so that one portion of the structure partakes, in a greater or less degree, of the movements of the adjoining one, must be abortive. This is on the supposition that the inevitable deflexion in the rail is the only source of derangement; but when we add to this, the constant settling of the foundation upon which the blocks are placed, as well as the unequal yielding of the same, which destroys the parallelism between the surface of the rail and the bed of the block, the consequences just alluded to present themselves with increased force.

These reflections appear to countenance the conclusion that much advantage would be derived from the adoption of some method of connecting the rail and chair, which would admit of deflexion in the rail, as well as a change in the position of the block, without destroying the accuracy and efficiency of the connections.

A model of rail and chairs, contrived with the view of obviating the imperfections arising out of what may be termed the "inflexible" plan of connecting the rail and chair, accompanies these remarks. The method described by the model is not affirmed to be free from objection, but is suggested as much less objectionable than the method usually followed, and may be regarded as a step towards that perfection which, it is hoped, will, ere long, be attained in this very important part of the construction of a railway.

If the view here taken be correct, that is, if the deflexion of the rail is one of the principal causes of the present rapid working loose of the rails, keys, and chairs—which would continue to be the case, even after the road has obtained a firm and solid foundation—it is evident that, in order that the quantity of deflexion may be diminished, a stronger rail than has been hitherto employed, is desirable, independent of any consideration in reference to increased weights to be conveyed.

The next, and perhaps the most apparent cause of derangement in the accuracy of a railway, is the yielding of the material which supports the road; and as the practical operation of this shrinkage points to a comparison between the parallel and elliptical rail, it may be well to direct attention to it in an especial manner.

When a malleable iron railway bar is first laid and adjusted, each support throughout the five yards, (the ordinary length of each

rail,) may be considered as duly performing its part. Immediately on any of the intermediate supports yielding, or falling below the general level, from the unsoundness, or from the consolidation of the ballasting, the block is forced, by the superincumbent weight, deeper into the ground; as soon as the weight has passed over, the elasticity of the iron (which is not destroyed) causes the surface of the rail to resume its original level; it cannot, however, do this, without lifting the block from the bed, or foundation, into which it was forced, during the progress of the weights along the rail. This effect is not perceptible, until the operation has been frequently repeated; but it is easy to perceive, that as long as the elasticity of the rail remains perfect, and the solidity of the foundations of the road imperfect, the operation of alternately forcing the block deeper into the ground, and suspending it by the elasticity of the rail, must, as a necessary consequence, be going on in every railway where long malleable iron rails are employed, with several supports under each rail. It is obvious that each block so lifted, (on weights being passed over the rail,) must be forced as by a violent blow upon the foundation, thus rapidly accelerating the sinking of the ballasting, and the destruction of the parts, when once allowed to become defective. Now, the tendency to the operation just described, can only be counteracted by increasing the weight of the blocks, and diminishing the elasticity of the rail at the point of bearing; it is, however, impracticable to adopt either of these expedients to an extent that would, in a material degree, approach to the removal of the effect, because any feasible increased weight of block is inappreciable, when compared with the elasticity of the rail. The effect is mentioned in this place, merely to prove that the reduction in strength at the point of support ought not to be looked upon as a defect in the elliptical rail; indeed, it may be made to appear that such a reduction is desirable, rather than the contrary: it will, therefore, be necessary to show that these observations respecting the suspension of the blocks, and the rapid succession of violent blows, like that of a ram, upon the ballast, are not merely ideal.

This is forcibly illustrated by a comparison of the expense of keeping malleable and cast iron railways in order, the latter scarcely exceeding one half the former, and in some cases (if report is to be received) rather less than that proportion.

It may, perhaps, be objected, that a comparison between cast and malleable iron, on different railways, is not a suitable criterion, as the traffic and speed may be so far different as to account for the difference of expense; this objection is, fortunately, not tenable, as applied to the Darlington Railway, because there the cast iron rails are placed on an embankment, over which the traffic and speed are the same as on other parts of the line. Here the comparison is decidedly in favor of the cast iron, and, as I have been informed, in about the proportion above stated; and, although I have not been able to obtain an exact detail of the expenses of each, the chairman of that railway company informed me, that after careful and minute examination, he had completely satisfied himself on the point, and as it corroborates my own observations, I am led to regard it as a well established fact. The only difference in construction between the two descriptions of rails, consists in the cast iron rail having a flexible joint above each support; when, therefore, the foundation sinks, the blocks sink with it; but, there being no re-action,

from the elasticity of the rail, the blocks never become suspended; consequently, the ram-like action is never called into play. This leads to the conclusion, that flexibility above the supports is not so weighty an objection to the elliptical rail as has been imagined.

It has been sometimes urged as an advantage in favor of the parallel rail, that the great strength above the supports enables it to sustain the load, even though the block may have sunk below the original level. If this be true, it appears to amount to little more than an admission that it is unnecessarily strong when supported by the blocks, which it in fact always is, because the deflexion of any railway bar of the ordinary strength, where the supports are six feet apart, would be so great as to render rapid velocities more destructive than they are; for the deflexion being directly as the cube of the length, would be eight times greater than where the rail is supported at every yard; moreover, the supports of a railway should never be allowed to assume that condition, in which one-half of the blocks are supposed to become useless. Preparing, therefore, by the adoption of parallel rails, for circumstances which it is not only practicable to avoid in a public line of road, but ought never to be allowed to take place, appears at least unnecessary; but when it is recollected, in addition to this, that the material thus expended in adding strength to the rail, above the supports, may be applied to other parts of the rail, where strength is more required, it certainly increases the inducement to follow the elliptical form.

The difficulty of manufacturing, and a proportionate increase of expense in, the elliptical rail, have, it is believed, been the principal causes of its rejection by some. To these I have endeavored to give the most impartial consideration; and with respect to the difficulty of manufacturing, if any really exist, I am convinced it arises from inexperience, as the operation consists, in addition to the rolling of ordinary bar iron, of merely once or twice passing it through the rollers by which the elliptical shape is given. That this should be considered a difficulty, creating an objectionable expense, is somewhat remarkable, since it occupies but a few seconds.

It is not improbable that the true source of this objection, (which arose originally, I believe, with some iron-masters,) is to be found in the fact that it is difficult, if not impracticable, to introduce into the elliptical shaped rail, iron of inferior quality, as the nature of the process almost invariably detects it. This is a recommendation so palpable, that an endeavor has been made to countervail it by stating that the process by means of the eccentric roller destroyed the continuity of the fibres, and injured the strength of the rail. Experiment, of course, is our best guide, and on referring to this test, it does not countenance the supposition that iron, of the best quality, is sensibly injured by the process of rolling into the elliptical form. An examination of the table hereafter referred to, will be a sufficient reply to this objection.

On a comparison of the chairs required for these two descriptions of rail, it will be found that they differ considerably in the depth of the recess for receiving the rail, that for the parallel rail being deeper, and the whole body of the chair higher, thus elevating the centre of gravity of the rail above the bearing surface at the bottom of the chair. Now, the chair for the elliptical rail is lower by a quantity equal to the swell of the rail, which of course brings the centre of gravity of the rail nearer to the bottom

of the chair. This difference in the construction of the chair renders lateral blows less effective in straining it, and contributes much to the steadiness of the rail in the vertical position, supposing each fitted with equal care and accuracy.

When the period arrived for laying down the rails on the Newcastle and Carlisle Railway, a difference of opinion existed amongst the engineers consulted by the Board of Directors. This occasioned them to resort to actual experiment upon rails, expressly made by the advocates of each class. They weighed 50 lbs. per lineal yard, and were designed of the form and dimensions deemed most suitable for such a trial, by each party. The following table describes each experiment, with every detail. The care taken throughout the experiments is evinced by the minutiae of the measurements, the deflexion being ascertained to be less than the $\frac{1}{1000}$ part of an inch at every increase of load.

Experiments on the Comparative Strength of Different Malleable Iron Rails, Oct. 10, 1832.
[Deflexion measured in 1088th parts of an inch.]

Fish-bellied rail, length 15 ft. 9 3/4 inches, weight 262 lbs., equal to 49.3 lbs. per yard.									
Weights applied midway between bearings, in cwt.	Bearings, 3 ft. 0 15-16 in. apart.		Bearings, 6 ft. 0 5-8 in. apart.		Bearings, 9 ft. 3-16 in. apart.		Bearings, 12 ft. 3-16 in. apart.		Deflexion, 15 1/8 in. from one bearing, and 30 1/16 in. from the other.
	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	
20	2	2	17	17	5	4			
34	4	4	43	38	9	8			
48	6	5	63	60	15	14			
62	9	8	89	81	21	19			
76	12	11	112	94	29	25			
90	16	14	121	110	35	31			
104	19	16	156	144	42	36			
118	22	19			48	41			
132	25	21	Perm. Def'n, 12.	Perm. Def'n, 12.	56	46			
146	28	23			63	54			
160	32	27			69	61			
174	35	29			76	68			
188	37	30							
202	41	33							
216	44	35							
230	48	36							
No permanent deflexion.									

Parallel rail, length 10 1/2 inches, weight 262 lbs., equal to 48.47 lb. per yard.									
Weights applied midway between bearings, in cwt.	Bearings, 3 ft. 0 15-16 in. apart.		Bearings, 6 ft. 0 5-8 in. apart.		Bearings, 9 ft. 3-16 in. apart.		Bearings, 12 ft. 3-16 in. apart.		Deflexion, 15 1/8 in. from one bearing, and 30 1/16 in. from the other.
	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	Deflexion, 21 1/16 in. from one bearing, and 24 1/8 in. from the other.	
20	3	3	14	14	8	6			
34	8	6	40	37	16	14			
48	13	10	69	67	24	21			
62	18	12	84	79	32	28			
76	23	16	110	104	41	32			
90	28	20	138	131	48	39			
104	34	23	161	153	55	45			
118	38	26	Perm. Def'n, 4.	Perm. Def'n, 3.	60	50			
132	43	30			69	58			
146	47	44			78	65			
160	50	30			87	72			
174	55	41			97	80			
	Perm. Def'n, 3.	Perm. Def'n, 2.			Perm. Def'n, 9.	Perm. Def'n, 8.			

Fish-bellied rail, equal to 40.6 lb. per yard.		
Weights applied mid-way between bearings, in cwt.	Bearings, 3 feet 0 1-4 inch apart.	
	Deflexion, 20 inches from one bearing, and 16 inches from the other.	Deflexion, 11 inches from one bearing, and 23 inches from the other.
30	4	3
34	8	7
48	14	11
62	20	17
76	26	23
90	31	28
104	37	31
118	44	38
132	51	44
146	58	50
160	66	55
174	72	61
	Permanent Deflexion, 6.	Permanent Deflexion, 4.

On examining the table, it will be seen that the deflexions were measured at a short distance on each side of the centre, between the bearings. This arose from the circumstance of the weight being applied at the centre, which, of course, rendered it inconvenient to apply instruments at that point for measuring the quantity of deflexion.

Without noticing the results at each addition of weight, as detailed in the table, which is sufficiently explanatory in itself, it may answer our present purpose to take the results indicated when that weight, which will probably be the maximum in practice, was applied, say 62 cwt. With this weight, the bearings three feet apart, and each rail equal to very nearly 49 lbs., the deflexion of the elliptical rail is to the deflexion of the parallel rail as eighteen to thirty, nearly.

If the comparison of the other deflexions exhibited by the table be followed up, it will be found that they do not differ essentially from the above ratio.

If the weights producing permanent deflexion (or that point where the elasticity of the material is destroyed) be compared, it is scarcely less decisive; for we find that 174 cwt. produced a permanent deflexion of three in the parallel rail, whereas 230 cwt. did not reach this point with the elliptical rail.

Referring again to the table, there is only one other point to which I would beg particularly to direct attention, as it seems to corroborate what has previously been stated, respecting the impropriety of relying upon any ordinary railway bar for supporting the load, when the bearings are six feet apart. I allude to the deflexion which takes place with the weight of 62 cwt. placed on the parallel rail, when the distances between the bearings are increased to six, instead of three feet. Here we find, at 34½ inches from one bearing, and 38½ inches from the other, the deflexion amounted to 11½ of an inch, which, in round numbers, may be taken at one-tenth of an inch at the middle point.

Now, it must be borne in mind that this result is with a weight perfectly stationary, and, consequently, unassisted, in any way, by percussion; whereas, a similar load, moving on a railway, oscillates upon the springs of the engines, or carriages, and would produce an effect greater than 1/10th of an inch, but permanent deflexion would take place at considerably less than 1/10th of an inch. We thus have it demonstrated how essential it is to preserve the blocks at a uniform level with malleable iron rails, otherwise the texture of the iron must soon

become permanently destroyed. It also proves how seldom we can take advantage of that which is said to be the chief advantage of the parallel rail, and that only when the railway is in improper order, in which case (as the experiments most distinctly prove) there will be great risk of permanent deflexion.

This brings me to notice an apparent advantage which the parallel rail has over the elliptical rail, but which has never, to my knowledge, been adduced, or much insisted upon. In the parallel rail, any weight, when above a block, or support, is divided more equally over three supports than in the elliptical rail, owing to the greater flexibility of the latter immediately over each block, or sleeper. This, it must be confessed, appears to be a striking advantage; but it must be compared with the fact, that in cast-iron rails, where the flexibility of the rail is reduced to nothing, and where each support in succession bears the superimposed load, without transferring any portion to the adjoining blocks, the expense of keeping the road in order is less than in malleable iron roads. Hence, it seems fair to conclude that the capability, in a rail, of transferring a portion of the strain to the adjoining blocks, is productive of injurious consequences, which are not adequately compensated for by this apparent advantage.

It is worthy of mention that this view of difficulties, or imperfections, arising out of having a number of bearings under one rail, is supported by a case in the construction of machinery, so nearly parallel, that it may be considered absolutely so, and fully appreciated by every practical mechanic. I allude to the difficulty and risk of placing more than two bearings under one axle-tree. It is found so difficult to keep such a construction in order, that it is scarcely ever adopted, and where the axle is long, it is generally divided into parts, making each bearing, and its portion of axle, independent. Now, this is precisely what is done in cast-iron railways; each support and rail has a duty to perform, which it does, independent of any other.

[To be continued.]

The Alabama, Florida, and Georgia Railroad. [For the American Railroad Journal.]

This is a work of great national importance, and a link in the chain of railroad communication which must in a few years be made between the Northern Atlantic cities and the Gulf of Mexico; and more especially, the great South-western Emporium, the city of New-Orleans. The route of this road is from the waters of Pensacola Bay, through Florida, to the dividing line between that Territory and the state of Alabama; and thence through the counties of Conecuh, Covington, Dale, Pike, Butler, Russell, and Barbour, in Alabama, to the Chattahoochee river, opposite the growing and important town of Columbus, Georgia, a distance of 190 miles, or thereabouts. The country through which the contemplated road will pass is well adapted for a work of that character, being almost a dead level the whole distance, with but very few inconsiderable water-courses to cross. This section of the country is said to be fertile and produces the great staple of the South in great luxuriance. It is anticipated that before the road is completed the amount of cotton raised in its vicinity will exceed 100,000 bales, and in five years the amount will not fall far short of 200,000 bales, all of which must necessarily find a market by the means of this road. In addition to this,

the supplies of goods for that whole section, which must be transported by this road, is estimated to amount in bulk to at least 150,000 bales of cotton annually. Another source of revenue to the road will be the direct travel between the North and South, now amounting by stage coaches to 25,000 persons annually, and which will increase in the same ratio the facilities of travelling are augmented. The great Southern mail will also find a speedy and direct transit to and from New-Orleans by the means of this road, with not only an immense saving in time but expense.

An examination of the topography of the country through which this road will run, will at once show its great utility, not only in times of profound peace, but in the hour of danger. The Alabama river on one side, the only channel through which the people of the up-country carry their produce to market and receive their supplies, is generally so low for at least six months in the year, that it is unnavigable for any thing else but flat boats and barges, always dangerous as well as dilatory conveyances, and in this period is generally included an important business portion of the year, viz. November and December, at which time the cotton is ready for market, but the planter cannot get it there to avail himself of the high prices with which the market most generally opens, and to receive his supplies of cotton bagging, salt, groceries, negro clothing, &c.: articles always essentially important, but especially at that juncture. The Chattahoochee is liable to the same objections as the Alabama, and similar difficulties exist with regard to its navigation. This road, commencing opposite the town of Columbus, the head of navigation on the Chattahoochee river, and running within a few miles of the Alabama river, will afford, at all seasons, the planter and merchant a *speedy, direct, certain and cheap* communication with the harbor of Pensacola, decidedly the best south of the Chesapeake: a harbor unrivalled in the South on account of its easy access; its capacity to admit ships of the greatest burthen, the salubrity of its climate, and its peculiar location, being the point from whence the whole commerce of the Gulf can be protected from piracy and foreign aggression. It is doubtless known that since the acquisition of Florida, the Government has considered Pensacola harbor the most important on the Gulf of Mexico—that it has established there a Navy Yard upon a large scale—that it is the rendezvous for the West India Squadron—that a large and impregnable fortification has just been finished, and another in progress, for its defence.

With regard to this project, we understand that in the month of December, 1833, a public meeting of the citizens of Pensacola was called, to take into consideration the practicability of the proposed road; that after mature reflection and great research, it was not only deemed feasible, but the examinations clearly demonstrated, that in a pecuniary point of view it promised to be a road yielding great profit. Application was made to the Alabama Legislature, then in session, for a charter, but in consequence of the short period before its adjournment, there was no definite action thereon. In November last a special agent was sent to the same Legislature, who succeeded in obtaining a favorable charter. The Florida Legislature at its recent session gave its assent to that charter, and authorised the continuance of the road from the Alabama line to the waters of Pensacola Bay, and at the same time amended the charter

of the Bank of Pensacola, (a bank now in high credit,) and increased its capital to \$2,500,000, with authority to subscribe for, or purchase at par value, the stock of the railroad. To enable the bank to make the purchase or subscription, it is authorized to issue bonds of \$1000, bearing an interest of 6 per cent., payable semi-annually, and redeemable after the year 1880, the payment of which (both principal and interest) is guaranteed by the Territory, and its faith pledged. We think the members of that Legislature have conferred a lasting benefit, not only on their immediate Territory, but the whole country, by their liberal course of policy in granting the amended charter of the bank with the guaranty and faith of the Territory, which is well guarded by the charter, and at once rendered secure. Measures have already been taken to effect a sale of the bonds, and we understand that there is not the least doubt entertained but that it will be effected at a premium; indeed, we cannot see how it can be otherwise, when the security offered is so satisfactory, and the work to be executed so important. It is contemplated that the work will be speedily commenced, and steps have already been taken to secure the services of the most distinguished engineers in the country.

A superficial view of the map convinces us that this is only the commencement of a series of works of similar character. This road must be connected with a road to the valley of the Tennessee river, a liberal charter for which has already been granted by the Alabama Legislature to the people of Montgomery. This work is consequent upon the one now about to be commenced, and we should not be deemed visionary, when we declare, as our solemn conviction, that Pensacola will, in five years, be what it was designed by nature, a town of the first commercial importance.

UNITED STATES NAVAL HOSPITAL, }
near Pensacola, Feb. 18. }

DEAR SIR: I have had the honor to receive your letter of the 11th inst. in which my opinion is requested on certain points relative to the salubrity of Pensacola. It will afford me great pleasure at all times, to give you such information as I may possess, and in attempting on this occasion to comply with your wishes, I will begin by stating your questions:

"1st. Is there any natural cause in the situation of Pensacola to render it subject to bilious or yellow fever?"

"2d. What seem to be the causes of the visitation of bilious and yellow fevers to Pensacola about once in six or seven years, after intervals of perfect health? Can these causes be remedied, and how? and at what probable expense?"

"3d. Is, or is not, the climate of Pensacola especially beneficial to persons suffering from diseases of the chest—equally so with St. Augustine—and much more so than New Orleans, Mobile, or any Southern cities situated on rivers, or affected by fresh water air?"

The natural causes of bilious and yellow fevers in Pensacola are extremely few, situated as it is on an arid plain, remote from any fresh water river.

The chief element in the generation of diseases, is decayed vegetable matter. If animal matter be added, the cause will be more active, and the disease will be somewhat modified. Heat and moisture must be superadded to these. The scrubby oak, the dwarf pine, and the fine sand of Pensacola, proclaim their inadequacy to the production of vegetable matter, the essential ingredient, and indeed, the *sine qua non* of the cause of yellow fever. The stream which nearly encircles the city, it is true, gives life and vigor to a growth of shrubbery, but the shrubbery is evergreen, and its leaves only drop gradually and singly, (being continually renewed by other leaves,) and are instantly immersed in that lively little

stream which is ever gushing from its bed, or they find a screen from the rays of the sun in the thick shade that covers it. These springs of water are remarkable for their purity and softness: they commence nearly opposite the centre of the city, and running in different directions, form an estuary with the waters of the bay, one above, and the other below the city, about a mile from each other. It is to be observed, that the breadth of this springy ground varies from ten or fifteen, to one hundred, and even two hundred yards, and generally, though not throughout, it is a purely sandy bottom. There are some few spots only, in which rich mud is largely mixed with the sand.

This part of the subject will be left for the present, to be reverted to in the consideration of the second question. And here, I must dissent from the admission, that bilious and yellow fevers do visit Pensacola often as once in six or seven years; as I do not find on record any account of these diseases reigning here previous to our times, except those given by Dr. Lind, which occurred in 1765. This author, however, only informs us that a mortal sickness prevailed in a regiment newly arrived from England. He does not mention that it affected the inhabitants, and states, that on board the ships in port every person enjoyed good health. Some of the old inhabitants of Pensacola, who are noted for accuracy of observation, inform me that they had the fever in 1811; these two, added to the visitations of 1822, '27 and '34, seem to constitute the sum of its history here, both written and traditional.

We have in possession certain facts, which lead with great readiness to the answer of the question, "What seem to be the causes of the visitations of the yellow fever to Pensacola?" And the most striking and important one is, that neither this disease nor any of its family has ever occurred here, except in consequence of the absence of rain in July and August. This circumstance is of exceedingly rare occurrence, so much so, that those mouths are proverbial for being prolific in copious showers accompanied with thunder and lightning. Yet it cannot be admitted, that dry weather alone at the period above mentioned, will with certainty bring yellow fever at Pensacola; for although the springs above described, become rather lower and leave some dead vegetable substances exposed to a high temperature, those of us who are familiar with their copiousness cannot conceive that there is ever sufficient pabulum supplied from this source alone to impregnate the atmosphere with deleterious effluvia. The nuisances of the city create other impurities in the air, which, united with the exhalations from the margins of the streams, form a poison sufficiently concentrated during unusually dry seasons to cause yellow fever. No one acquainted with Pensacola will deny that the back yards of a majority of the inhabited lots exhibit a fearful accumulation of "unclean things," which remain undisturbed equally by the police and by the occupant. From the proximity of the springs to the surface, the sinks are shallow, and are very liable to overflow and "scatter their odors to the winds." There can be but little doubt that the mass of rotten sea-weed which lay upon your strand all last summer, the stench of which is still strong in our recollection, should be added to the list of city nuisances. It will be readily suggested to any one how easily these substances may be removed, and their qualities neutralized. Fifteen years ago the city of Baltimore was visited annually with sporadic cases of yellow fever. They had their origin in local causes, which were pointed out by members of our profession, and removed by an enlightened police. Professor Potter, of the University of Maryland, has repeatedly said in his lectures that the time was not far distant when communities would be so well informed on the subject of the fevers in question, that it would be considered criminal in the authorities to allow them to occur in large cities. This prediction is now almost literally verified in his own city. This gentleman has treated the subject more ably than any other writer, in a little work "on Contagion," a work which will hand his name down with freshness to succeeding generations.

The following observations tend to prove that

without the superaddition of local causes, found in the town itself to the malaria of the marshes, yellow fever would be unknown at Pensacola.

1st. Yellow fever never originates in the vicinity of Pensacola—not even on the very margin of the marshes, where the population is sparse.

2d. It never originates among the shipping at the anchorage, directly opposite the town. The Falmouth ship of war furnished only two cases of it to the hospital last summer, and they were officers, who probably contracted it in town.—The schooner Grampus, it is true, suffered from the disease while lying in port, but she had all the materials for its causation, as it was proved, in the decayed and decomposed state of the plank of her ceiling. It appeared on board this vessel 15 days previous to the existence of any signs of it at Pensacola.

In confirmation of the opinion that the marsh effluvia alone of the place is not sufficient to produce the disease in question, it may be appropriate to add the following facts. The east and west villages of the Navy Yard are equally exposed, as it regards the bay and the small ponds in their rear. One of them fronts the bay on the east, having a series of small ponds west of it, the other fronts the bay on the south, and has the ponds to the north. The ponds in question were dry last summer, and their bottoms presented to view a thin layer of mud. The east village did not furnish a case of sickness last autumn; but in the south village eight or ten cases of yellow fever occurred within a few hours of each other, and two of them died. The south village had the disadvantage of a slaughter house situated immediately in its rear, which was exceedingly offensive. The Navy Yard, equally exposed with either village, to the effluvia of the ponds, remained perfectly healthy, with the exception of the case of one gentleman, who had a slight attack, traced to Pensacola. I was an observer here, in 1827, when no case originated at the Navy Yard, nor at either village.

It has been represented to me upon good authority, that the swamp or shrubbery of the springs of Pensacola was cleared up in 1811 and 1822. We all recollect that streets were opened through in 1827, and I think it was partially cut up again, the summer before last. These are certainly remarkable coincidences. It cannot be conceived that insalubrity would follow these clearings, provided the ground were put under cultivation, but clearing without cultivation has the effect to expose the surface to the rays of the sun and heat, and probably to produce an evolution of unhealthy effluvia which otherwise might have remained quiescent.

The causes of yellow fever, at Pensacola, therefore, are local, and are within the power of your police. They can be remedied with a little attention to cleanliness, and at a very trifling expense. The successful means, used by many cities in the United States, which were formerly visited almost annually, by this scourge of the human race, confirm our views of the nature of these causes, and inspire confidence in the efforts of man, for their removal.

For your third question, I have but little room left. Indeed, I could scarcely hope to do justice to the subject, in the space allotted to this communication, and as I propose to resume it on some future day, I will content myself, with stating it as my belief, that this is the finest climate upon the globe, for consumptive persons, and offer for your consideration, two facts, only. 1st, I have never known nor heard of a case of consumption originating here. 2d I have known several desperate cases, to be cured here, with very little medical treatment.

When Don Juan Ponce de Leon came in search of this country, he sought a spring, the waters of which were to rejuvenate man.

The fable which gave spirit and animation to his enterprise like most others among rude nations had certain truths for its basis. The fountain of health, of not of youth, has a real existence here, and in the extent of benefit it is destined to dispense to the human family, the bright visions of the Spanish hero will be more than realized. I am respectfully, and truly yours,

JAMES HUBER.

To Walter Gregory, Esq. Pensacola.

[From the Journal of the Franklin Institute.]
American Patents issued in August, 1834.

1. For a Cooking Stove; Horace Bartlett, Carmel, Putnam county, New-York, August 1. The claim in this patent is to the "extending the bed of the fire so far back that it receives long wood, in such a way that only about one half of it is burning at the same time, unless the draft door is opened at the back, which may be done when more heat is required; thus putting in long wood, and leaving it perfectly under the control of the manager, consuming no more than what is required for immediate use, thereby saving the expense of cutting the wood into short pieces; thus acting somewhat like the principle of burning coal from the base, but applied to wood for a cooking stove."

2. For an Improvement in the Apparatus for Tanning; James R. Deniston, Connersville, Fayette county, Indiana, August 1. In the petition, it is stated that the improved apparatus "consists of a vat protected from freezing in the bark house, in which is manufactured ooze of every desirable quality, from which it is strained off into a general reservoir, from whence it is dispersed, as required, throughout the yard, or raised to an elevated vat, and then dispersed, all by means of pipes, so placed under ground as to prevent freezing. The hides are hung perpendicularly in the vats of the yard. By means of this improvement there is a vast saving of labor and bark; at least twice the usual expedition; and excellence in tanning is secured, and no weather prevents the usual operations of the yard."

3. For a Washing Machine; Avery B. Gates, Connersville, Fayette county, Indiana, August 1.

4. For an Improvement in the Mode of constructing the Roofs of Buildings, and a Composition for covering all Kinds of Roofs, Brick or Stone Walls, Boards and Timber, exposed to the Weather; Daniel A. Balcom, Northampton, Bucks county, Pennsylvania, August 1. The compound resinous cement, here patented, is composed of eight parts tar, four parts rosin, and twelve or fourteen parts of finely pulverized dry clay, which are to be mixed together, and boiled until all the water has evaporated. Care must be taken that the ingredients be so proportioned, heated, and incorporated, that the mixture shall not be liable to melt and run by the action of solar heat, or to crack by its contraction from cold. The cement is to be laid on with a hot trowel, and all cracks and interstices must be carefully filled up. Among the purposes to which it is proposed to apply it, the coating of ships' bottoms, instead of copper sheathing, is mentioned.

5. For an Improvement in the Threshing Machine; John Marshall, Jr., Sweden, Monroe county, New-York, August 1. The so-called improvement is rather an appendage to the threshing machine, as it is intended to agitate and carry away the straw after it has been passed through the ordinary beaters. An

endless apron is to be made by taking two long ropes to form its sides or edges, and from one to the other of these ropes, slats, or wires, are to extend, parallel to and within an inch or two of each other. This apron is to be stretched upon, and to pass over, rollers, and upon it the straw is to be delivered as it is threshed. It is to be of such length as to carry the straw out of the barn, and during its passage a beater is to strike upon it to agitate the straw, and shake out the last portions of the grain. It is to be moved by the same power which gives motion to the threshing machine.

6. For a Truss for the Cure of Hernia; Thomas Lawrence, Clarke county, Kentucky, August 4. A pad is to be made of wood, which may be round, and from two to five inches in diameter. The side intended to be worn next the body is to be convex, and the opposite side flat; this pad, or block, is to be perforated through its centre, to admit a wooden pin to slide in it, which pin has a head of such size as shall pass into, and bear upon, the ruptured cavity.

7. For a New Manufacture of Figured Fabrics; John Smith, Shaeffers-town, Lebanon county, Pennsylvania, August 4.

"To all whom it may concern, be it known, that I, John Smith, of Shaeffers-town, Lebanon county, in the State of Pennsylvania, have invented a new manufacture of woven figured stuffs, such as carpeting, coverlids, table covers, and various other articles, either in single or mixed colors; and I do hereby declare that my said invention consists principally in the manner of preparing the chain to form the ground or basis of such articles, and that the following is a full and exact description thereof.

"I make the chain of the various articles which I manufacture, by taking two double and one single thread alternately; and in weaving the figures, the filling never floats over more than five threads; that is to say, over four double and one single thread, instead of over nine threads, as in the ordinary mode of weaving. The filling is also in part of single and in part of double thread, the single thread being employed to bind, or interweave with, the double thread of the chain; and the double thread of the filling, which is usually of woollen yarn, is bound by the single thread of the chain. By forming my patterns in this way, no part of the fabric is loose from, but is interlocked with, the pattern on the opposite side of the cloth, and a degree of firmness and distinctness of pattern is given, which cannot be attained by the use of a chain composed entirely either of double or of single threads, whilst, at the same time, each thread of the filling interweaving with one of the chain, at shorter intervals than in the ordinary mode of weaving, the article is rendered more durable, and the double thread of the filling being bound down by the single thread of the chain, the pattern formed by the double filling is left as distinct in its form and colors as in the more loose fabrics, in

which the filling floats or passes over a greater number of threads.

"All the variety of patterns given to goods of this description may be produced in my mode of weaving, and although I have made some improvements in the loom which I use for the purpose, similar articles may be woven in the ordinary figure loom; I do not, therefore, describe or claim any particular machinery for effecting the object in view, but claim only the arrangement of the double and single threads in the chain, and in the filling, applied in the manner and for the purpose herein described. Although I have spoken of double and single threads, both in the chain and filling, it is to be understood that these denominations respect the size of the threads employed, rather than the mere fact of their being double, or single, as a double yarn may be employed in lieu of that which I denominate single, provided its fineness was such as to produce the intended effect, and a fine double yarn thus used I should consider as interfering with my invention, as it would enable the weaver to produce a manufactured article essentially similar to that described."

8. For a Blacksmith's Striker; Joel Woodel, Jackson, Madison county, Tennessee, August 6.

9. For a Cast-iron Sink; Zenos Tarbon, Franklin, Delaware county, and Levi B. Tarbon, Oneonta, Otsego county, New-York, August 6. The description of this affair is so very brief that it would seem impossible to say any thing about it in fewer words than those used by the patentees, which are: "The sink is thirty inches in length, and twenty inches in width, with a soap dish in one corner, and a hole through the bottom to let off the water; all of which is made of pot-metal, and cast whole."

10. For improvements in the Construction of Bee Hives, and the Management of Bees; Levi H. Parish, Brighton, Monroe county, New-York, August 6. In the construction of the hives here recommended, there is nothing very peculiar; but they are to be large, and to be divided into separate compartments, by means of smaller boxes fitted into them, which boxes may be removed and replaced at proper periods. The main thing insisted upon is the advantage of keeping the hives within doors, in the upper rooms of a dwelling, or other suitable building. The benefits resulting from this are fully set forth, with much earnestness and good sense.

11. For an improvement in Weavers' Harness; J. Blackmar, Killingly, Windham county, Connecticut, August 7.

12. For an improvement in the Art of Manufacturing Nails; Freeman Palmer, Buffalo, Erie county, New-York. Patent first issued October 25th, 1832; surrendered and re-issued upon an amended specification, August 7.

13. For an improvement in the Construction of the Saw Mill; Thomas Blanchard, city of New-York, August 8. "The principle of this invention consists of the combination of a circular saw with

a common saw mill log carriage, of any convenient construction."

14. For an improvement in the Mode of Manufacturing Butt Hinges; Dorwin Ellis, Attleborough, Bristol county, Massachusetts, August 8. This patent is taken for the process by which the hinges are manufactured, there being confessedly nothing new in the machinery, which, in the present case, is merely adapted to the purpose to which it is applied. Strips of metal, about twelve inches long, and of a proper width, are to be cast with a projecting ridge along their whole length, which ridge forms the knuckle or joint of the hinge. The strips or plates, so cast, are to be passed between rollers, having grooves in them corresponding to the ridge in the strips; by this means they are equalized, and are then to be placed in a screw or other press, where they are cut off and the joints formed. The blanks or halves are next to be fixed in a drilling machine of the usual construction, after which they are ready for the pins.

15. For an improvement in the single twist Screw Auger; Nathaniel C. Sanford, Meriden, New-Haven county, Connecticut, August 8.

16. For an improvement in the spiral Screw Auger; Alfred Newton, Meriden, New-Haven county, Connecticut, August 8. This, instead of a two, is to be a three lipped auger.

17. For a Fire Engine; Thomas A. Chandler, Norfolk, St. Lawrence county, New-York, August 8.

18. For an improvement in Machinery for Dying and Printing; James Rennie, Lodi, Bergen county, New-Jersey, August 8. The specification informs us, that the invention here claimed is "an improvement and combination of machinery for dying, stamping, or printing, two or more different colors, mordents, or shades, at one impression, which improvement and combination I denominate the *magic sieve*." This is followed by a transcript of the whole of the specification of the patent obtained by the same gentleman on the 9th of June, 1834, and before noticed; and this is succeeded by a description of the magic sieve, which consists of an extension and variation of the same principle or combination that was the subject of the former patent.

19. For a Churn; Joshua Ricker, Bangor, Penobscot county, Maine, August 9.

20. For a Composition of Matter applicable to the Construction of Roads, Streets, &c.; John Martineau, Elbridge, Onondaga county, New-York, August 11. The claim at the close of the specification of this patent will exhibit clearly the object for which it is obtained.

"What I claim as my invention and improvement, is the application of tar, turpentine, or any other of that class of cohesive substances, reduced before use to a fluid state, and in that state used as a cement to apply to, and combine with, sand, gravel, pebbles, pulverized stone, such as is used for a McAdamized road,

or cobble stones; the interstices of coarse materials being in all cases filled, as well as may be, with sand and gravel, and cemented with tar, or turpentine, to form the wearing surface of roads, streets, &c., in the manner described in this specification, however the same may be modified or varied in practice. I also claim the application of the before mentioned cohesive substances, combined with sand, or other material, to the lining of canals, raceways, fooms, reservoirs, cisterns, &c. &c. in all the varied forms which practice may suggest, however modified or varied."

21. For Hulling Clover Seed; Benjamin Wood, Doylestown, Bucks county, Pennsylvania, August 11. The clover is fed on to a sloping sifter, by the shaking of which it is to be separated from the straw; this sifter has a tight bottom, and above this a false one, which is perforated with holes sufficiently large to admit the seed to pass through.

22. For a Heat Retaining Cooking Stove; John Moffit, Buffalo, Erie county, New-York, August 13. From what we can gather in the specification, the main object, in the view of the patentee, was to construct a stove, which should be surrounded by reflecting and non-conducting substances, forming an inner and outer case. For this purpose a wooden case is made, having its interior covered with sheet iron, which, however, is to be sustained at the distance of an inch and a quarter from the wood, the space between them being compactly filled with cotton. There must, of necessity, be a space of several inches between the case and the stove in all directions. To allow of a free play of heat within the case, the sides of the stove are, in part, constructed of vertical bars.

23. For a Fly Driver; R. H. Faunt Le Roy, New-Harmony, Posey county, Indiana, August 13. The fly driver is "intended to keep or scare away flies, moschettoes, and other insects, from beds, cradles, tables, and other places where said insects are troublesome, by means of fans, wings, brushes, curtains, or feathers, kept in motion by means of a machine, without the attention of any person."

24. For an improvement in Fire Proof Wrought Iron Chests, and in locks and fixtures therefor. First patented March 7th, 1826; patent surrendered and re-issued on an amended specification, August 13;

25. For a Press Tub, for pressing seeds, kernels, &c.; Francis Follett, Petersburg, Virginia, August 14. The principal improvement claimed in this patent is the mode in which the strainer is made that forms the bottom of the tub.

26. For a Cooking and Heating Stove; Samuel B. Sexton, Philadelphia, Aug. 14.

27. For an improvement in forming Bodies for Hats; William Nunns, city of New-York, August 14. Hair cloth, formed of horse, or other hair suitable for the purpose, and combined, if desired, with other filamentous substances, is to be formed into a body, and stiffened by any of the ordinary methods. The body so

formed is intended principally as a foundation for silk hats, but it may be used with other material, or by itself, which use the patentee would consider as a part of the present invention.

28. For a Horse Power; John A. Pitts, and Hiram A. Pitts, the former of Brinthrop, Kennebeck county, the latter of Livermore, Oxford county, Maine, August 15. The improvement in the horse power claimed by the patentees, they denominate an "Endless chain and cog band."

29. For a machine for Doubling, Twisting, and Laying, Spun Tobacco; James Maurey, Petersburg, Virginia, August 15. This machine resembles, in its general construction, some of those used for doubling and twisting cordage, but so altered as to adapt it to perform the same operation upon tobacco, and thus to facilitate, in an important degree, the manufacture of twist.

30. For an improved Oven; Richard R. Tonge, Fryeburg, Oxford county, Maine, August 15.

31. For a Machine for Hatchelling Hemp, Flax, and Wool; Daniel Treadwell, Boston, Massachusetts, August 18.

32. For machinery for Tarring Rope-yarns; Daniel Treadwell, Boston, Massachusetts, August 18. The patentee states that his improvement consists in three distinct parts. First, in the method of heating the tar; second, in rubbing, or untwisting, the yarn, for the purpose of saturating it with tar; and third, in the nippers for pressing out the superabundant tar.

33. For an improvement in the art of Extracting the Precious Metals from their Ores; John L. Sullivan, city of New-York, August 18. It is our intention to give a full description of the apparatus which forms the subject of this patent; but knowing that the patentee intends to introduce further improvements in the mode of procedure pointed out by him in his specification, we will at present merely observe, that by the machinery employed, the ores of gold, and more especially auriferous iron pyrites, are to be exposed, when pulverised, to the united influence of heat and motion; the heat being principally supplied by a current of air, which will carry off the sulphur and other volatile matters, and thus leave the gold in a proper state to be separated from the ore by amalgamation, either in the same, or in an auxiliary instrument.

34. For a Threshing Machine; Isaac Gallop, Plainfield, Windham county, Connecticut, August 18.

35. For an improvement in Fire Ladders; James Lee Hannah, M. D., city of New-York, August 19. A ladder is to be made in the usual way, but having the two sides parallel to each other. The topmost round is to be a bar of iron, which is to project through the cheeks of the ladder, and is to have a round roller, or wheel, at each end, which, by their rolling upon the wall, are to facilitate the raising of it. The main ladder may be forty feet in length; but there are to be

additional sections, each of from five to eight feet long, to be fastened on its bottom, when necessary; strong bolts at one end of these sectional pieces are to pass through staples at the lower end of the ladder.

(To be continued.)

Engraving in Relief.

To the Editor of the Mechanics' Magazine:

SIR,—Every well-wisher to the cultivation of the fine arts must have been gratified at observing the progress that has been made during the last few months in this elegant department of engraving. To me it is a matter of surprise, that it should be brought forward now as a new invention, when the fact must be known to almost every one, that a specimen was inserted in the "Journal of the Franklin Institute" so long ago as September, 1832. On reference to page 206 of the first volume of the Mechanics' Magazine, the following account is given of its introduction, accompanied with an engraving and a particular description of the machine.

The Journal of the Franklin Institute, for September last, contains an elegant engraved portrait of William Congreve, the Dramatist, executed by Mr. A. Spencer, of Philadelphia, in the manner described, and has inserted the following proofs that the invention can be claimed for America.

"Believing that the credit of the invention of a machine for medal ruling is due to America, we will briefly set forth our proofs, and then speak of the improvements which of late years the method has undergone.

"The proofs to be given of the existence and state of a machine are to be derived from the results produced by it.

"In 1817, by the use of a machine which had been invented in Philadelphia, Christian Gobrecht, die-sinker, produced upon copper an engraving from a medal, having upon it the head of Alexander of Russia; from this engraving impressions were taken and distributed. One of these impressions we have seen.

"In 1819, Aaa Spencer, (now of the firm of Draper, Underwood, & Co., bank note engravers,) took with him to London a machine of the kind above alluded to, which was designed principally for straight and waved line ruling. This machine was used in London during the year just mentioned, and the mode of ruling waved lines, and of *copying medals*, was then exhibited and explained by Mr. Spencer to several artists, particularly to Mr. Turrell, who took, by permission, a drawing of the machine, for the purpose of having one made for his own use.

"Little, however, was done in the way of medal ruling until about three years since, when a desire to apply the method to the engravings of designs for bank notes caused it to be revived by Mr. Spencer, who bestowed great attention upon it, and overcame the difficulties met with in the outset.

"The peculiar construction of this machine has never been made a secret, nor

has it ever been patented, although prudential motives have required that it should not be minutely described, and thus be placed in the hands of those by whom its use might be perverted. In consequence of this free communication in relation to this machine, it is now made with modifications in the details for engravers, by some of our machinists. We have lately had the pleasure of inspecting one of beautiful workmanship, made by Messrs. Tyler, Fletcher, & Co.

"The operations performed by this machine are the ruling of parallel straight lines at any required distances apart, and either continuous or broken; ruling converging straight lines; ruling waved lines, the waves being either similar or varying by more or less imperceptible gradations; and medal ruling, or transferring to copper the fac-simile of a medal, without injuring its surface, the waved lines presenting a copy of the minutest parts of the medal.

"Mr. Bate is said, in the extract which we have given, to be engaged in perfecting a machine for medal ruling: in his patent he claims the improvements on a machine for that purpose. It is impossible to say how far this latter claim may be borne out, since a description of the patented improvements has not yet reached us.

"That Mr. Spencer has essentially *perfected* this machine, as far as beauty of execution and fidelity of representation in the work to be done by it are concerned, we do not hesitate to say; and that the public here, and our brethren of England, may be enabled to judge for themselves, we have obtained from Mr. Spencer a specimen* of medal ruling executed with his machine, an impression from which we give.

"The engraving is made from a copper medal placed in an embossed card of the ordinary kind. The surface of the medal bears not the slightest trace of injury from the machine, and even the yielding surface of the card is not roughened by it.

"An impression taken thus from a plate gives but a faint idea of the exquisite effect produced by engravings themselves made by this machine upon a polished surface of gold or silver.

"A series of the Napoleon medals, together with a portion of the series of medals struck in commemoration of the events of the first French revolution, attest the skill of Mr. Spencer."

It is with unfeigned surprise and regret, that I observe Mr. Ormsby, of this city, advertises himself as the inventor of the art. "Render unto Cæsar the things that are Cæsar's" is a rule the writer is always anxious to act up to, and he would be, indeed, glad to learn in what possible shape Mr. Ormsby can have any claim to be the inventor of the art. If he has any such claims, I have no doubt that your columns will be open for him to sub-

* Various specimens of this work have been long since sent to London, and may be found in the possession of Messrs. Perkins and Heath, and of other artists.

stantiate them; if not, he and all others who assume to themselves merit where none is due, should be made to feel, experimentally, that the real inventors may, with some justice, apply the language of the immortal bard to them, when he says,

"He that filches from me my good name,
Robs me of that which not enriches him,
But makes me poor indeed."

J. K.

New-York, March 16, 1835.

The Philadelphia Gazette of Tuesday says that about half the stock in the Lancaster and Harrisburg Rail Road was sold yesterday, when the books were closed. They will be re-opened this day, at 10 o'clock, for a short time, to receive the number required. We subjoin a calculation based upon the actual receipts on the Columbia road, of which this is a continuation. Our capitalists should not suffer the opportunity to escape them.

The following calculation, based upon data which cannot mislead, is submitted to those disposed to engage in this important work.

The amount of Tolls collected on the Philadelphia and Columbia rail road during the last five weeks has averaged per week more than 3000 dollars.

Taking the average of 3000 dollars, they will amount per annum to 156,000 dollars.

At the same rate, the tolls on the Harrisburg, Portsmouth and Lancaster rail road, which is 39 miles long, the former being 82, will amount to 72,975 dollars 73 cents.

The cost of that portion of the Road between Portsmouth and Lancaster is estimated by Moncure Robinson, Esq. at from 13 to 15 thousand dollars per mile; taking the average of 14 thousand, 29 miles is **\$406,000**

Estimated cost from Portsmouth to Harrisburg. **60,000**

Estimated cost of long Tunnel, in case it should be determined on, from 60 to 70 thousand dollars; taking average of **65,000**

Estimated cost of the whole work, **\$551,000**

On which 72,975 dollars is upwards of thirteen and a half per cent.

Thus it is that our neighbors who learned a useful lesson, from the early success of N. York enterprise, the spirit of which, unfortunately, no longer pervades our councils, are enjoying the benefits of their works of internal improvement in use, and with a spirit which does them great credit, are pushing forward other works, which will eventually, unless met promptly by our citizens, divert a large share of the business, which might easily be secured to our city and state.

The citizens of New York will not, I am sure, permit this diversion without a struggle to retain it.

[Extract of a letter dated Harrisburg March 26.]

The following is a synopsis of the general improvement, as reported in committee of the whole:—"The first section appropriates to the Philadelphia and Columbia Railway, 110,600 dollars. To the Allegheny Portage Railway, 146,600. To the Lycoming Line of the West Branch Division, and the Lewisburg and Bald Eagle side cuts, 47,000 dollars. For the Wyoming Line of the North Branch, 40,500 dollars.—To pay contracts for new work upon finished lines, and for the payment of the Canal Commissioners, their Secretary, Office expenses, &c. 125,000 dollars. For repairs, 200,000 dollars.—For damages, 30,000. In all 699,700 dollars.

The 2d Section appropriates towards new works, as follows: Towards the construction of ten miles of canal between the head of the towing path above New Castle and Sharon, in Mercer county, 100,000 dollars. Towards constructing

30 miles of Canal, beginning at the north western termination of the French creek feeder, towards Lake Erie, 200,000 dollars. Towards constructing a railway from Noristown to Allentown, along the valley of the Schuylkill and Perkioming, 75,000 dollars. Towards constructing a towing path along the feeder dam at Dunstown, and to continue the slack water navigation up the West Branch of the Susquehanna, 100,000 dollars.—Towards continuing the North Branch Canal, not exceeding 20 miles, towards New York State line, 100,000 dollars. Towards the construction of 15 miles of railway from Columbia towards Chambersburg, via York and Gettysburg, 75,000 dollars. Towards the construction of a navigable feeder from some point on the Allegheny river, to the aqueduct near the mouth of the Kiskiminitas, 100,000 dollars. For the relief of the Chambersburg and Bedford, Bedford and Stoystown, Stoystown and Greensburg—the Somerset and Mount Pleasant—the Williamsport and Washington—and the Washington and Pittsburgh turnpike road companies, 80,000. And to the Somerset and Cumberland turnpike, 5000 dollars. In all 835,000.

The third Section appropriates 8,000 for the survey of a route for a Canal, slack water and railway from Dunstown through Clearfield, Jefferson and Armstrong counties, to Franklin, in Venango county; and from the Sinnemahoning creek to Clarion River.

The 4th Section appropriates 6000 dollars to the turnpike road from Johnston to Ligonier; and 10,000 dollars towards opening a State road from Tamaqua, in Schuylkill county, to Mifflinburg, in Columbia county. In all 24,000 dollars. Total amount of appropriations, one million five hundred and fifty-eight thousand seven hundred dollars."

CANALS IN USE vs. CANALS IN ICE.—Whilst the New York Canals are yet ice-bound, those of Pennsylvania are yielding a rich harvest, as will be learned from the following statement:

Amount of tolls received at the Collector's Office, Columbia, for the week ending March 21st, 1835, \$1355.93.

The following extract from the Elmira (Tioga Co.) Republican of the 28th ult., showing the advantage Pennsylvania enjoys over New York in early navigation, says:

Two packet boats from the Erie Canal arrived in this village last fall with their owner, his family, and workmen, on their way to the Pennsylvania Canals. The smallest passed on, with the family, household furniture, and tools for building boats, which was the object of the journey, and arrived in safety; the other followed yesterday. Taken altogether it is a novel circumstance, as it is an unfrequented route for such craft, and as the boats answered the double purpose of freight boats and a habitation by winter as well as summer. The steamboat has commenced running on Seneca Lake.

There is now a fine rise in the Chemung, and our merchants are sending off arks laden with salt, plaster, shingles, &c.

The Chemung Canal connects with the Chemung river at Elmira, and of course opens a communication with rivers and canals of Pennsylvania.

The Trenton Gazette states that the Delaware and Raritan Canal is now in full operation for vessels drawing six feet water. Several vessels have passed from Philadelphia to New York. It is said that arrangements have been made for a heavy business the ensuing season. The Company have placed a large number of horses on the line, in order to furnish vessels with relays at short intervals; and thus expediate their passage.

Quick Work.—An individual left this city at 2 o'clock P. M. on Wednesday for South Amboy, where he chartered a locomotive and proceeded to Philadelphia, arrived there at 9 P. M. He transacted his business there, and immediately returned by the same route, and reached New York again early yesterday morning!—[Gazette of Friday.]

NEW YORK AND ERIE RAILROAD.—The final vote on this bill to aid and expedite the construction of this road, of 46 to 61, should not be taken, as it was not considered, as the test of strength of the friends of the road. The real and true test was on the amendment of Mr. H. Sibley, which was as follows:

Mr. M. H. Sibley offered an amendment, without which he declared that he could not vote for the bill. It provided that certificates of stock should be issued, to the amount of \$500,000, upon the completion by the company of a Railroad from the Delaware and Hudson Canal to Binghamton—to the amount of stock upon the completion of the road to Elmira—to the same amount upon the completion of the road to the village of Olean—and to the same amount on the completion of the road to Lake Erie.

After considerable debate, the question was taken on this amendment, and lost—53 ayes, and 55 noes; upon this decision, some of the best friends of the road left Albany, because it had been, and was, considered the defeat of the bill; and others voted with the majority, for the purpose of being enabled to move a re-consideration. There is no doubt but that there was a majority of the members in favor of the bill; and had they all been present when the vote was taken on the amendment, it would have been carried, and the bill would have passed, at least in the Assembly. M.

Remarkable.—When the properties of steam and its power were first ascertained, it was supposed human genius could extend no further; still, since then we have had our streets and houses lighted by gas, and now we are to have our residences warmed and our provisions dressed without the use of "fire, flame, smoke, steam, gas, oil, spirit, chemical preparation, or any dangerous substance whatsoever." Incredible as this may appear, it is no less true, an ingenious German having invented a machine by which it may be accomplished. It is made of brass, is about 22 inches high, 12 inches wide, and 6 deep, has the appearance of a miniature chest of drawers, and is surmounted by an inverted crescent, which is hollow for the purpose of containing water. It is called "Wenn's Solar Stove," and is heated by "elementary heat," produced (according to the words of the inventor) by "separate and combined elements." It may be used with great safety in ships, and in manufactories and warehouses, where in consequence of the combustible nature of the stock, fires are prohibited. The process of heating is so clean and simple that a lady having white gloves on, may perform it without soiling them, or a child three years without injury.

Yesterday its powers were exhibited at the West India docks, before Captain Parish the dock master; T. Sheldrake, Esq. engineer, Beck, Esq. and a number of other gentlemen connected with the dock company, and who expressed the greatest astonishment at Mr. Wenn's invaluable discovery, and said they considered it would be of incalculable service to the navy, &c. Heat was produced by invisible means in less than two minutes, and in three minutes afterwards, water, which had been put in cold in the crescent, boiled with such force that the window of the room in which it was tried was compelled to be opened to let the steam escape. There is a drawer in the machine in which a steak or chop can be cooked in its own gravy, but there not being one at hand the experiment was not tried. Three hours after it had been heated, from which time nothing had been done to it, it was found to be still so hot that it could scarcely be touched with the naked hand, although it had been carried from the docks to the city.—We understand it is the intention of the ingenious inventor, who has expended all he was possessed of in bringing it to perfection, to exhibit it to the public at the museum of arts and sciences, in Leicester square.—[London Morning Chronicle.]

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
APRIL 4, 1835.

	PER.	ASK.	OFF.
Mohawk and Hudson.....	100	116	1154
Paterson.....	50	104	1034
Saratoga.....	—	107	—
Harlem.....	—	86	86
Boston and Providence....	100	116	115
New-Jersey Railroad and Transportation Line...	100	116	1154
Camden and Amboy.....	100	—	—
Providence and Stonington..	100	—	—
Boston and Worcester.....	—	104	104
Philadelphia and Trenton..	100	103	103
Utica and Schenectady....	100	—	—

To a Solitary Old Oak in the West.

Thou art a monument of buried years—
Who's he, can look upon thy hoary trunk,
And think not on the scenes by thee beheld?
Now as the unceasing wind shakes thy broad leaves,
Methinks there is a voice, that speaks of days,
When by thy side, stood many such as thou,
And 'neath their broad arms, the swift footed deer
Fled at the mid man's steps—and thou hast seen
The arrow pierce his side—drink his warm blood,
And stretch him on the withered leaves to die.
Here has the council met, the Warriors here
And old men of the Tribe—and thou hast listen'd
To the stern eloquence of untaught minds,
Hast seen the bloody token of revenge
Torn from its grave, hast heard the warwhoop wild
And the fierce din and clash of hard-fought battles;
And the red drops of some proud heart, have stained
The yellow leaves, which many ages past,
Have fallen from thy boughs, and now those men,
Whose histories are only known to thee,
Are buried near thee, and thy wide-spreading roots,
Extending through their graves, encircle bones
Of Kings, and wreaths the brows of Warriors.

W. B.

SILK MANUFACTURE.—Mr. Gay, of Poughkeepsie, has arrived in this city, with the intention of establishing a Silk Manufactory here, on a permanent basis. He has, by close observation, much experience and uncommon talent, succeeded in stripping the manufacture of Silk of all mystery and difficulties. He has reduced it to a simple and certain business, capable of producing regular returns, and discovers the best evidence of the fact by his determination to carry on the manufacture himself in several different places. Those desirous of seeing the beautiful fabrics in his possession, and the plans by which they are produced, will find it to their advantage to call on Mr. Blydenburgh, at the Agricultural and Mechanical Repository, 96 North Pearl st., Albany, where further particulars may be learned.

New Arrangement of the London Packet Line.—By referring to our advertising columns, it will be seen that the Proprietors of the London Packets have been increasing the number of them by adding several new ships to the Line. Hereafter, a packet will be dispatched every ten days. We understand that the new ships are of the largest class, and are fitting up in the most attractive style: thus furnishing to the numerous passengers that patronize the Packets, new inducements to visit Europe. Our Packets already vie with those of any part of the world—and all improvements deserve commendation. We cordially offer them our best wishes.—[Commercial.]

Florida Land Claims.—On the 16th inst. the Supreme Court of the United States pronounced a decree in favor of the claimants, in the case of "Colin Mitchell and others, vs. the United States." This settles (says the Savannah Georgian) in favor of the proprietors the right to the large tract of land in Middle Florida, called Forbes' Purchase, the title to which was derived from the Aboriginal Indians, with the consent and concurrence of the Spanish Government, but which has hitherto been kept in suspense and litigation since the cession of Florida to the United States. This tract of land comprehends about 75 miles of the coast of the Gulf of Mexico, from Cape St. Blas to the Bay of Appalachicola, and ranges into the interior about 40 miles to the vicinity of Tallahassee, and is estimated to contain about a million and a quarter of acres. Being watered by the river Appalachicola at the West, the St. Mark's at the East, and the Ocklockny in the middle, this tract embraces a variety of soil; and we are informed that it is the intention of the proprietors to bring it into market at as early a period as practicable.

NEW-YORK AMERICAN.

MARCH 28—APRIL 3, 1835.

LITERARY NOTICES.

A STATISTICAL VIEW OF THE UNITED STATES, including also an account of the Banks, Manufactures, Internal Improvements, &c. &c., together with the Revenues and Expenditures of the General Government, by TIMOTHY PITKIN: 1 vol. New Haven, DURRIS & PECK.

It is eighteen years, since Mr. Pitkin, then a member of Congress from Connecticut, published the first edition, of this most useful and accurate work. Since that period, the population of the United States has nearly doubled; our internal resources have been wonderfully developed, and our commerce, modified by the universal state of peace, has found new and varied channels.

It was, therefore, well imagined by Mr. Pitkin, to republish a new, and more enlarged edition, of this work, brought down to the last year.

There is no subject connected with statistics, properly so called; embracing details respecting the population, commerce, wealth, industry, resources, and occupations of the United States, on which this book does not give full, late, and accurate information—wherever accuracy was obtainable by consulting either public documents, or the most authentic private sources.

THE HISTORY OF THE HOLY CATHOLIC INQUISITION, compiled from various authors, with an introduction, by the Rev. Cyrus Mason, Pastor of the Cedar Street Church, New York. 1 vol.—Philadelphia: H. Perkins; for sale by D. Appleton, New York.—The immediate motive for presenting at this time to the youth of America, a popular history of the Inquisition, is stated to be the fact, that these United States are now the favorite ground of Propagandism, selected by his Holiness the Pope, who has recently appointed "an ecclesiastical ambassador, a legate with plenary power, to manage the cause of Romanism in the new world." Hence it is desired, that Americans should understand what the aims of Catholicism have been, and what it is assumed they may, when the power exists, again be.—This compilation is derived from authentic materials, and is made by one whom the Rev. Mr. Mason vouches for, as a person who has enjoyed the best "opportunities for making a fair estimate of the institution described in his glowing and patriotic pages;" and who writes under the conviction, that "liberty and happiness could never be the portion of the people, who had yielded themselves to the influence of Romanism."

This question of religion is, like every other in this country, to be determined by the people for themselves—they are free to choose or to reject. In order that such decision may be intelligent, this, among other works, is published. The truth must result from knowledge, but in order to insure such an issue, the truth should be told.

Whatever the Inquisition may in other days have been, it has of late years, been rather a political, than a religious institution. But even as a religious institution, it is, we think, forcibly, and justly argued, by the National Gazette, in some comments on this book, that "the Roman Catholics of the United States are not more responsible for its abominations, now centuries old, than the Protestants are for the executions in the reign of Queen Elizabeth, the Calvin's for the atrocities at Geneva, or the present generation of Yankees for the burning of the witches at Sa-

lem, and the proscriptive intolerance of their pilgrim fathers. To publish now histories of the excesses of the several branches of Protestantism, with illustrative engravings, would not be more unjust and uncharitable against them, than the publication of this volume is, with reference to those whom and whose worship it is designed to injure. Mutual forbearance is important for the common cause of Christianity. It was a wise man and good Christian who said—"Nothing has driven more people into the harlot lap of infidelity and indifference than the mutual hatred of Christian Congregations. It is dreadful to revive the dissensions and animosities, which have slept for a century; but if we must be driven, whether we will or not, to recollect those unhappy transactions, let our memory be complete and equitable—let us not forget the provocations, the outrages and persecutions, on every side, and if we do not then piously hate and annoy each other more, we may make some reciprocal allowances, and the result may be favorable to common good will. As long as men hold charity and justice to be essential parts of religion there can be little danger from a strong attachment to particular tenets of faith."

While, therefore, we entertain the opinion that Catholicism—if not absolutely incompatible with—is little favorable to, civil liberty, and the progress of popular education, we would not seek to oppose it, by any other, than open, free, and unprejudiced discussion.

SIX MONTHS IN A CONVENT, or the Narrative of Rebecca Theresa Reed, an inmate of the Ursuline Convent at Charlestown, Mass.: 1 vol.: Boston, RUSSELL, ORBORN & METCALF; N. York, LEAVITT, LORD & Co.—Our readers have already heard so much of this little volume, that we shall be excused for passing it over without any long notice. It is ushered to the world by "a Committee of Publication," who, however, avouch its identity, as to facts and thoughts, though altered somewhat in language, with the original MS., written soon after the author escaped from the Convent. This was in February, 1832, nearly two years and a half before the Convent was burnt. For nearly a year previous to that event, the MS. had been in the sole keeping of the Rev. Mr. Croswell, of the Episcopal Church. The main object of the publication seems to be, to deter Protestant parents from sending their children for education to a Catholic Seminary.

Our only marvel, on this head is, we confess, that any warning, or argument, should be necessary.

ELEMENTS OF GEOMETRY, containing the first six Books of Euclid, &c., by JOHN PLAYFAIR, F. R. S. London, &c.; a new edition, entirely remodelled, by JAS. RYAN, author of an elementary treatise on Algebra, &c.; 1 vol.: N. York, W. E. DEAN.—This is a standard book, and has long been. It has received from Mr. Ryan, a skilful mathematician, some amendments, elucidations and additions, which, it is thought, will render it a more useful book to American learners.

THE AMERICAN JOURNAL OF SCIENCE AND ARTS—No. I. Vol. XXVIII. Benjamin Silliman, M.D. LL.D. &c. New Haven: H. Howe & Co. New York: G. & C. Carvill.—It is with real concern, and not without a sense of shame for a people who insist upon being considered "the most enlightened" under the sun, that we find it stated in this number of the Journal, that unless reinvigorated by new subscribers, it,—the only scientific Journal which has had any prolonged existence in the United States,—must die of inanition! Shall it be said, that because there is in

it no politics,—no scandal,—no appeals to passion or prejudice,—to the frivolous interests of fashion,—to the fleeting excitements of the hour,—one able, calm, methodical repository for the recording, and discussion of, important facts, principles, practical results, and theories, in science, cannot live? We hope not,—we believe not. Let each man who either feels an interest in such subjects, or in the reputation of the country, more or less connected as it is with such a work, undertake to procure a single subscriber, and the work is done; and in no other way can it be done with any hope of permanent benefit.

NO FICTION—a narrative founded on fact, by the Rev. ANDREW REED, D. D., 1 vol., N. Y.; HARPER & BROTHERS.—We had occasion within a short period to speak of *Martha*, by the same author, whose previous work—not of fiction, but yet with the interest of romance—is now presented to the public. The history of Lefevre, of his temptations, struggles, doubts, triumphs, is fraught with deep attraction and instruction—and wrought out with equal truth and skill.

DISCIPLINE, a novel by MARY BAUNTON, author of *Self-Control*; 2 vol., Phila., KEY & BIDDLE.—Though less decidedly a religious novel, or tale, than that noticed immediately before it; this—as most of our readers by the way, we dare say know, for it is not a new work, though it is a new edition—is a book which inculcates in a very pleasing way, that moral which lies at the bottom of all excellence, and which if it stood alone in the sacred volume, would attest the divine origin thereof—"do as you would be done by."

THE LIFE OF AARON BURR, by SAM'L. L. KNAPP; 1 vol.: N. York, WILEY & LONG.—We are disappointed in this book. It is inelegant in style, meagre in facts, and excessive in admiration of its subject.

The early services of Aaron Burr in the war of the revolution, and especially his share in the hazardous, daring, and most trying march of Arnold's command, through the wilderness to Quebec, in 1775, connected his name so favorably with the cause of Free America, that nothing short of notorious misconduct on his part, could have divorced him so effectually as he is divorced, from the sympathies, the respect, and confidence of his countrymen. There is an entire want of discrimination, therefore, as it seems to us, in the generally eulogistic, and always excusatory, strain in which this notice of his life is written; for it fails entirely to account in any satisfactory manner, for the desertion of Burr, by all men of all parties.

With great defects as a biography, or as affording materials for authentic history, there are nevertheless many interesting facts and documents brought together in these pages in a small compass. Among the most curious of the latter, is an original journal, kept by Arnold of his march from the Kennebec. There are also, in the Appendix, though not now published for the first time, some important papers connected with the contested election between Jefferson and Burr in 1801.

We have little room for extracts—but must advert to the following statement, which is at variance entirely with all that has been hitherto related of Mrs. Arnold's innocence of any participation in her husband's treason; and, if true, shows her to have been an accomplished actress.

Colonel Burr, in 1780, was on a visit to Mrs. Prevost, the lady who not long after became his wife, when Mrs. Arnold stopped at her house, on the way to the city of New York, in order to join her husband. At the first news of his treason, Mrs. Arnold excited the sympathy of every one. Her lamentations and screams might be heard at a distance, and many feared that her reason would be shaken from its throne. Several of the officers at West Point at that time, wrote most affecting descriptions of her wretchedness; and some went so far as to think that the wounds given to the heart of an elegant and an accomplished woman, deserved as much punishment as the treason Arnold had committed. Washington was deeply affected by her situation, and rendered her every assistance in his power, and with great gallantry sent her a letter of safe-conduct to the lines. Mrs. Prevost was the widow of a British officer, and to her Mrs. Arnold could unbosom herself; and being assured that no one was near but those of strict honour, she threw off the mask, thanked God that the farce of hypocrisy was over, for she hated to be an actress any longer. She said that she had commenced the correspondence with the British commander, and had brought her husband to the deed at last, stating, also, that she had long abhorred the American cause, and now was happy that she was free from the rebels. This spoils the pathos of many brilliant descriptions of her patriotism and sensibility; but, nevertheless, the generous feeling in which they were written will still remain as proofs that there was nothing revengeful or low in the dispositions of those who achieved our independence.

THE DUKE DE LA ROCHEFOUCAULT'S MAXIMS, &c., with a biographical preface and an appendix by the Editor: New York, G. & C. CARVILL & Co.:—This should be a welcome book; for it is one of established fame, in all languages—and almost out of print, we were going to say, in our own. The translation is not new, though in some instances revised. The short biographical memoirs, prefixed by the present editor, does justice to the character and abilities of *La Rochefoucault*. The appendix contains some maxims by the editor, modelled on those of his author; but not always happily.

PRACTICAL EDUCATION; by MARIA EDGEWORTH and RICH'D LOVELL EDGEWORTH, 1 vol. N. Y.—HARPER & BROTHERS.—No parent should fail to read this admirable treatise, of which we have here a new, handsome, and compact edition; as none—however they may have studied the various theories of education, or been practical observers of the growth of the mind from infancy to childhood—can read it without profit.

Close observation, and eminently practical good sense, are exhibited in every page of the work—of which, moreover, the character has long been too universally established to need any commendation, at this time of day, from our pen.

CANVASSING. A tale—BY THE O'HARA FAMILY; 1 vol.; Phila., CAREY, LEA & BLANCHARD.—This is a tale of higher life and less fierce passions than the last which preceded it from the same pen, the *Meyer of Wind-Gap*, but not therefor of less general interest.

A CATECHISM OF PHRENOLOGY, illustrative of the principles of that science. Phila., CAREY, LEA & BLANCHARD.—An elementary work, of which the best recommendation, we presume, is to say—especially for one uninitiated in and without sceptical as to, that science?—that it has gone through six editions in Glasgow.

AUTOBIOGRAPHY OF JACK KETCH, with Illustrations by Meadows; 1 vol.; 1 Philad., CAREY, LEA & BLANCHARD.—This is a moral book—though its title would hardly seem to imply such charac-

ter; and though we think the unquestionable talent displayed in it might have framed a more agreeable mode of making itself felt, we take the good as we find it.

THE HUDSON RIVER GUIDE. N. Y.; J. DITURNELL.—This neat little pocket book gives for 50 cents, a good engraving of the Battery and Castle Garden, a colored map, neatly folded up of the course of the Hudson, with its shore and prominent points laid down accurately—and several pages of letter press, describing the landings, the principal places, the stage and coach routes, &c. &c.

THE ENVIRONS OF QUEBEC, by A. HAWKINS— is a neat and well executed little map, giving an account, view and enumeration of the remarkable places, and recent settlements, around Quebec.

The Mirror of this week is embellished with a beautiful engraving, by *Smillie*, from a painting by *Weir*. We copy the beautiful lines of *Bryant*, published long years ago in this paper, to which the engraving is so happily adapted, and the description, by *G. C. Verplanck*, of the lake and scene embodied in it.

The whole number of the Mirror is good.
AN AUTUMNAL EVENING.

"Whither, midst falling dew,
While glow the heavens with the last steps of day
Far, through their rosy depths, dost thou pursue
Thy solitary way?"

"Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As, darkly painted on the crimson sky,
Thy figure floats along."

"Seek'st thou the plashy brink
Of weedy lake, or marge of river wide,
Or where the rocking billows rise and sink
On the chafed ocean side?"

"There is a Power whose care
Teaches thy way along that pathless coast—
The desert and illimitable air—
Lone, wandering, but not lost."

"All day thy wings have fanned,
At that far height, the cold thin atmosphere,
Yet stoop not, weary, to the welcome land,
Though the dark night is near."

"And soon that toll shall end,
Soon shalt thou find a summer home, and rest,
And scream among thy fellows; reeds shall bend,
Soon, o'er thy shelter'd nest."

"Thou'rt gone, the abyss of heaven
Hath swallowed up thy form; yet, on my heart
Deeply hath sunk the lesson thou hast given,
And shall not soon depart."

"He, who from zone to zone,
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright."

[Bryant's Waterfowl.]

The engraving which accompanies this number of the Mirror, is from a painting by *Weir* from nature. The scene is a romantic little lake, imbosomed in the mountains of the Highlands, on the west bank of the Hudson, and within five or six miles of West Point. It is now commonly called Sutherland's Lake, but in former days bore the appellation of Skenando's, from an Indian chief of that name, who had fixed his residence there. He was well known to our Dutch and English ancestors, among the early colonists, and was much beloved by them, for long-continued friendship and many important services. The lake is surrounded by steep, rocky banks, from which the only view is that of the dark quiet water at your feet, the sky above your head, and the summits of neighboring mountains encircling the horizon. It is begirt with the primeval mountain forest, which bears no trace of having ever been touched by any human hand. Here, while the eagle, banished from his old residence on the plains and shores to these his mountain citadels, wheels above your head, high in air, in wide ascending circles, and the silence of the thicket is broken only by the rustling of the leaves under the squirrel or the rabbit, or by the chirp of birds, such as love not man's neighborhood, every thing conspires to give to this spot, the character of profound, tranquil, and (if we may so speak) intense solitude—a solitude the more impressive, from the frequently recurring thought that within a short distance from the mountain walls, hedging

in this lonely lake, flows the great Hudson, the thoroughfare of the Union, bearing on its broad tide the treasures of agriculture, commerce, art and luxury, as well as crowds of travellers, the busy, the gay, the curious and the restless idle, fresh from the great city, or hurrying thither, their minds filled with life's cares, and their hearts throbbing with its hopes, fears, envies, sorrows or fierce desires, and angers.

The artist viewing this scene with a poet's eye, has painted it, as it appears at a time of day and a season of the year most congenial to the feelings, which it is always fitted to excite. He represents it as seen in one of those pensive but delicious hours, that so often occur in our climate, at the close of a mild, bright, calm, autumnal day. The sun has sunk beneath the western mountain-tops, but the skies still glow with the rosy hues of departing light. The glories and freshness of the summer are quite departed, and so, too, are the brightness and splendor, the golden and purple hues of our earlier autumn. The woods are now quite imbrowned, though not yet much thinned of their leaves. In the distance, another indication of the near approach of winter is given, in flights of wild-fowl, just seen against the crimson sky, pursuing their unwearied way through the pathless air toward their distant winter home, in the warm south.

The painter, we have said, had looked on this scene with a poet's eye, and he transferred it to his canvass with the feeling of a faithful worshipper and student of nature. Neither adding to, nor varying from, what he saw before him, he has clothed and imbued that literal truth with the expression, the sentiment, the poetry, which the season, the hour, the seclusion of the scene, the very temperature of the air, and the silence of the spot, all unite to breathe into the soul.

But it happened that some years before *Weir* had first sketched this landscape, at the same autumnal season and early evening hour, a scene, not the same, but like this, had been viewed and painted by another of our country's artists, and a great one; and he, too, when "the heavens glowed with the last steps of day," had followed "far through their rosy depths" the lonely waterfowl in his solitary flight, as

"Darkly painted on the crimson sky,
Its figure floats along."

Thus it was, that when *Weir* had finished his picture, he found that he had but copied from nature what had been copied before with equal fidelity and power, with the same feeling, the same pure and simple severity of taste, the same harmonious union of perfect truth of detail with imaginative idealism of expression and effect. In short, he had embodied on his canvass the thought, the sentiment, the pensive depth, yet tranquillity of feeling that *Bryant* had before clothed in the simplest, but the most poetical of language. In such a coincidence there is nothing to wonder at. For, what the painter had looked upon with a poet's eye, the poet had seen with a painter's; for both were votaries of nature, and had worshipped at her mighty shrine, amidst the twilight of old mossy mountain groves, and the stern solitude of deep lonely glens, and both had drunk gladness and inspiration from her kinder and maternal smile, when

"Came and lingered on their sight
Or flowers and streams that bloom and fight
And glory of the stars and sun;"

And these, says the poet himself—and who shall deny or doubt his authority—

"And these and poetry are one."

A WINTER IN THE WEST.—The *Montreal Gazette* bears this just testimony to the attraction of Mr. Hoffman's volumes.

The *New Yorker* is a person who ingratulates himself very speedily with his readers indeed we scarcely have time enough to get through half a dozen chapters, before we feel an interest in his movements—are affected by his misfortunes—delighted by his successes—and charmed by all the scenes which he paints.

He who can produce such lively emotions as these, is evidently one of no ordinary endowments. To an accurate eye for the picturesque, an enquiring disposition, and excellent powers of description, he adds a deep and devoted attachment to his subject. It is truly refreshing after

being filled to repletion with scenes in the Peninsula, France, Italy, Turkey, or any other realm to which steamboats ever steamed, or stage-coach rattled, freighted with book-making Cockneys, or Subalterns on the "H. P. unattached" list, to meet with such a work as that before us. It has all the freshness and vigor of the primitive forests, which in its pages we find so eloquently described.

SUMMARY.

The name of the "Dutchess" Post Office—in the County of Dutchess of which Isaac Merritt, Esq. is Postmaster, has been changed to Hartsville.

MARCH!—Not forward, march! nor retrograde, march! but the cold windy forerunner of spring, has nearly spent his fury, and is about to yield his sceptre to his milder successor. We have not in this instance, as in another that we wot of, any forebodings concerning the reign of the successor, for we are quite well pleased with his sway, although he makes his entree with an idiot's phiz and a "Fool" in his mouth. Once in, however, he conducts himself more wisely. —[Lansingburgh Gazette.]

From the Keesville Herald, of the 25th inst. it appears that snow fell in that village on the previous Saturday night and Sunday (22d) to the depth of *two feet*; and that the weather was cold and the sleighing good.

The Philadelphia papers state that the coal business has commenced for the season at Pottsville. The following is the statement given by the Miner's Journal, for the three days of last week:—Departed, 28 boats, carrying 1,284 tons of coal.

APPOINTMENTS BY THE PRESIDENT.

Benjamin Renshaw, to be consul for the port of Laguayra, in the Republic of Venezuela, in the place of John Y. A. Williamson.

Joseph Cullen, to be Consul for the Island of Teneriffe, in the place of Payton Gay.

Samuel Haight, to be Consul for the port of Campeche, in Mexico, in the place of Henry Perrine.

The London Quarterly Review observes— "That, in painting, the Chinese artists have some colors of their own, which no European skill has as yet rivalled, is a fact as well ascertained as any in the world."

"We once," says the same journal, "heard an eminent lawyer declare, that a clause of an act of Parliament, in which the arrangement of the words was the best that could be, gave him as much pleasure in the perusal as the finest stanza of Spenser's."

Steamboat Ruined.—The steamboat GENERAL PORTER, which sunk in Black Rock Harbor on Sunday evening, was raised yesterday afternoon, by the aid of two fire engines from this city—the Mayor having given permission to use them for the purpose. It was satisfactorily ascertained that the sinking of the boat was entirely owing to the bursting of the standing pipe through the action of frost. —[Buffalo Com. Adv.]

EXPENDITURES OF THE GOVERNMENT.—The following authentic statement of the expenditures of the Government from 1823 to 1833, inclusive, (the last being the latest year to which the accounts were fully made up) is appended to the Documentary edition of Mr. Calhoun's Report upon the growth of Executive patronage:

Statement of the expenditures for the support of the Government of the United States, (including payments on account of pensions, and exclusive of payments on account of the public debt,) from the year 1823 to the year 1833.

Year.	Amount.
1823	\$9,784,154 59
1824	10,328,144 71
1825	11,490,359 94
1826	13,062,316 27
1827	12,653,095 65
1828	13,296,041 00
1829	12,659,490 70
1830	13,229,533 30
1831	13,864,067 90
1832	16,516,388 77
1833	22,713,755 11

It is stated in the New Orleans Advertiser that upwards of *five millions of acres of land* in Louisiana are subject to annual inundation, and that that amount comprises about one-sixth of the entire territory of the State. From the same paper we learn that the gross amount of land under cultivation does not exceed forty thousand acres, the annual product of which is about ten millions of dollars, or an average of two hundred and fifty dollars per acre. In view of these singular and striking facts, the editor urges the necessity of suitable efforts to reclaim the inundated lands, the profits arising from which would, he contends, be enormous. —[Balt. American.]

Andrew Dunlap, Esq. has, in consequence of the state of his health, resigned the office of Attorney of the United States for the District of Boston.

We noticed the other day, that bacon was in brisk demand, and prices advancing in Cincinnati. The same might justly have been said of pork and lard. All are ready sale, and large purchases have been made. For the last two weeks, the business has been immense. Vast quantities of our produce and manufactures have been shipped for the market below us. There has been activity and bustle of the most cheering character. —[Cincinnati Gazette.]

The Montreal Gazette says that, as the voyageurs of the Hudson's Bay Company will be sent off for the Interior and Hudson's Bay as early as the navigation will permit, we are requested to intimate that those having letters to go by that conveyance will require to send them to the Company's office at Lachine by the 20th April.

A Noble Act, and worthy of imitation.—Some months since, Mr. Nathaniel Ward, who is deaf and dumb, lost 80 dollars. It appears that an honest tar found it, and sailed the next day for a port in India. While absent, he, by chance, read in a New York paper the loss of the money, and knowing from the contents that the money belonged to Mr. Ward, *Jack*, on his return home, returned the money to the owner. The dishonest, in the higher walks of life, will blush at this fact, of which we have the authenticated particulars. —[Gazette.]

[From the United States Gazette.]

A DOG STORY.—A gentleman who knows that we are friendly to good dogs, and do not like to see even a cur abused, stopped to tell us a story about one of these half reasoning animals, which we in the exercise of our friendliness, give to our readers.

Last week a large Newfoundland dog, kept in a tan yard in the Northern Liberties, had persuaded a small dog to play with him, and while they were amusing themselves, the smaller animal was accidentally rolled into an open tan pit, in which the water was quite deep, though it did not quite reach within eighteen inches of the edge of the vat. The little fellow floundered about terribly, but could not get out, and the large dog could not reach him. Some of the workmen saw the whole occurrence, and felt disposed to watch at a distance the movements of the Newfoundland dog. He ran round the vat in great concern, then hastened to the building where the men had been, but they were not to be found. He then ran back and took another mournful look at his little play mate, and then tried again for help. None was to be had, and matters were becoming desperate in the vat. The Newfoundland dog then selected a place at the edge of the vat, where some of the tan had been removed, and where the edge was not more than twenty inches above the water. He then stretched himself out, and thrust his fore feet down to the water, edging himself along with care, so as not to lose his balance and fall in himself. This was a matter of nice calculation, as the weight of the puppy was to be added to that of his head and shoulders. At length he appeared to have adjusted the weight to his mind. He then reached out and took the little dog with a strong grip in his fore paws, and being unable, of course, to rise up with the weight hanging over the edge of the pit, he drew himself back with great efforts, and after considerable exertions, succeeded in landing the half drowned dog in safety—and great and sincere was the joy manifested by both animals at the fortunate deliverance.

Wheat was selling at Rochester on the 23d, for 91 cents per bushel. Flour for \$4 and \$4 75 per barrel.

On Tuesday, March 24th, the Bishop of this Diocese laid the corner stone of St. John's Church, Fort Hamilton, Long Island, on a beautiful site presented by the late owners of the Denyse estate. The address was delivered by the Rev. Hugh Smith, of this city. The interest of the occasion was increased by the presence of the troops attached to the Fort, and the accompaniment, in the solemnities, of their Band.—[Churchman.]

We comply with a request to publish the following paragraph:

Mr. Stevens's great match of going on foot 10 miles within the hour, will take place on the Union Course, on Friday the 24th of April, (the weather and state of the course permitting.) As Mr. Stevens has received a great many letters from persons in training for it, we give this notice of the day fixed, and also again state the terms, viz: a purse of \$1000 will be given to the successful competitors—\$500 to the one that comes out ahead, \$300 to the second, and \$200 to the third. If but one performs the feat, he receives the whole purse; if all fail, nothing is paid as in that event Mr. Stevens loses the wager. We also understand that some fine racing may be expected on the same day, and a great display of horses at the Course, in readiness for the first meeting on the 1st Tuesday in May.

Mr. Botts, on whose Course the match will take place, will give any further information to any person interested, by addressing to him at Jamaica, Long Island.

SURVEY OF BOSTON HARBOR.—The Legislature of Massachusetts having ordered a Survey of the Harbor, the acting Governor and Council have appointed *Leami Baldwin, Col. Thayer and James Hayward*, Commissioners for the Survey.

It is a curious fact that our dates from England via *Bahama and Charleston* are as late at this moment, as the advices received direct. In both cases they are 47 days old.

Launch.—A steamboat of peculiar construction, was launched on Saturday from the point of Corlear's Hook, with her engine on board. She is upwards of two hundred feet in length on deck, very narrow, and we should judge, from her appearance, that she will be a remarkably fast boat. She is owned by Capt. Cornelius Vanderbilt, and is intended to run between this city and Hartford.

Another steamboat, somewhat similar, but much more burthensome, will be launched at Corlear's Hook on Wednesday. She is intended to ply between New York and New Haven. —[Gazette.]

Among the passengers in the schooner Climax, arrived yesterday from Chagres, is Capt. Ralph Voorhees, of the U. S. Navy. He left Panama on the 25th ult. at which time the U. S. Sloop of War Vincennes and the Dolphin were lying there, officers and crew all well. Capt. Voorhees is bearer of despatches for Government.

[From the Washington Globe of yesterday.] The following states have yet to elect their members of the House of Representatives, before the next Congress will be completed:

	Members.	Elections.
Rhode Island	2	April
Connecticut	6	April
Virginia	21	April
Indiana	7	August
Missouri	2	August
Maryland	8	October
Kentucky	13	August
North Carolina	13	August
Alabama	5	August
Mississippi	2	May
Tennessee	13	August

The "half human savages" in New Holland, have been found by travellers to be the best men.

miss.—Coleridge remarks that, in civilized society, middle of the very lowest stamp alone satirize by copying.

Burden's Patent Horse Shoes.—We were shown a few days since, some patent Horse Shoes, made at Troy, in a machine, the invention of Mr. Burden, the constructor of the steamboat, which was unfortunately lost last year on the North River. These shoes are manufactured of wrought iron, and the iron is put into one end of the machine, and comes out at the other end a complete horse shoe, curved, regulated and uniform. We understand that the machine, throws off thirty in a minute! This invention cannot fail to secure a liberal recompense to Mr. Burden, who was so great a sufferer, in a pecuniary point of view, by the loss of his boat.

In conversation with Mr. B. the other day, he informed us that a boat on his plan was now building in Troy, intended to run on the Farmington, Hampden and Hampshire Canal, and that she would go in operation in the course of a month or two. He has received letters from gentlemen of science in Paris, on the subject of his boat, and one has been constructed on his model, to ply between Paris and Rouen.—[Gaz.]

Natural Gas Works.—A most remarkable fact is stated by the Abbe Imbert, who visited China a few years since. By means of tunnels of bamboo places in communication with fountains of carbonated hydrogen in the bowels of the earth, as many as three hundred chaudières are supplied with heat for boiling. Streets, halls, work shops are all lighted by this gas, which is the same used in all artificial gas works. Arago says that several villages in the United States have long been supplied in this manner. This expression is a little too strong, though it is true, we believe in respect to Frebonia, on Lake Erie, in our State, where the light house is also supplied in this way from natural sources. In Ontario county, near Cacandagut, there are also several of these gaseous emissions from the surface of the earth. They are called, in common parlance, 'Burning Springs.'—[American Traveller.]

[From the Appeal.]

THE BEST MODE OF DYING.—The notions of mankind respecting the easiest, and most comfortable, mode of "shuffling off this mortal coil," are exceedingly various and contradictory. Some think drowning is the easiest mode; and there are not wanting those who profess to have tried it, who say, "it is as easy as preaching!" that when they have once sunk to rise no more—when they are lying flat on their backs in the bottom of the ocean, river, or whatever body of water it may be—when breath has departed, and sight has gone out, and they are just taking their leave of sublunary things, they feel as happy as a prince on the day of his coronation, or a man on his wedding night—that a thousand pleasant and "delectable shapes" run sporting and dancing through the brain—that their ideas are most delightful, and their sensations most ecstatic—and, in short, that it is really worth while for a man so to die now and then for the pure enjoyment of the thing.

Some think that freezing must be the most delectable mode of putting out the fire of life; and a paragraph is now going the rounds, which asserts and describes the incomparable pleasure of dying through the medium of frost. It is so cool and comfortable! And then one goes out of the world with a charming numbness to all the "ills that flesh is heir to," at the same time that he carries with him a "stiff upper lip."

Others again think the better mode of "shuffling off this mortal coil," is to put a coil about their necks. And those who hold this opinion, seem to be the most numerous party, judging from the great majority of suicides that depend on a rope. Whether these think it the most ecstatic mode of dying; or whether, like Jack Ketch, they consider it the "only natural death;" or whether in the third place, they adopt it as a means of raising them nearer to Heaven—not having any direct information from those who have fairly killed themselves—we cannot decide.

Some prefer a pistol—probably that they may make a noise in the world at the time of their

death. If "report shall no more be made of them," they have at least made a report of themselves at their going off. Some prefer the knife; some the dagger; but most—the bowl; we mean the intoxicating bowl, which usually allows them the luxury of two or three years death.

Females—rejecting all coarse, bloody, and disgusting modes of departing this life—prefer being squeezed to death. Encasing their fair bodies in a tight bodice, until the soul case is too narrow for the soul, they had rather go off in the prime of life by stays, than to stay behind and finally go off through the tottering footsteps of old age.

The ancients, as well as moderns, had various tastes in dying. Curtius leaped the yawning gulf, armed capapie, with a good horse under him. Brutus fell upon his sword; Cassius ditto, and Cato the same. Seneca opened his veins, and bled to death leisurely, while enjoying the luxury of a warm bath. Cleopatra, the charming queen of Egypt, preferred dying by means of a venomous serpent, an asp. And Sappho, the poetess, employed her feet in leaping from a huge rock into the sea.

But among the various deaths by which mankind, either ancient or modern, have preferred to take themselves off, we do not know of any well authenticated case, where the traveller has once passed the bourn of life, that he has ever returned to give an account of the particular delights of their exit. It is difficult, therefore, from any evidence, to be at all relied on, so to compare notes as to be able to decide on the easiest, most judicious, and comfortable way of departing this life.

As for those who pretend to pronounce by their own experience, in favor of freezing, drowning, or any other special mode, we take them to be little better than false knaves, who were never "clean dead" in all their lives; and we advise every body patiently to

"Wak the great teacher, Death."

rather than give heed to the pernicious accounts of a set of voyagers, who were never out of sight of this earthly land, and who are not to be relied on.

Easy Joe Bruce.—By H Hastings Wald.

"The devil!" exclaimed Mr. Joseph Bruce, or perhaps we should rather say Joe Bruce,—for as he was a noble, easy fellow, no body thought of allowing him more than a half of a name, or of any thing else which belonged to him. "The devil!" I see by the paper that Hawk and Harpy have assigned. I meant to have secured my debt yesterday!" He left his coffee half drunk, stumbled over the threshold, and went almost at a run to the counting room of Hawk and Harpy.—One half of that speed the day before would have saved his debt; as it was, he was just in season to put his name at the bottom of a dozen and a half preferred ones, to receive ten per cent. He went back to his unfinished breakfast with what appetite he might.

"Why did you neglect this so long, Mr. Bruce?" said his helpmate and comforter,

"I meant to have attended to it yesterday, my dear."

"You meant! That is always your way, Mr. Bruce. You carelessly neglect your business to the very last moment, and then put yourself in a haste and heat for nothing, my dear."

"Really Mrs. Bruce—"

But Mrs. Bruce did not allow him a chance to defend himself. On she went, in the most approved conjugal manner, to berate him for his carelessness and inattention.

"Really Mrs. Bruce—"

And it was really Mrs. Bruce, for few of the feminine, and none of the masculine gender could have kept pace with her. Certainly easy Joe Bruce could have not. The clatter of a cotton-mill would not have been a circumstance to the din she raised—nay we doubt whether a philippic against one of those said mills from the lungs of Benton *Tennens* could have been heard above her voice; Easy Joe pulled a cigar case out of his pocket—clapped his feet on the fender—and it almost seemed that the smoke rendered his ears impervious to the bleatings of the gentle lamb, his spouse, so placid was his countenance as the vapor escaped in graceful volumes from his mouth. But people overshoot the mark

sometimes; Mrs. Bruce certainly did. Had she spared her oration, the morning's loss would have induced her husband to have been punctual to his business, for one day at least. As it was, he took the same sort of pride in neglecting it under her lecture, that the Grande Nation will probably take in refusing to pay the claims of our citizens.

"Breeze away, Mrs. Bruce!"

"Breeze away sir! Breeze away! I wish I could impart one title of my energy to you, Mr. Bruce—I—"

"D—n—n—n, Madam."

As Bruce sprung to his feet, crash! came an elegant mantle clock down upon the hearth.

"There, Mr. Bruce! that clock has stood there three months without fastening—a single screw would have saved it—but—"

"Well, I meant to—"

"You meant! Mr. Bruce—You meant won't pay the damage, nor Hawk and Harpy's note! You meant! indeed!"

Bruce seized his hat and cloak. In a few minutes he was on "Change. Nobody could read in his face any traces of the late matrimonial breeze, and nobody would have suspected from his countenance that Hawk and Harpy failed in his debt. Easy Joe Bruce.

"Well Mr. Bruce they've routed him."

"Who?"

"Our friend Check. Pingree was chosen President of the—Bank, this morning: one vote would have stopped him."

"How deucedly unlucky. I meant to have been present to vote for Check myself?"

"Never mind, Bruce, said another. 'You are a lucky man. The news of the great fire in Speederville has just reached town by express, and I congratulate you that you was fully insured.'

"The devil! My policy expired last week, and I meant to have got it insured this morning."

Joe posted home in no very happy humor.—When an easy man is fairly up, he is the most uneasy and unreasonable man in creation.

"Mrs. Bruce, by staying at home to hear you scold, I have lost thousands. I meant to have got insured this morning—I did not—Speederville is burnt down and I am a beggar."

"Why did you not do it yesterday Mr. Bruce?"

"I was thinking of Hawk and Harpy."

"Thinking! Why did you not secure yourself?"

"I meant to, but—"

"But—me no buts."

"You are in excellent spirits, Mrs. Bruce."

"Never in better."

"Vastly fine Madam. We—"

Mrs. Bruce set down, clapped her feet on the fender after her husband's manner in the morning.

"We are beggars, Madam," Bruce replied.

"Very good—I will take my guitar, and you shall shoulder the three children. We'll play under Mr. Hawk's window first and then under Mr. Harpy's, and then beg our way to Speederville to play to the ashes of what was once your factory,—which you meant to have insured. I should like begging of all things."

"You abominable woman I shall go mad."

"Don't, I beseech you, Mr. Bruce. They put mad beggars in Bedlam."

Bruce sprang for the door. His wife intercepted him. "Here, Joseph, is a paper I meant to have showed you this morning."

"A policy! And dated yesterday?"

"Yes. You meant to get it renewed to-day—I meant it should be done yesterday—I told your clerk, from you, to do it. Am I not an abominable woman?"

"When I said so I was in a pet, I meant—"

"No more of that Joseph. Now tell me who is first on Hawk & Harpy's assignment."

"Your brother. I wish I had your energy or even his."

"His claim covers you both."

"You are an angel!"

Easy Joe became an altered man, and his wife was released from her watch over his out door business. She died some years before him—and we are inclined to suspect that after her death Joe partially relapsed into his old habits—so true it is that habit is a second nature.

[From the American Journal of Science and Arts.]

A live Snake suspended by Spiders.

BATAVIA, N. Y., Sept. 30, 1835.

Sir,—In the "Spirit of the Times" of this village, of the date of Aug. 26, 1834, I published over the signature of "A Witness" an account of a *snake* found suspended by spiders' web, by the tail, in the wine cellar of a gentleman in this village.

A gentleman who also saw and examined the phenomenon, promised to send you a drawing and account of it. Whether he has done so or not, I do not know. And as the story has been treated as a fable by some of the papers, I send you enclosed the account above mentioned, and a correct drawing, (though rough and done in haste,) made by James Milnor, Jr. Esq., a clerk in the Holland Company Land Office.

The gentleman in whose wine cellar the snake was found, is the Hon. David E. Evans, agent of the Holland Land Company, who requests me to forward to you the drawing and account, which he pronounces to be accurate.

Mr. Evans, Mr. Milnor, Mr. Mix, Doct. Van Tuyl, and a great number of other gentlemen, examined this subject *critically* on several different days, while the snake was yet alive, and all concur in the accuracy of the account.

I hope you will procure a correct engraved cut of the drawing, and publish it with the account in your journal. And if you do, you are at liberty to use all the names mentioned in this letter, or to publish it at length, if you think proper.

Most respectfully, your ob't servant,
S. CUMMINGS.*

The following is the account alluded to in the above letter:

On the evening of the 13th inst., a gentleman in this village found in his wine cellar a *live Striped Snake*, nine inches long, suspended between two shelves, by the tail, by spiders' web. The snake hung so that his head could not reach the shelf below him; by about an inch; and several large spiders were then upon him, sucking his juices. The shelves were about two feet apart; and the lower one was just below the bottom of a cellar window, through which the snake probably passed into it. From the shelf above it, there was a web in the shape of an inverted cone, eight or ten inches in diameter at the top, and concentrated to a focus, about six or eight inches from the under side of this shelf. From this focus, there was a strong cord made of the multiplied threads of the spiders' web, apparently as large as common sewing silk; and by this cord the snake was suspended.

Upon a critical examination through a magnifying glass, the following curious facts appeared: The mouth of the snake was fast tied up, by a great number of threads, wound around it, so tight that he could not run out his tongue. His tail was tied in a knot, so as to leave a small loop, or ring, through which the cord was fastened; and the end of the tail, above

this loop, to the length of something over half an inch, was lashed fast to the cord, to keep it from slipping. As the snake hung, the length of the cord, from his tail, to the focus to which it was fastened, was about six inches; and a little above the tail, there was observed a round ball, about the size of a pea. Upon inspection, this appeared to be a green fly, around which the cord had been wound as the windlass, with which the snake had been hauled up; and a great number of threads were fastened to the cord above, and to the rolling side of this ball to keep it from unwinding, and letting the snake down. The cord, therefore, must have been extended from the focus of the web, to the shelf below, where the snake was lying when first captured; and being made fast to the loop in his tail, the fly was carried and fastened about midway, to the side of the cord. And then, by rolling this fly over and over, it wound the cord around it, both from above and below, until the snake was raised to the proper height, and then was fastened, as before mentioned.

In this situation the suffering snake hung, alive, and furnished a continued feast for several large spiders, until Saturday forenoon, the 16th, when some persons, by playing with him, broke the web above the focus, so as to let part of his body rest upon the shelf below. In this situation he lingered; the spiders taking no notice of him, until Thursday last, eight days after he was discovered; when some large ants were found devouring his dead body.

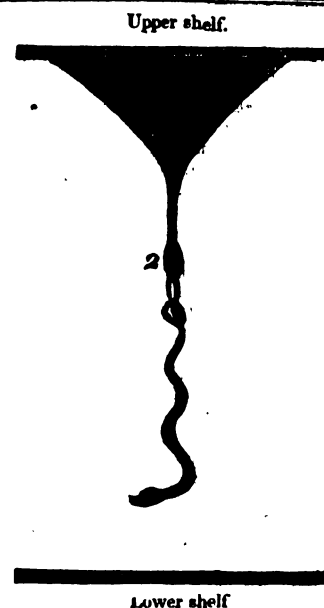
A WITNESS!

As this extraordinary case has been doubted, we think it fair to annex the account of another witness, which will be seen to be similar to that of Judge Cummings, but not identical.—*Ed.*

NEW-YORK, Aug. 26, 1834.

Dear Sir,—Enclosed I take the liberty of sending you a rude sketch of a curiosity, which came under my observation a short time since. A gentleman residing in the village of Batavia, N. Y., on going into his wine cellar, discovered a striped snake, about ten inches in length, suspended by and from the web of a spider, in a manner precisely similar to the enclosed sketch. From a survey of the premises, it would appear that the snake had taken up his abode upon one of the shelves in the cellar, when the spiders (for there are three which appear to be engaged as partners in the business) first formed the design of making him their captive. For this purpose they formed a large web upon the under side of a shelf directly above the snake, from which they descended, and made fast a large number of fibres to different parts of his body, bracing them in every direction, so as to prevent his escape, and render their operations more secure; they next proceeded to muzzle him, by winding a web many times around his head, so as entirely to deprive him of the use of his mouth.

* We understand that Mr. Cummings is first Judge of the Court of Common Pleas in this county, and also Postmaster of Batavia.



Having thus secured him, they next set to work to suspend him from their web. You will observe a knot in the tail of the snake. How this was formed I am unable to say; but certain it is, that the spiders took advantage of it, and by winding the knot with a web, prevented the possibility of loosing it. They then apparently proceeded to attach a large number of fibres, running from various parts of the web above, to the loop formed by the knot, which they glued and fastened together by winding them with another fibre, thus forming a strong cord. This done, the most difficult part was yet to be performed, and this was to swing him clear from the shelf. To do this, they procured a large *blue fly*, (2,) which they made fast to the web or cord, and by continuing to roll the fly over in the web or cord, and making it fast to each turn, they were enabled to swing the snake about three inches clear from the lower shelf. The snake was alive and active when discovered, and five days after, when I was there last, he was still living, suspended in the manner above described. During the day, no spiders were visible in or about the web, but at night there were three, much smaller than the common fly, seen feeding upon the body of the snake.

Very respectfully, your ob't servant,
D. LYMAN BEECHER.

The inquiry has been made, whether the snake might not have fallen by accident into a web previously made, and thus have become inextricably entangled.—*Ed.*

MECHANICAL POWERS.—From a late foreign periodical we have gleaned the following interesting items, by which it will be seen that steam is not the only, and perhaps not the most economical power, that may be used for mechanical purposes. Much yet remains to be discovered in the arena of nature.

New Moving Power.—At a meeting of the French Academy of Sciences, on the 16th of June, a very interesting communication was read from M. Thilorier, a skilful chemist, who exhibited to the Aca-

destry the apparatus by which he procured a litre (a quart) of liquid carbonic acid in a few seconds. The properties of this substance, he observed, have been but little examined, chiefly because it requires to be confined in close vessels, hermetically sealed, and capable of resisting a great pressure. It surpasses all known bodies in the expansion and contraction which it undergoes from given variations of temperature; from 32 to 86° Fahrenheit, a column of the liquified gas is elongated one half. With the same change of temperature a similar column of air is only elongated one-eighth. This enormous dilation, M. Thilorier thinks, will, in future, afford the elements of a moving power infinitely more effective, as well as economical, than that which is derived from the expansion of vapor.

New Mechanical Power.—An ingenious mechanic at Brussels has just applied a new power to mechanics, from which great results appear to be expected. This new power is galvanism. Across a fly-wheel, which is to give motion to the machine, he has placed a metallic bar, previously magnetised by a galvanic pile, and within the attraction of two very powerful magnets. The moment that the bar arrives in a rotary course at the limit of the attractive power, and when it would necessarily stand still, the inventor, by the application of galvanism, suddenly converts the attractive into a repulsive power, which continues the motion in the same direction, and by these alterations, well managed, the whole acquires a rapid rotation. The experiment is said to have been completely successful, and the machine worked a whole hour.

BOTANIC PRIZES.—About five years ago, the Society of Apothecaries, in London, instituted two prizes, a gold and a silver medal, for the best written and oral examination in medical botany. Two students, Edwin Edin and Arthur Tibson, took the medals. This is a remarkable circumstance, and evidences either a want of industry or a want of research, or both, in those who have the reputation of being vastly wiser than they really are.—[Scientific Tracts.]

LISBON AQUEDUCT.—The magnificent aqueduct that furnishes the city of Lisbon with water, and which has been cut off by the army of Don Miguel, may be regarded as one of the handsomest modern structures in Europe. From report, it will not yield in grandeur to any aqueduct left us by the ancients. That portion of it situated in the valley of Alcantara, about a mile from Lisbon, is of admirable structure, consisting of thirty-five arches at least, by which a stream of the purest water is carried across a deep valley formed by two mountains. The height of the middle arch, from the base to the summit, is 263 feet 10 inches; the breadth of the principal arch is 107 feet 8 inches. Each block of stone is in general 23 feet high. The arches on each side diminish in thickness, in conformity to the size of the stones, which, at the termination, are only 8 feet. They

owe the execution of this magnificent monument to John V., who laid its foundation in 1713; nineteen years after which it was completed. The expense was covered by a tax of one real upon every pound of meat sold in the capital.—[Ib.]

NEW MODE OF MAKING SPECTACLES.—Before the Eclectic Society, Mr. Samuel, an optician, exhibited a contrivance which was technically called a *slitting machine*, the use of which was to cut or slit out crystal lenses, for spectacles. It seemed to attract considerable notice, and it is probably calculated to be of essential service in the arts, at least.—[Ib.]

[FOR THE NEW-YORK AMERICAN.]

Imagination.

How oft I've fancied it, my humblest,
A simple lodge in some sequester'd spot—
Far from this world of tumult and of gain,
Content to dwell 'mid nature's wild domain,
With competence, sufficient to bestow
Freedom from mental toil, or labour low.
One friend alone, to cheer with anxious love,
My journey thro' life's vale, to realms above—
With tenderness to wile each grief away,
And bid my thoughts to cheerful pleasure stray.
Not the gay rout—or Theatre's broad glare,
Oh! heart's pleasure never enter'd there,
The aching heart, the soul whence virtue's fled,
May seek those haunts, the grave of joys long dead—
There ponder o'er fictitious tales of grief,
And for a moment, find a vain relief,
Or madly, still with roses wreath the hair,
Whilst the heart sighs with anguish or despair.
Not these the joys that could my bosom swell,
But o'er some gentle lay—some witching spell—
To pore unwearied, or some graver page,
Or laughing wit, or evening hours engage—
At sunset rove together ocean's side,
Sooth'd by the murmur of its flowing tide,
I sit to thee—and with a Poet's ear—
In deep mutterings, future tempests hear,
Storms in each blast—a wreck in every wave,
In fancy start, some struggling form to save,
Or wand'ring 'neath rich autumn's golden sky,
Tremble and Turret in its clouds spy—
See Moor and Christian in its fading glow,
The cross triumphant—and the crescent low—
Down with the lightning, shouted with each gleam
Of vision'd fashions, mixed with Moorish scream,
Then wake 'as I do now, from Poet's dream.
And oh! Celestial Maid, whose gentle power,
Can soothe the sadness of each bitter hour—
Mistress of each sweet spell, all harmony,
Music—bright triumph—what pleasures spring from the?
Soft lay—the frolic glee—the social dance—
Gather fresh spirit, from thy merry glance,
I own thy power—at humble distance tread
And follow, timidly, where thou hast led.
Still dearer joys than these, my woman's soul,
Would crave, to mother's known the sweet control
Of infant love—of childhood's raptures kiss,
Oh can there be a greater joy than this?
To feel their little arms around you twine,
And see their eyes, with true affection shine,
Their artless accents, earnestly heart, betray—
The deep, deep love—that their pure bosoms sway;
Oh! I can find, in childhood's whisper low—
A balm for grief, a cure for every woe—

ELLA.

SONG.

By Miss E. L. MONTAGUE.

Oh dinna, dinna blame him, mither,
Dinna blame him, now he's gane;
Bethink ye o' the days, mither,
When he was a' my ain.
We twa us' roamed where the bracken bend,
The burny braes among;
We twa had loved ere either kenned
Sic love could e'er be wrang.
Oh, dinna, dinna seek him, brither,
If ye wouldna see me die—
His hand is on the steel, brither,
And his border blood is high.
Ah, seek him no wi', vengeful ee,
For I forgie him a',
An' ye maun stop to comfort me
When he is far awa'.
Ah dinna, dinna greet, sister,
See hither and yon;
Cast the tear-drop frae your een, sister,
An' mine shall weep wae mair.
Oh, never mair we'll name the name
O' this fause hwa o' mine,
But we'll turn again unto our hame,
An, the memory o' lang syne.
But dinna, dinna curse him, father,
Ye kenns what ye do;
O, think upon the time, father,
When he was gude an' true.
Or if that bitter word maun steal
Frae lips where blessings be,
Oh, blam the deed I have eae weel,
An, fa' that curse on me.

STEPHENSON,

Builder of a superior style of Passenger Cars for Rail-
road,

No. 264 Elizabethstreet, near Blocker street,
New-York.

RAILROAD COMPANIES would do well to
examine these Cars; a specimen of which may be seen
on that part of the New-York and Harlem Railroad
now in operation. J.S.H

**RAILROAD CAR WHEELS AND BOXES,
AND OTHER RAILROAD CASTINGS.**

Also, AXLES furnished and fitted to wheels
complete at the Jefferson Cotton and Wool Machine
Factory and Foundry, Paterson, N. J. All orders ad-
dressed to the subscribers at Paterson, or 60 Wall
street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

JR ROGERS, KETCHUM & GROSVENOR

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansing-
burgh, in the county of Rensselaer, and state of New-
York, has invented and put in operation a Machine for
making Wrought Nails with square points. This machine
will make about sixty 6d nails, and about forty 10d nails
in a minute, and in the same proportion larger sizes,
even to spikes for ships. The nail is hammered and comes
from the machine completely heated to redness, that its
capacity for being clenched is good and sure. One horse
power is sufficient to drive one machine, and may easily
be applied where such power for driving machinery is in
operation. Said Fairman will make, vend and warrant
machines as above, to any persons who may apply for them
as soon as they may be made, and on the most reasonable
terms. He also desires to sell one half of his patent right
for the use of said machines throughout the United States.
Any person desiring further information, or to purchase,
will please to call at the machine shop of Mr. John Hum-
phrey, in the village of Lansingburgh.

August 15, 1833.

Ad of R.M.F

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior qual-
ity warranted.

Leveling Instruments, large and small sizes, with high
magnifying powers with classes made by Troughton, to-
gether with a large assortment of Engineering Instru-
ments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,
corner of Maiden lane.

**SURVEYING AND ENGINEERING
INSTRUMENTS.**

The subscriber manufactures all kinds of Instru-
ments in his profession, warranted equal, if not superior,
in principles of construction and workmanship to any im-
ported or manufactured in the United States; several of
which are entirely new, among which are an Improved
Compass, with a Telescope attached, by which angles can
be taken with or without the use of the needle, with per-
fect accuracy—also a Railroad Goniometer, with two Tel-
escopes—and a Leveling Instrument, with a Goniometer
attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully sub-
mitted to Engineers, Surveyors, and others interested.
Baltimore, 1832.

In reply to thy inquiries respecting the instruments man-
ufactured by thee, now in use on the Baltimore and Ohio
Railroad, I cheerfully furnish thee the following infor-
mation. The whole number of Levels now in possession
of the department of construction of thy make is seven.
The whole number of the "Improved Compass" is eight.
These are all exclusive of the number in the service of the
Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They
have in fact needed but little repair, except from accidents to
which all instruments of the kind are liable.

I have found that thy patterns for the levels and com-
passes have been preferred by my assistants generally, to
any others in use, and the Improved Compass is superior
to any other description of Goniometer that we have yet
tried in laying the rails on this Road.

This instrument, more recently improved with a rever-
sing telescope, in place of the vane sights, leaves the
engineer scarcely any thing to desire in the formation or
convenience of the Compass. It is indeed the most com-
pletely adapted to lateral angles of any simple and cheap
instrument that I have yet seen, and I cannot but believe
it will be preferred to all others now in use for laying of
rails—and in fact, when known, I think it will be as highly
appreciated for common surveying.

Respectfully thy friend,

JAMES F. ETABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of
Mr. Young's "Patent Improved Compass," I can safely
say I believe it to be much superior to any other instrument
of the kind, now in use, and as such most cheerfully re-
commend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr.
W. J. Young, of Philadelphia, in which he has combined
the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for
laying out Railroads, and can recommend them to the
notice of Engineers as preferable to any others for that
purpose.

HENRY B. CAMPBELL, Eng. Philad.
Germant. and Norrist. Railroad

To Primrose Filled with Morning Dew.

By H. HENRIK, 1848.

Why do ye weep, sweet babes? Can tears
 Speak grief in you
 Who were but born
 Just as the modest morn
 Teem'd her refreshing dew?
 Alas! you have not known that show'r
 That morn a flower;
 Nor felt th' unkind
 Breath of a blasting wind;
 Nor are ye worn with years;
 Or warp'd as we,
 Who think it strange to see
 Such pretty flowers, like to orphans' young,
 To speak by tears before ye have a tongue.
 Speak, whimp'ring younglings; and make known
 The reason why
 Ye drop and weep,
 Is it for want of sleep;
 Or childish lullaby?
 Or, that ye have not seen as yet
 The violet?
 Or brought a kiss
 From that sweet heart to this!
 No, no—this sorrow
 By your tears shed,
 Would have this lecture read—
 "That things of greatest, so of meanest worth,
 Conceiv'd with grief, are with tears brought forth."

GOLD REGION OF THE UNITED STATES.

Now in press and will be published in a few days, the first of a series of numbers, giving a minute and particular description of the entire Gold Region of the United States.

Each number will be accompanied by a Map, on which will be laid down, and numbered, with owner's name, in the order of discovery, of every Gold Mine within the district of which the number treats, so that any person can ascertain the location, owner's name, and condition, as late as January 1, 1835, of every Gold Mine, or place where gold has been discovered in the United States.

The first number, which will be issued by the 30th of April, will give the Gold region of North Carolina; together with a very interesting Essay, upon the Gold region of the United States, from the transactions of the Geological Society of Pennsylvania, by James Dickson, Esq., F. G. S. of London, C. M. G. A. of Pennsylvania, &c. &c.—With other interesting and important information in relation to the supply and consumption of Gold.

The information and maps are by a scientific gentleman, who has visited personally what he describes.
 No. 2, including the States of Virginia and Maryland, will be published by the first, or during the month of, June.

No. 3, giving Pennsylvania, New Jersey and New York, by the first of August. And the succeeding numbers, 4 and 5, which will probably complete the series, by the first of January next.

The terms will be \$1 per number, or \$5 for the Series.—Subscriptions addressed to D. K. MINOR, or to the publishers, T. & G. WOOD.

No. 7 Wall street.

Gentlemen who may have particulars, or details, of present condition of mines in North Carolina, will oblige me by communicating the same, that the work may be as complete as possible.
 D. K. MINOR.

NOTICE.

The Board of Directors of the NEW YORK AND BRIE RAILROAD COMPANY, believing that the interests of this City demand that the construction of their Railway should be immediately commenced, and having resolved, with undiminished confidence in the merits and early productiveness of the undertaking, to proceed in their operations without delay, hereby give Notice, that in order to provide means adequate to the completion of a single track of the Railway over an extended and most important portion of the route, subscriptions for Two Millions of the capital stock will be received at their Office, No. 29 Wall street, on the 15th day of April next, and the two succeeding days. Five Dollars on each share is required to be paid at the time of subscription.

It is to be understood that no further issue of Stock will be made within two years, and that it is the object of the Company, before the expiration of that period, with this and the former subscription, to put such portion of their Road in operation, as will, they confidently believe, yield a profitable return on the cost thereof.

New York, 30th March, 1835.

By order of the Board.

JAMES G. KING,
 JOHN G. COSTER,
 PETER C. STUYVESANT,
 MICHAEL BURNHAM,
 KLEAZAR LORD,
 GOULD HOYT,
 STEPHEN WHITNEY,

No. 30 WALL

Committee to receive Subscriptions.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of EIGHT pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2.

MECHANICS' MAGAZINE, AND REGISTER OF INVENTIONS AND IMPROVEMENTS.

This work has completed 4 volumes, or two years. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10.
 D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Volumes 6 and 7, or 1 and 2, new series, \$3 per volume.

QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
 35 Wall street, New-York.

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full six under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-17

TOWNSEND & DUFFEE, of PAINTON, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Duffee, May & Co. offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jarvis, Eng. M. & H. R. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New York,
 January 29, 1835.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

RAILWAY IRON.

85 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
300 do. 1 1/2 do. do.	14 to 18 feet, counter sunk
40 do. 1 3/4 do. do.	holes, end cut at an angle
800 do. 2 do. do.	of 45 degrees, with splicing
800 do. 2 1/2 do. do.	plates and nails to suit.

soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 30, 32, 34, and 36 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON, 9 South Front street, Philadelphia.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale every extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by J. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 323 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.
 132am H. BURDEN.

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 30, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, fitted with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 18 horse Steam Engine, which could be displaced with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Sprogs, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 35, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

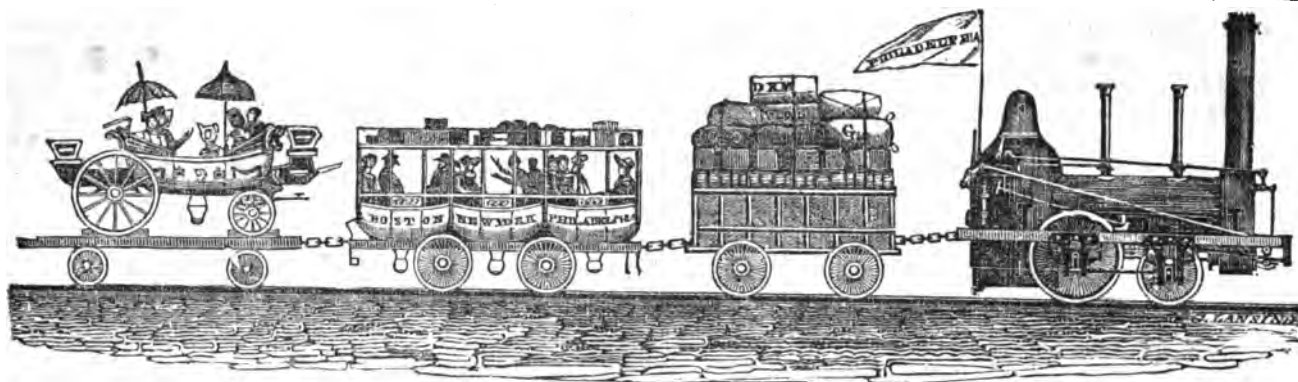
No. 7. A range of buildings, 300 feet long by 26, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to

THOMAS J. ECKLEY, Treas. &c., Boston, or to ROBERT RALSTON, Jr., Philadelphia. Boston, Dec. 20, 1834.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, APRIL 11, 1835.

[VOLUME IV.—No. 14.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, APRIL 11, 1835.

We continue in this number the Report of Mr. Mills upon his survey of the Rochester and Olean Canal.

We would take this opportunity to correct an error in the 12th No. In a short editorial introduction to an extract from Mr. Mills' Report, showing the comparative distance of the three great routes from this city to the Ohio River, it was said to be from Mr. Johnson's Report, whereas it should have been "from Mr. Mills' Report."

Railroad Locks.

To the Editor of the Railroad Journal :

Sir,—Locks on railroads, like most other departures from established modes, will have to contend with ridicule and opposition ; and whether their merits can sustain their pretensions, experience must determine. Public safety, without regard to pecuniary considerations, demands some other than the present method of surmounting elevations, by inclined planes and stationary steam engines ; and locks are now proposed for public consideration, as a substitute. The immense capital already contemplated to be invested in railroads, (42 being completed, and 146 projected,) the spirit of emulation that exists in several

States, to surpass each other in that mode of intercourse, and the general predilection prevailing throughout the Union in their favor, gives any probable improvement in the safety, economy, and convenience of their construction, claims worthy of attention. The numerous inventions that are daily urged on the public, of no practical utility, and the pertinacity with which men adhere to preconceived opinions, render it difficult, without great exertion, to bring into general and immediate use designs highly important to community.

Improvements, however, are so rapid, and the country has derived such acquisitions of general prosperity and convenience, from steam navigation, railroads, and canals, that locks, so internally connected with a favorite subject of public interest, may find less difficulty of access to public patronage and confidence, than usually attends new designs. In presenting the subject to the public, the relative claims of railroad locks, and inclined planes and stationary steam engines, to the important considerations of safety, economy, and expedience, will be submitted, though the latter of the two modes being the only one in use, will not require other than general remarks. It is justly observed by Mr. Smith, editor of Wood's Treatise on Railroads, that inclined planes and stationary steam power "are an opprobrium to the present advanced state of civil engineering ;" and they certainly betray a greater want of invention than displays itself in any other case, where the necessity of improvement is so evident.

That method of surmounting altitudes, since its adoption, has been a subject of complaint in England, and the fatal disasters they have occasioned strongly pressed for their discontinuance. In the United States, their destructive effects are not as generally known, or yet as severely felt ; but the frequent accidents attending their operations on the Alleghany Mountains, and other places, have produced sentiments of disapprobation, that are gaining ground in the public mind. The only recommendation that inclined planes have to sanction their continuance is speed ; and that, in the

opinions of reflecting men, will not compensate for the least of the three objections to that mode of ascending. The views of the editor above alluded to are pertinent, and express the sentiments of those acquainted with the danger, expense, and inconvenience of that mode of ascending ; he observes, "hence, any available plan, which will enable locomotive engines to ascend, with their full compliment of wagons, without the intervention of stationary engines, and their appendages, will be a most valuable addition to the utility of railways, and unless the weight to be overcome be greater, compared with the length of the whole line, the delay resulting from a diminution of speed will be a trivial inconvenience, when the advantages of dispensing with an expensive stationary power are estimated." It is not probable that locks, such as are contemplated by Mr. Taylor, the inventor, occurred to Mr. Smith ; as they embrace all the requisites he requires for an elevating power, with the additional and most important one of perfect safety. W. G.

Undulating Railways.

Washington, D. C., March 30, 1835.

To the Editor of the Railroad Journal :

Dear Sir—Messrs. Badnall & Stephenson, in their views respecting Undulating Railroads, are both right and both wrong. Mr. Badnall's experiments prove, that in locating Railroads in this country, where they must necessarily be undulating, an effect of power may be had not differing materially from the effect had upon level railroads ; and it becomes the duty of engineers, to whom this subject more particularly belongs, to give particular attention to it.—Mr. Stephenson's views are correct in favor of level railroads ; but it is out of the question to have them level for any considerable length in this country, or any other. We must then consider the results of Mr. Bagnall's experiments as highly useful and important, inasmuch as they demonstrate that the useful effect upon a railroad over an undulating country may be nearly, if not quite equal, to the effect if the road were level. I belong to the craft whose duty it is to make these subjects their study, and if you do not greet me too roughly, may remind you occasionally of.

Most respectfully, your

FRIEND.

We shall be pleased to receive further communications from a "Friend."

Remarks and Calculations on the best form for Railway Bars, and on the defects which exist in the present method of supporting the same. By R. STEPHENSON, Engineer.

(Concluded from our last number.)

I am afraid this digression from the point more immediately under discussion, may appear irrelevant, but it is one which I feel is necessary, fully and clearly to explain the views expressed in the foregoing remarks, respecting the flexibility of the rails above the supports, which I hold to be beneficial in more respects than one; for, whilst the strength of the rail is rendered greater in the middle of its length, the height of the chair, and the level of the rail, is reduced, which contributes to the steadiness of the construction.

Having learned that the elliptical rail on the Liverpool Railway had frequently broken, I wrote to Mr. John Dixon on the subject. The following is an extract from his letter:

"Our old rails, I am convinced, are too weak; not for the waggon, but for engines that bear six tons on one pair of wheels; and the weakest part is evidently the end next a joint, for although as deep at that point as at the places where the other chairs are fixed, it has not the support from the next rail, as if it were welded there, or were one continuous bar, especially when the joint chair gets loose on the block, key loose, and the block, or sleeper, itself settles. If fact, they generally bend, or break, within six or eight inches of the end of the rail. I believe the best rail for economising iron would be to make all the rail undulating as usual, but the two extremes parallel, the parallel part to be as deep as the belly of the undulations; but probably this could not easily be made, and would be then only a substitute for a little more iron."

This intelligence induced me to ascertain, by calculation, the weakest point in the Liverpool rail, and compare it with Mr. Dixon's statement. If the calculation accorded with the practice, it is clearly easy to provide against a similar imperfection.

In the accompanying drawing,* figs. 1 and 2 are sections of the old Liverpool rail, weighing 35 lbs. per yard; figs. 3 and 4 are similar views of a proposed elliptical rail, to weigh 50 lbs. per yard. The relative strength of these two rails, at eight inches from the end, is as 6 to 15.3, or rather more than 1: 2½.

Such an increase of strength beyond those employed on the Liverpool and Manchester Railways, which were used for temporary purposes, and thereby injured, during the execution of the work, would appear to be ample.

If we apply the formula which has already been given for the strength of the rails, to the Liverpool elliptical rail, we shall find that it indicates the weakest point at about nine inches from the end, being, in fact, at that point of the curve where it deviates most from the true ellipse, which would have been equally strong throughout.

Now, the depth of the elliptical rail, at nine inches from the end, is exactly the depth due to a parallel rail of the same weight per yard. We have, therefore, data to calculate what would have been the strength of the parallel rail in the middle of its length, compared with the strength of the elliptical rail at that point, which

* The drawing here referred to did not accompany the manuscript from Mr. Stephenson.

has been found insufficient for six tons upon a pair of wheels, as stated in Mr. Dixon's letter.

The depth of the Liverpool rail, at the point of fracture may be taken at 2½ inches: whereas the depth of a parallel rail of equal weight would be three inches; the relative strengths of the two rails, at the usual place of fracture, would be $2\frac{1}{2}^2$, 3^2 , or as 8½: 9, in favor of the parallel rail at this point.

Now, to continue the comparison, we must suppose the same load which broke the elliptical rail at seven inches from the end, transferred to the middle of the parallel rail, and calculate its adequacy under these conditions.

Since we find the elliptical rail break at seven or eight inches from the end, where the depth is 2½ inches, we are perhaps near the truth in taking three inches as the proper depth, being the depth of the parallel rail [which we have] just shown has the advantage over the other in the rate of 8½: 9.

We know also that the strain produced by the same weight, placed in different parts of a beam, is as the rectangle of the segments into which the beam is divided; the comparative strains, therefore, produced by a given weight, seven inches and eighteen inches from the end, will be as 7 + 29: 18², or as 5: 8, very nearly.

Taking, therefore, the strength of the parallel rail as correct, at seven inches from the end, it must be too weak in the middle, in the proportion of 8 to 5; and we may, consequently, from these premises, draw the following conclusions, viz.: Had the Liverpool Railway been laid with parallel rails, 35 lbs. per yard, the breakage would have been increased in the ratio of nearly 5: 8, and the place of fracture would have been midway between the bearings, instead of seven or eight inches from the end. If we take the weakest part of the elliptical rail, as calculation gives it, viz.: nine, instead of seven inches, then the proportional breakage would have been as 6: 8.

I am fully aware that some risk is incurred in thus endeavoring to represent numerically a comparison which is perhaps not susceptible of rigid calculation; but I am anxious that the truth on this much disputed point should be elicited, and in this attempt to establish a comparison upon grounds partly experimental and partly theoretical, it is believed a numerical statement will tend to define that which I am not aware has hitherto been more than mere matter of opinion, and thus bring the subject more within the grasp of legitimate argument.

In concluding these remarks, I beg leave to state that, if I have in any part of them betrayed a bias in favor of the elliptical rail, without a sufficiently powerful reason, I shall have pleasure in hearing it pointed out, with a view to correction. I have endeavored sincerely to give the subject that impartial consideration which its importance demanded, and I need scarcely add that it has given me some satisfaction to find that the experimental and theoretical results coincide sufficiently. This satisfaction is enhanced, when I find that the conclusion in favor of the elliptical rail is consistent with the opinion and experience of Mr. John Dixon, of the Liverpool and Manchester Railway—of Mr. Thomas Storey, the engineer on the Stockton and Darlington Railway—and of Mr. Nicholas Wood, one of the Directors of the Newcastle and Carlisle Railway, to whom I am indebted for the table of experiments embodied in these remarks. The circumstances which

gave rise to these experiments have already been explained, and I am enabled, through the kindness of Mr. Wood, to add a copy of the report of the deputation from the Board of Directors of the Newcastle and Carlisle Railway, appointed to examine the subject by experiment. I also add copies of letters received from Mr. Wood and Mr. Storey.

COPY OF REPORT OF DEPUTATION ALLUDED TO ABOVE.

Result of trials made at Walker Foundry, October 10th, and 31st, 1832, to show the comparative merits of Fish-bellied and Parallel Rails.

"Various experiments were made, but those which appear to the committee to have more immediate reference to the views of the directors, are the following.

"Three trials were made of fish-bellied rails, of 50 lbs. per yard; three trials of parallel rails of the same weight; and two trials of fish-bellied rails, weighing 40 lbs. per yard.

"The weights laid on in these trials reached different amounts, but 90 cwt. is taken in the following for each trial, which the committee conceive to be a load sufficient to meet any practical object. The weight of the steelyard was 6 cwt., and 14 cwt. was added each time; the measure of deflexion was taken in parts, 1088 of which go to an inch.

"The first six loads (90 cwt.) on the three trials of 50 lbs. fish-bellied rails, measured 164½ parts of deflexion, which give an average of 9.14 parts as the mean advantage on each 14 cwt. loading.

"The first six loads (90 cwt.) on the three trials of 50 lbs. parallel rails, measured 230 parts of deflexion, or an average of 12.77 parts mean advance for each 14 cwt. loading.

"The first six loads (90 cwt.) on the two trials of 40 lbs. fish-bellied rails, measured 185 parts of deflexion, averaged 15.41 parts mean increase of each 14 cwt. loading.

"Rejecting fractional figures, the committee consider these results to show, under the circumstances stated, that a fish-bellied rail of 45 lbs. per yard is equal to a parallel rail of 50 lbs. per yard, because, as just expressed, nine parts represent the 50 lbs. fish-bellied rails, twelve parts the 50 lbs. parallel, and fifteen parts the 40 lbs. fish-bellied, bringing the parallel, as nearly as need be, midway between 50 lbs. and 40 lbs. fish-bellied rails."

(Signed,)

B. THOMPSON,
N. WOOD,
R. W. BRANDLING,
W. LOSH,
JAS. THOMPSON,
FRAS. GILES,
W. WOODS.

COPY OF A LETTER FROM MR. WOOD.

Killingworth, 24th May, 1834,
My dear Sir: As the information you required was the result of private experiments, I did not like to give it until I had the sanction of the directors, which I now have. The experiments were occasioned by a difference of opinion whether parallel or fish-bellied rails were best, and, to bring the question before the directors in the most decisive manner, experiments were ordered to be made upon both rails—Mr. B. Thompson furnishing the section of parallel, and the fish-bellied being furnished by myself. Enclosed are the sections, by which you will see that the wearing surface, or top, of the rail, and the base, were precisely the same; the extreme depth of the parallel

being 4 in., fish-bellied 5 in.; the base of the latter being a semi-ellipse, $3\frac{1}{2}$ in. deep, $1\frac{1}{2}$ in. from the end of each three feet, the curved knob being three inches. The experiments were conducted with the greatest care, and the deflexion measured in 1000th parts of an inch. The weights were added 14 cwt. at a time, upon 6 cwt., the weight of the steelyard.

Taking the first 96 cwt. laid upon the middle of the rail, the rail being supported at each end, the deflexion was $\frac{77}{1000}$ parts of an inch, fish-bellied; $\frac{77}{1000}$ parts of an inch, parallel, of 50 lbs. per yard each; and $\frac{77}{1000}$ parts of an inch 40 lbs. fish-bellied; although the conclusion come to by the directors was, that the parallel 50 lbs. was equal to the mean between the 50 and 40 lbs. fish-bellied, viz.: $\frac{55 + 98}{2} = 76\frac{1}{2}$ 1; the comparative stiffness of 50 lbs. parallel and fish-bellied rails, was as 55 : 77.

As, however, the directors took every thing into consideration, the form of the two rails, the fact that the saving of material in fish-bellied being only in the keel of the rail, the conclusion that a 45 lbs. fish-bellied is equal to a 50 lbs. parallel, is, I believe, a just estimate of their comparative merits.

We have found the circular knob an excellent form for securing a good material of iron, as it is difficult to form with the common iron. Any other information on the subject I shall be happy to give you. I am, my dear Sir, yours very truly,

(Signed,) NICH. WOOD.

To ROBERT STEPHENSON, Esq.

EXTRACT FROM MR. STOREY'S LETTER.

St. Helen's, Auckland, May 31, 1834.

Dear Sir: In reference to the subject of the form of rail best suited to railways. On the Stockton and Darlington Railway, you know we have only the fish-bellied kind, which form I have invariably supported, as the strongest, and best suited for railways, with the least weight of material in them, and liable to be the least affected by lateral blows, on account of the point of support being nearest the centre line of the mass of iron forming the rail.

One point is settled with me—that the better the quality of iron, the less it is suited for railway bars.

I have used rails made from Scrap No. 2 Mine Iron, with a Swede bar on the top; Cable Iron, manufactured into rails; No. 2 Mine Iron, do.; with none of which I am yet satisfied.

I have lately ordered 250 tons of rails (to replace our light ones) for the Stockton and Darlington Railway Company, to be manufactured in a different way; which, if I succeed in getting of the fish-bellied shape perfect, I am of opinion will be found to answer the purpose.

If I do not succeed in that shape (without faults and cracks on the under side) it is my intention to resort to the parallel rail, as of that shape there can be no doubt of its answering.

The process I have described is, that good strong mine iron is to be used, that has passed through the refinery and puddling furnaces, and reduced, under the forge hammer, from seven to five inches square, before rolling into rails. The price is only a shade higher than if manufactured from No. 2 mine iron bars; and 10s. per ton more than the parallel bar of the same quality and manufacture.

You will find that very heavy malleable iron rails are subject to rapid decomposition on the surface, until they attain the strength that passing weights will give motion to

the particles, when that decomposition will, in a great measure, cease; thereby proving my theory, that beyond a certain weight is a wasteful and useless expenditure. Dear Sir, yours always, truly,

(Signed,) THOMAS STOREY.

To ROBERT STEPHENSON, Esq.

On the above report to the Directors of the Newcastle and Carlisle Railway, I have little to remark, except to explain the apparent discrepancy which would seem to exist, on comparing the results taken as the basis of the report, with those described by the table furnished to me by Mr. N. Wood. In the report, other trials were alluded to, with which the results are blended, so that the average is below those stated in the table. The other experiments were, I believe, varied by allowing the rails to be placed loosely on the supports, when the superiority of the elliptical rail, as regards stiffness, was not so decided. The table is founded on experiments, where the rail was firmly keyed into the chairs, and was, therefore, more nearly in the condition of a railway in perfect order. This, I apprehend, will account for the relative stiffness of the two rails being stated as 55 : 77, whereas calculation gives it 55 : 85, and, by the table, where the rail was firmly keyed to the supports, it is 55 : 91.

It is also necessary to explain that the elliptical rail was made with a circular projection, which fitted into a corresponding recess in the bottom of the chair, according to Mr. W. Losh's patent. This would render the keying more efficient, and add a little to the rigidity of the elliptical rail.

This may probably account for the stiffness by experiment sometimes exceeding that represented by calculation, which ought not to be the case where the form of the beam is reduced in depth towards the end. The comparative stiffness, however, taken from the average of the experiments, as stated in Mr. Wood's letter, viz. as 55 : 77, does not differ so much from 55 : 85, as to shake our confidence in the theoretical view affording means for a tolerably near approximation.

The relative ultimate strengths are not mentioned in the report, but from the table they may be found to be as 12 : 15, and calculation gives 12 : 16, which is again sufficiently near to show that the principles adopted in the calculations are correct.

In Mr. Storey's letter, he mentions, in a particular manner, the difficulties he has had with respect to the quality of the iron employed in making rails; and though he expresses it as his opinion, that "the better the quality of the iron, the less it is suitable for railway purposes," I am persuaded he intends this to be taken with great limitation, as it is evident he would not mean to convey the converse, viz.: that the worse the quality of the iron, the better it is suited for railway purposes.

Mr. Storey is not alone in the opinion that the railway iron should not be of the best quality; it is urged by many that iron of the best quality is liable to laminate more rapidly than iron of a poorer description. I cannot say that my experience has led me to this conclusion; yet there may be consistency in rejecting the use of the finest cable iron, as not forming a rail proportionally stronger with the increased expense. I think it not improbable that much of the evil complained of on the Darlington Railway, from the lamination and splitting of the rails, may be owing, in some degree, to the circumstances of the carriages being without springs, and some of the very heavy

locomotive engines with springs applied in such a manner, that they operate only to a partial extent.

On the Warrington and Newton, on the Leicester and Swannington, and on the Stanhope and Tyne, Railways, I recommended the rails to be made from best No. 2 bar iron, entirely free from cinder. The rails, when manufactured, are, therefore, No. 3 mine iron. This mode of manufacture would give rails of similar quality to those weighing 28 lbs. per yard, laid down on the Stockton and Darlington Railway in 1825, which, I was surprised to learn from the chairman, were in better condition now, after several years' wear, than some rails of 40 lbs. per yard, recently laid down.

[Journal of Franklin Institute.]

Report of Frederick C. Mills, Engineer, to the Honorable the Canal Commissioners of the State of New-York.

(Continued from number 12.)

In selecting a line having in it this amount of lockage, particular regard was had to the facilities offered for the equal and proper distribution of the locks.

Several routes were suggested, two of which were minutely surveyed; one through the deep cut at Col. Williams', down the Cashesquo valley, via Nunda, to the Dansville line near Mount Morris; the other following the same route for $1\frac{1}{2}$ mile over an undulating surface, (with some extra cutting through points of ridges,) which continues of like character for about 4 miles, then passes on to a smooth faced country of clay soil on a rocky base, gently declining towards the river, over which the line was continued down the hill at Mount Morris to the junction with the aforesaid Dansville route, and is $14\frac{1}{2}$ miles in length. Several examinations were made down the hill, which resulted in favor of the easterly line, a profile of which, together with one of the line down the ravine behind General Mill's house, will be found in the atlas, folio No. 174.

In descending this hill, there is a fall of 409 feet in the distance of $3\frac{1}{2}$ miles.

In locating the locks on this canal, I have endeavored in all cases to obtain a "pound reach" between them of sufficient length to fill a lock with water without depressing the level from which it is drawn more than six inches.* To keep within the rule, and overcome so large an amount of lockage as will be concentrated in the above distance by single locks, would be exceedingly difficult, and although combined locks are considered objectionable, not only on account of the waste of water, but also from the loss of time occasioned when two boats arrive passing in opposite directions, the one arriving last being unavoidably detained until the first has passed all the locks forming the combination; yet in locations of rapid descent, and where the supply of water is abundant, it is deemed advantageous to construct combinations, inasmuch as there would be an important saving both in the expense of building the locks and in the diminution of the quantity of excavation and embankment necessary in forming the requisite "pound reach" for single locks; and there would also be a reduction in the number of lock-houses and tenders. I have therefore in the rapid descent to Mount Morris, located 11 combinations of 3 locks each, 6 combinations of 2 locks each, and 2 single locks. They are all 10 feet lift except the 2 single locks, one of which is 8

* This requires that the distance between the locks should be as many chains as the lock below into which the water is drawn has lift in feet.

and the other 11 feet lift, equal in all to 469 feet.

The proper length of level is obtained throughout the line except in five cases, which occur at the above point. These vary from 11.10 to 13.35 chains in length; the required surface may however be added by widening the levels, for which liberal provision is made in the estimate.

There is one other combination. It is formed of 3 locks of 10 feet lift each, and occurs about 7½ miles above Portageville, in the descent of Round Flat, (so named from its peculiar shape.) For length of levels, lift of locks, total distance of each from Olean, and the names of proprietors through whose land the canal passes, see statement L.

This distance of 17½ miles is subdivided into 17 sections, on which are located 56 locks, (45 are combined,) 7 culverts, 12 waste-weirs, 24 road and 24 farm bridges. Estimated cost of construction \$538,767 14.

The Nunda valley route presents greater facilities for the distribution of locks, and as will be seen by reference to the profiles, (folio 26-27,) allows a distance of 14 miles to attain the elevation effected on the other line in 3½ miles; but the extra distance, several expensive ravines, and the deep cut (45 feet) through Nunda hill at Williams', render this route the most expensive.

It is 15½ miles long, and will cost \$559,733.73; \$202,391.45 more than the river line.

Several intelligent gentlemen were of opinion that a more favorable route might be found down Dish Mill creek to its confluence with the Genesee, and thence under the perpendicular river bank, partly in the bed of the stream, to Mount Morris dam. On passing over the ground, however, it was evident that the necessary protection required where the canal must be exposed to the river, would swell the cost far above that of either of the other routes, and as there would be no improvement in the location of the locks, the survey was abandoned.

MOUNT MORRIS TO ROCHESTER.

In making a cursory examination of this valley, the facilities for the construction of a canal appeared so nearly equal on each side of the river, that it was judged expedient to survey and locate two lines.

The estimates for both have been carefully made out, and the cost is herewith presented.

This portion of the Genesee valley has some peculiar features, which may be worthy of remark. The flats, which exceed in fertility and beauty any to be met with in this State, lie upon a bed of quicksand about 20 feet below the surface, and are generally from one to two miles wide, descending towards Rochester with great uniformity, at the rate of two feet to the mile. Through these flats the Genesee river takes a circuitous course, frequently mingling its waters with the quicksands below, and occasionally cutting the base of the hills which skirt the valley on either side.

West Side.

The route upon the west side of the river crosses the Genesee near Mount Morris dam by an aqueduct of 234 feet in length. Immediately below the mill-dam the rock disappears, and is not again seen until we arrive at the rapids near Rochester.

An aqueduct constructed at the point proposed must rest upon gravel, and probably quicksand, in which case piles will

be necessary for the security of the foundation. Thence over the Moscow flats to Tracy's store-house, 4½ miles, the line is very nearly straight, with the requisite cuttings, and of easy excavation.

Here the river washes the base of the hill; but by some extra cutting the canal may pass without requiring protection from the river.

From this point to Rochester the location is, with a few exceptions, on the flats near the upland slopes, and sufficiently elevated to be out of danger from the floods.

The base of the hill is washed by the river at 6 points, together measuring 1½ miles, 40 chains of which will require extra protection, which is provided for in the estimates.

Slide banks occur at two points; near Gardner's store-house 9 chains, and below Fowlerville bridge 36 chains, = 45 chains.

To guard against these slides will be difficult and expensive; though for the most part they may be secured by driving piles. Another mode (by which the principal slides would be avoided,) is to cut down the hill and pass into a ravine, as seen on sec. 81 of folio 21 in atlas. This will increase the expense, but add to the security of the work.

Dumplin hill is a high sandy point coming out of the river's bank near Tone's tavern, 7½ miles from Rochester. The first or river line encounters this hill. On further examination, however, a very favorable pass was discovered to the west of the ridge, through which the line may run, and avoid the river without increasing the distance.

On this side we pass Beard's, White, Dugan's, Allen's, Big and Little Black creeks. Allen's creek sends forth 3,386.40 cubic feet of water per minute, and is the only stream on which we can depend for a feeder. It may be received into the canal at Scottsville with facility, and is 12½ miles from Rochester.

Connected with the Mount Morris dam is a canal about 3 miles long, running to the village and thence across the flats to the Canasraga, a little to the right of the Genesee road. This work was constructed by John R. Murray, of New-York, for hydraulic purposes; upon it are erected 1 saw-mill, 1 hemp factory, and a flour-mill with 4 run of stones.

The line from Olean and the Dansville side-cut come together at the foot of the hill under the village, and intersect the Morris canal at the flour-mill about 1 mile from the dam. In the event of continuing the route to Rochester on either side of the river, it may be necessary to make use of a portion of the mill canal for the purposes of a feeder, or as part of a main trunk; and in that case public security would demand that the State should assume the control of the water.

The dam appears to be well built; it is founded on rock, and by some additional protection at the ends, and enlargement of the embankment along the canal, and a new guard lock and pier at the pond, it may be used to advantage for the feeder, or as part of the main canal, in case it should be deemed advisable to cross the river in the pond, which, however, (unless there be peculiar circumstances connected with it calculated to recommend the plan,) should always be avoided. The rise here from extreme low to high water mark, is 6½ feet; and the pond is favorably situated for this mode of crossing.

A company have made arrangements for

constructing a bridge over the Genesee river at a convenient point, for the connection of a towing path; and that you may be able to form a just comparison of the merits of the two lines, I have made an estimate of both, and I find the cost of this to be \$8,588.03 less than the other.

EAST SIDE GENESSEE.

The route upon this side of the river crosses the Canasraga near Colonel Fitzhugh's, and by some extra cutting to avoid the river and a few deep ravines which occur, passes on to the end of section 78, three miles below Geneseo, principally over grounds gently sloping towards the river, and in a very direct and favorable line. Here high lands intervene, and force us off to the left, over broken grounds, in a circuitous direction round by the river's bank, encountering the steep side hills above Fowlerville bridge, and requiring protection from the stream.

After passing the bridge we leave the river's bank and run on to Avon Springs, with a more favorable line, avoiding several serious slides by keeping up the level over the high grounds.

Gentlemen residing on the line were of opinion that a much shorter and cheaper route might be obtained, by running across the ridge past Hogmire's, on the uplands to Black creek, avoiding all the slides on the river above Fowlerville bridge. A survey was made, but finding the cutting would be 65 feet in the summit, the project was abandoned.

From Avon Springs to Rochester the location is less upon the upland slope, and with the exception of two points near Markham's, two below Scottsville road in Rush, one in Henrietta, and that near the feeder dam at Rochester, a not unfavorable line is obtained upon and near the river flats.

After passing the Canasraga, the canal crosses Fall brook, Jacobs' run, Black creek, Conesus outlet, Honeyoye, Massauga and Red creeks, all inconsiderable streams, except the Conesus and Honeyoye. These are the outlets of Conesus, Hemlock, Scaneitece, and Honeyoye lakes, and together send forward in the driest season 3,311-65 cubic feet of water in a minute.

These streams may be received into the canal as feeders, and their capacity may be very much increased by damming the lakes, and reserving the surplus waters for the dry season.

This plan to some extent, and for a limited period, was adopted some years since, with the view of supplying a portion of the Erie canal with water.

Ninety chains of slide banks occur on this line. They are very similar in character to those on the west side of the river, and require the like protection.

The Genesee river runs along the foot of the hill at fifteen places, together measuring 3 miles, 1½ miles of which require docking to protect the canal.

Dams and short feeders necessary to receive the Conesus and Honeyoye into the canal, are provided for in the estimate.

The descent to the Erie canal is 72 feet, having 9 lift locks, 3 aqueducts, 21 culverts, 7 waste-weirs, and 14 road, and 59 farm bridges.

The distance from Mount Morris to Rochester, on the east side of the river, is 38½ miles, and the canal is estimated to cost \$406,607.67.

The west side is 87½ miles long, having the same descent, with 9 locks, 3 aqueducts, 26 culverts, 11 waste-weirs, 28 road,

and 36 farm bridges: estimated cost, \$305,067.85.

DANVILLE SIDE CUT.

The Canasraga valley, in which this canal is located, has all the characteristics of that of the Genesee below Mount Morris, and may be considered a continuation of it. The flats average about one and a half miles in width, and extend to the village of Dansville, 45 miles from Rochester, by the road, and 52 $\frac{1}{4}$ miles, by the contemplated canal.

Opposite this place, and above McWhorter's mill, is the confluence of Great and Little Mill creeks with the Canasraga. I gaged these streams in October last, during a severe drought. Great Mill creek then furnished 887 cubic feet, and the Canasraga, below its junction with the above streams, 2,458 cubic feet, in a minute. They have a rapid descent to this point, affording valuable water privileges. In the vicinity of the village are four establishments for the manufacture of paper, each having a double engine; also 4 or 5 grist mills, 1 clover mill, 1 blast furnace, 2 trip hammers, and several tanneries.

The paper mills employ 84 persons, manufacturing about 80,000 dollars worth of paper annually. The clover mill has prepared for market 1,500 bushels of clover seed in one season.

South of the village the land abounds with pine timber, of a quality not inferior to any in this section of the country, and within the circle of a few miles there are 55 saw-mills, making large quantities of lumber, the principal part of which would be conveyed to market by this canal. The soil in the vicinity of the village is alluvial flats and superior bottom lands. The principal part of the valley, as well as the uplands, is fine quality wheat land. Sparta, (in which the village is located,) is the largest town in the county. In 1830 the population was 3,777: it is now estimated to contain 4,500.

In terminating at the village, the supply of water for 2 $\frac{1}{2}$ miles of the canal, in which are 11 locks, must necessarily be drawn wholly from Mill creek at Dr. Falkner's dam, which will divert the water from his paper factory, diminish the supply at McWhorter's grist-mill, and at the mills belonging to John Wood & Co.

The line crosses the Canasraga by an aqueduct near the dam and head-race conducting the water to Wood's mills, and thence on to Mount Morris, upon the west side of the creek, over grounds unusually favorable for the construction of a canal. John Wood & Co. have in operation one carding and fulling mill, one saw-mill and a grist-mill, with 2 run of stones, designed for 4. Suitable stone for the mechanical work is found near these mills, and in the vicinity of Dansville.

The total descent from the village is 126 feet, and the distance from the head of the feeder at Faulkner's dam to Mount Morris, 15 $\frac{1}{2}$ miles. It is divided into 15 sections, in which are 15 locks, 1 aqueduct, 7 culverts, 4 waste-weirs, 8 road and 23 farm bridges, making a total cost of \$156,604.25.

In the above estimate, I have provided for a dam and feeder immediately below Wood's mills.

By adopting this plan, we shall be able to take the requisite quantity of water to supply the loss occasioned by filtration and evaporation of 12 $\frac{1}{2}$ miles of the canal below all the mills of much value on the stream, which will materially reduce the damages that would otherwise be sustained.

I have also made an estimate for a ter-

mination at McWhorter's mill, about one mile from the village of Dansville. This will reduce the whole distance 1 mile; the lockage 48 feet, and diminish the expense \$30,079.73.

In computing these estimates, frequent reference was had to the copious field-notes and observations made on the ground, and while on the one hand I have been careful not to swell the amount to an extravagant degree, so on the other hand, I have endeavored to make it amply sufficient for the construction of the work in a permanent manner.

I will add also, that the line has been carefully located, and to show the character of the excavation, shafts were frequently sunk, and particularly at points where there were any indications of a change.

The soil generally, is easy to excavate, and I think better calculated for the retention of water than any other hundred miles of canal I have ever examined.

With few exceptions, the embankments may be rendered sufficiently impervious to water by a careful assortment of the materials, keeping the firmer and more tenacious in the front of the work: yet the scarcity of water on the summit, and the unavoidable expense of procuring the requisite supply, have induced me to make provisions for guarding against waste by leakage, in all cases where the soil exhibited indications of a porous character. Liberal allowance has accordingly been made in the estimates for lining, as will be seen by the annexed reports, containing a detailed description of the character and amount of the different kinds of work.

The estimates for excavation and embankments are made upon the plan of allowing the banks a slope of two feet horizontal base, to one foot vertical on the inside of the canal, and one and a half feet horizontal to one foot vertical on the outside; the towing-path bank to be 12 and the berm bank 8 feet wide on top, and 7 feet high; the canal to be 26 feet wide on bottom, and 42 feet at the surface, with four feet depth of water. The side-cut to Dansville, the Ischua creek, and the Genesee river feeders at Ketchum's and at Mt. Morris, and also Allen's creek feeder at Scottsville, have the same dimensions as the main canal, being designed for the purposes of navigation. All the other channels intended for supplying the canal with water, to be 16 feet wide, with banks of the same form and size as the canal, except the width on top, which is 7 feet.

In many cases, it has been necessary to make provisions in the estimates, (as may be seen by reference thereto,) for protecting the banks of the canal from the encroachment of the streams. Wherever stone could be procured with facility, and the foundation was such as would ensure the permanency of the work, the estimates have been made with the view of erecting permanent stone walls on the exterior of the banks. With a single exception, this is the case at all the points exposed to the abrasion of the streams from Olean to Mount Morris, embracing two-thirds of the whole distance requiring protection.

On the Genesee river, below Mount Morris, docking has been estimated for, in place of stone wall, on account of the scarcity of stone, and the general prevalence of quick-sands in the bed of the river. The first cost would be less than that of a stone wall, but it is believed the latter would be the cheaper in the end, inasmuch as the interest on the difference in the expense will not pay for the repairs of the former.

On canals located in valleys of much

depth below the summit of the surrounding uplands, and at the foot of steep side hills, the embankments and other works are often in jeopardy, and frequently sustain great injury from the sudden swelling of the streams in the time of freshest. The Rochester and Olean canal is not greatly exposed to these torrents; yet a portion of this route is so situated, and to avoid these difficulties, (so far as practicable,) I have availed myself of every opportunity presented by the locality, for passing the flood waters under the canal by culverts and aqueducts.

Waste-weirs have also been estimated fully adequate to draw off the surplus accumulation of water in the canal.

The plans adopted for the mechanical work on the canal are generally of the same character as those on the Chenango canal.

The variation which occurs in the estimates of the several structures is partly owing to the difference in the cost of procuring the materials and partly to the quantity used.

The culverts are to be made of stone masonry laid in hydraulic cement, as are the aqueducts, except those where the streams are too near the bottom of the canal to allow space for turning the requisite arches. In such cases, wooden trunks are substituted on stone abutments and piers.

The abutments for bridges are of stone masonry, laid in quicklime mortar, at 50 feet apart, upon which a strong truss bridge is laid.

The bridges for roads much travelled are 22 feet wide. Other road and farm bridges 12 feet wide.

The plan for waste-weirs generally has stone abutments to sustain the earth, with a timber gate-way, and where the ground is favorably situated, it is designed to add long wates, by a depression in the top of the bank paved with stone.

I have made estimates, in detail, for two plans of locks, with chambers 90 feet long and 15 feet wide: one for a composite lock of wood and stone, like those now being built on the Chenango canal—and the other, for a lock of stone masonry, wholly laid in hydraulic cement. The quoin and coping to be cut stone; all the other masonry to be substantial and smoothly hammered work.

The composite lock from head to 8 feet below upper gates to be of stone masonry laid in cement—the remainder, a dry wall with a wooden chamber made within, bolted to and supported by the masonry. The plans for the foundation and gates are the same in both locks.

For a detailed estimate of the

locks,	see statements A and B
culverts,	" C
wood trunk aqueducts,	" D
stone aqueducts,	" C
bridges,	" F
waste-weirs,	" G

Drawings of each plan of locks and of the aqueducts, bridges, culverts, &c., will be found at folios 32, 33, 34 and 35 of the Atlas.

There is a difference in the expense of the same kind of structure, occasioned by the location and by the greater facility of obtaining materials in some cases than in others. The statements here referred to, however, are calculated from medium cases, and are designed to show the average cost.

(To be continued.)

[From the Journal of the Franklin Institute.]

American Patents issued in August, 1834.

(Continued from our last number.)

36. For an improvement in instruments for Cutting and Crumbling the Stone in the Bladder; James Lee Hannah, M. D., city of New-York, August 19. These instruments for cutting and for crushing the stone, are, when closed, in the form of a sound or catheter, but considerably curved at the end which is to enter the bladder. According to the drawing, the shaft is straight, but the end is bent round so as to form a quarter of a circle of about three fourths of an inch radius. This quadrant constitutes the jaws by which the cutting and crushing are to be effected; these jaws work on a pin near the extreme end, and when closed form a round smooth body, having no projection to obstruct it in its entrance; its opening commences at the point where the curve terminates and joins the straight shaft. This straight shaft consists exteriorly of a thin silver tube, and through this tube passes a steel spring like a watch spring, which, when pushed in, allows the jaws to open, the spring being attached to the jointed piece. The cutting instrument has edges like shears, the crusher opens like forceps, and has teeth to hold and crush the particles of stone which have been divided by the cutter.

37. For a Machine for Grinding Grain; Joseph Grant, Providence, county of Providence, Rhode Island, August 19. This is to be a cast iron mill, consisting of three cylinders and a concave, all of which are to be so fluted as to form teeth not more than a quarter of an inch wide, and an eighth of an inch deep. Two of the cylinders, with a hopper above them, are to be placed horizontally and parallel to each other. The lower cylinder has a concave under it, which is adjustable by means of a screw. The cylinders are all to move with different velocities, the last with the greatest speed.

38. For a Threshing Machine; Chas. Wilson, city of New-York, August 19. This machine is to have a frame made entirely of cast iron, and the concave is to be formed entirely of triangular cast iron bars, about five eighths of an inch thick, and an inch apart, allowing space for the grain to fall through between der is also to be of cast iron, consisting them. The whole surface of the cylinder of bands or hoops, four or five inches wide, and a quarter of an inch thick, with projecting pieces for beaters cast on them. These bands are to be driven on to a wooden cylinder.

39. For an improvement in the Percussion Cannon Lock; Enoch Hidden, city of New-York, August 20.

40. For a Filtering Machine; Isaac Wiseman, city of New-York, an alien, who has resided two years in the United States, August 20. The principal difference between this and the filtering vessels ordinarily employed, consists, first in there being a separate vessel to receive the water which has been filtered, and which vessel can, therefore, be removed for the purpose of clearing it of the sedi-

ment which always finds its way into such reservoirs; and, secondly, in interposing between the layers of broken quartz, sand, charcoal, &c., perforated plates of earthen ware, metal, or other substances, which will prevent their mixing with each other from agitation in removal from place to place. Such perforated plates are not new.

41. For a Revolving Turning Steel; Benjamin E. Hoyt, Ipswich, Essex county, Massachusetts, August 20. This steel is for turning the edges of curriers', or other knives, by passing a roller instead of a burnisher over them.

42. For an improvement in the manufacture of Percussion Powder; Samuel Guthrie, Sacket's Harbor, Jefferson county, New-York, August 21.

43. For a machine for Separating Gold from the Soil; John Dobson, Burke county, North Carolina, August 21. This machine has an inclined rocker, similar to that used in many others, and various appendages which have no claim to novelty. After describing these, the patentee says: "although I have been particular in describing the construction of the above machine, yet I rest my claim only on those principles of the bucket or receiver, by which a peculiar rolling motion is given to the mercury, most applicable to the collection of the gold; which principles and advantages it may be necessary to mention as understood by me. In the first place, a larger quantity of mercury can be used than by the present mode, without danger of loss, and extending from side to side of the bucket, presenting a rolling edge to the approach of the gold, of sixteen inches in length.

44. For a Clover and Herdgrass Hulling Machine; Reuben Ranger, Wilton, Kennebeck county, Maine, August 21. The hulling is to be effected by rubbing the seeds between perforated plates of sheet iron, one portion of which is a conical body, and is made to revolve upon a shaft placed horizontally; this is surrounded by a concave similar in form, and surmounted by a hopper. The rubbed seeds pass out through an opening in one end of the machine, at the lower edge of the base of the cone.

45. For an improvement in Finishing Leghorn, Straw, Grass, and Palm Leaf Hats and Bonnets; Joseph Snyder, city of Philadelphia, August 22. The hats and bonnets are to be varnished with any of the known suitable varnishes, adapted to the color of the article.

"The object intended to be attained by the foregoing improvement is to preserve hats and bonnets from moisture, that they may retain their proper shape."

46. For an improvement in the Spinning of Rope and other Yarn; Sidney D. Whitlock, Brooklyn, Kings county, New-York, August 22. It is observed in the petition, that this patent is claimed for a "new application of the machine for which letters patent of the United States were granted to a certain Robert Graves of Boston, on the first day of April, 1819."

In the specification it is stated, that the

original machine is modified by the use of a double railway for the machine, or machines, to run upon; using at each end of the double track, a detached section of the track, made to revolve like the turnabouts upon railroads, so as to accommodate the equalizing machine. "Each track is furnished with an endless band and rope, operating as described in the specification of the said Graves' machine herein referred to, alternately on the equalizing machines as they change tracks."

47. For an improvement in Shearing Machines for Shearing Woollen Cloth; Reuben Daniels, Woodstock, Windham county, Vermont. First patented May 13th, 1834. Patent surrendered and re-issued on an amended specification, August 22.

48. For improvements in the Power Printing Press; Otis Tufts, Boston, Massachusetts, August 22. We are informed in this specification, that "the principal difference between this power press and others now in use consists in supplying it with paper to be printed from one side of the frame, by using two friskets, one of which is under the operation of an impression from the platten, while the sheet of paper last printed is being removed from the second frisket, and another sheet is applied. As soon as the frisket first mentioned has received an imprint from the types, it is withdrawn by the operation of the machinery from between the platten and form, and the second frisket caused to pass in between the platten and frame, there to be acted on in its turn. So in succession each passes out from between the platten and frame with its printed sheet, while the other, with the sheet to be printed, is made to pass in between the platten and frame."

49. For a Double Cylinder Truck, for Raising Stone, Timber, &c.; Simon Frieze, Waterloo, Anne Arundel county, Maryland, August 23.

This truck is to run up an inclined plane or railway formed of parallel timbers, rising at any angle not exceeding thirty degrees. Instead of four wheels, there are to be two rollers turning on gudgeons, one at each end of the truck. An offset is to be turned down at each end of the rollers, to form a shoulder, or flanch, to keep them in their places on the ways. The part turned down is to be champhered, to cause the truck to keep the track the more readily. At the upper end of the inclined plane there is to be a block with a rope passing over its sheave, one end of which rope is attached to the truck, and the other drawn by horses or other animals, to raise the load.

50. For a Machine for Hulling Clover and other small Seeds; Merit Bailly, Attleborough, Bucks county, Pennsylvania, August 23.

51. For a Horse Power; Joseph B. Streeter, Middlesex, Yates county, New-York, August 26.

52. For Jointing and Manufacturing Staves for Barrels, &c.; Cyrus M'Gre-



gor, Newport, Sullivan county, New-Hampshire, August 26.

53. For an improvement in the surgical instrument called a Scarificator; Geo. Tiemann, city of New-York, August 26. The improvement in the construction of the scarificator, which forms the subject of this patent, appears to us to deserve the appellation, as we think that, both in construction and in operation, it will be found superior to those made either in the English or the German manner. The patentee, after describing the usual mode of forming this instrument, informs us, that the principal improvements made by him are the use of pointed lancets, instead of those with rounded ends; a contrivance for using them with more exactness, and so as to cause less pain, and produce a more profuse bleeding than heretofore, whilst the mechanism is more compact, and more easily kept clean, and in order, than in the old instrument.

The lancets, instead of standing in rows upon an axis, or shaft, are all fixed upon a flat plate, which fits into a box, similar to those now in use, but smaller. For the purpose of moving the plates containing the lancets, an axis and jointed levers are placed under it, which are operated upon by suitable springs, and other appendages, that are fully described, and perfectly represented in the drawing. There is no distinct claim made, but the difference between this and other instruments for the same purpose is clearly designated, so as to leave no doubt whatever respecting the points upon which the dependence for originality is placed.

54. For Stoves for Burning Coal; Abial Smith, North Providence, Providence county, Rhode Island, August 27.

55. For a Threshing Machine; John Matthias, Manchester, Baltimore county, Maryland, August 27.

56. For a Bedstead for the Sick; Wm. Woolley, city of New-York, August 30. [For a description, with drawings, see p. 74, vol. iv., of Mechanics' Magazine.]

The following remarks of Mr. Green apply with equal force to many other branches of mechanics in this country. We certainly have the talents and the enterprize, and only want patronage from those who now go abroad for their articles.

[From the American Journal of Science and Arts.]

On the construction of the Barometer, and other Philosophical Instruments, in this country. By JAMES GREEN, Philosophical Instrument Maker in Baltimore.

To Professor Silliman:

Dear Sir,—Early after the publication of No. 1, Vol. XXVII., of your very valuable Journal, my attention was directed to an article on the construction of the Barometer; and, although interested in all improvements of the means of making philosophical observations, I felt particularly so in the present instance, from having received an order on account of the public service to construct a Barometer that would furnish accurate indi-

cations of atmospheric pressure, on any plan which my experience in this branch of manufacture might approve.

In perusing the article, I was particularly attracted by the coincidence which existed in the construction of some parts of Mr. Durant's instrument, and a modification of Gay Lussac's Barometer by M. Bunten, a favorable report of which was read before the French Institute, by Messrs. Savart and Arago, and which subsequently received a favorable notice from Baron Humboldt, who, after having used the instrument during a travel through Germany of several months, testified to its efficiency in preventing the admission of air into the mercurial column. The *Globe Portable Barometer* of Mr. Durant seems to present all the advantages derivable from that arrangement with some additional securities. However, I must freely confess that the gratification which a Philosophical Instrument Maker might be presumed to derive from such a circumstance, was in some measure diminished by discovering the writer to be under the impression that there existed an indifference to all efforts at the perfection of so important an instrument as the Barometer, on the part of the manufacturer, who, I hope, may be often found both "willing and able" to resort to all the precautionary means necessary to insure as perfect an instrument as practicable, when such an instrument is wanted. In so far as the accuracy of the instrument may depend upon the boiling of the mercury in his tube, it is a very common thing with him to take the "patient care" required in this operation. Indeed, it has been my uniform practice to observe this precaution in all instances where such accuracy was desirable, and also to use mercury that had been redistilled.

I have been induced to state these facts, because, from the tone of the article alluded to, an individual who might desire a perfect instrument would be brought naturally to the inference, that in as much as good Barometers are constantly being made somewhere, if he cannot obtain one here, he can do so abroad.

I do not suppose, however, that either yourself or the writer would wish to increase the already unfavorable prepossession which to some extent exists, to the prejudice of the instrument makers of this country. They labor, it is true, under disadvantages in the manufacture of some parts of a philosophical apparatus, which are not experienced elsewhere. But the Barometer does not belong to this class. In its construction nothing is wanting but a proper knowledge of the principles it involves, and that facility of manipulation which experience usually yields.

On visiting London and Paris in the years 1830 and '31, for the purpose of availing myself of the great advantages which those cities afford for improvement in mechanical skill, as well as the collation of philosophical facts, and while there, being engaged in some experimental observations on the construction of

the Pyrometer, I had frequent intercourse with one of the most deservedly distinguished instrument makers of the former city, who I found entertained a more favorable opinion of the extent of the demand for good instruments in the United States than my experience authorized; that opinion doubtless arises from the frequent orders he received to furnish such for this country. It may be proper to remark, that many of these were of a character that could have been readily furnished here, had there existed that confidence which many of our own workmen are entitled to receive.

Conceding, however, the imperfections of the ordinarily manufactured Barometer, I cannot join with the writer in attributing to this circumstance mainly the existing neglect of so useful an instrument, when used as a weather glass; but would rather refer it to the *lengthened series* of observations it is necessary to make in every particular place, before such satisfactory general rules can be deduced as will enable us to infer from specific movements in the barometric column definite changes of weather, few persons being found willing to make periodically precise observations.

In conclusion, I may be allowed to remark, that in view of the advancement of meteorological science, the want of uniformity both in the principle and construction of the various instruments used throughout this extensive country, in order to furnish correct meteorological tables, is certainly to be regretted, and any plan that could be suggested, which might obviate this difficulty, by establishing such uniformity, would doubtless materially enhance the value of these records in promoting the advancement of Natural Science.

Baltimore, Oct. 10th, 1834.

EFFECTS OF LIME ON FISH. — As a barge laden with lime was proceeding up the Ouse, from Lewes, from some cause or other, it sunk near Barcombe. The effect on the fish in the river was instantly manifested. Hundreds rose to the surface, and a great number were taken by hand. Pike were seen darting about in great agony; and most of the finny tribe within a mile of the spot where the accident occurred were rendered blind, from the burning nature of the lime. It is calculated that some thousands of fish perished. — [Scientific Tracts.]

AN AID TO LEARNING.—In the royal printing office of Paris, there are types of *fifty-six oriental alphabets*, comprehending all the known characters of the languages of Asia, ancient as well as modern; and sixteen alphabets of those of European nations, who do not employ the Roman letters. There are forty-six fonts of various forms and sizes. All the presses in the establishment are able to throw off 278,000 sheets a day, equal to 9,266 volumes 8vo, of 30 sheets each. The number of printers engaged in the office is three hundred and fifty.—[*Ib.*]

TRANSPORTATION ON RAILROADS.—We earnestly invite the attention of the public to the fact stated in the following extract from a Philadelphia paper:

"On Wednesday, last week, a train of 38 cars laden almost exclusively with dry goods, for the far West, left this city, on the Columbia Railroad. We learn from the Collector, that the goods carried by this train, weighed 114,884 lbs. (nearly 58 tons.) After the 6th of April, there will be 9 locomotive engines, running between this city and Columbia, daily."

On this road there are not only two inclined planes, but also grades of ascent constantly passed with locomotive engines, at a rate of acclivity equal to 45 feet in the mile. And yet emissaries who have been sent from Albany to our city, to dissuade our capitalists from subscribing to the stock of the New York and Erie Rail Road, venture to assert, that a railroad exceeding in acclivity twenty feet to the mile, cannot be advantageously used for the transportation of merchandise.

Of the 483 miles of the Erie Railroad, upwards of 416 miles have grades of ascent less than 40 feet to the mile, 54 miles are on a dead level, and 160 miles are at rates less than 10 feet to the mile. Can the intelligent citizens of this metropolis, in the face of these and other important facts, be induced to listen to the assertions of men who have neither the patriotism to aid the work, by loaning the credit of the State upon undoubted security; nor the liberality to leave the company to make it at their own risk?

For our part we believe that the company's subscription books will soon put at rest all doubts upon this subject.

Great Improvement on Railways.—The Baltimore Gazette says: "We noticed in December last the successful attempt to pass a Locomotive steam engine, by its own power, with a moderate load attached to it, over the inclined planes at Parr's Ridge, on the Baltimore and Ohio Railroad; one of which has an acclivity of about two hundred and sixty feet in a mile. Since that time, the successful running of the Locomotive Engine, during a season well adapted to furnish full opportunity to test all kinds of difficulties, that might be caused by the weather—has resulted in the satisfactory and entire conviction, that *Locomotive steam Engines can be constructed, on the plan adopted and now pursued, at the Manufactory of Machinery of the Baltimore and Ohio Railroad Company in this city, each of which engines, with the use of anthracite coal as fuel, will be capable of transporting, with certainty and safety, one hundred passengers with the requisite cars to contain them, up an inclined plane ascending one hundred feet in the mile, at the rate of ten miles an hour.* This triumphant and highly important result furnishes additional evidence, in this age of wonderful discoveries, of what may be accomplished by the use of steam power—the extent of which it is almost impossible even to imagine—as every month, every week, brings to view, and into practical use, some new benefit conferred on man by the aid of this powerful agent.

The obvious benefits, and they may truly be said to be immense in their extent—which will be derived from the result thus ascertained, are great reduction in the expense of graduating the road beds on most routes for railways, which in countries even moderately undulating, will probably be at least fifty per cent—and great increase of practicable routes for the location of railways capable of being used beneficially without the aid of stationary power. It is now believed to be not merely probable, but in fact beyond a reasonable doubt, that a route will be found on examination, for the continuance of the Baltimore and Ohio Railroad to the Ohio river, free from all inclined planes that may not be passed over without the aid of stationary power. It is also not less confidently believed, that

passengers can be conveyed the whole distance in each direction in twenty-four hours."

The application of steam power, to Railroads is still in its infancy. M.

To the Editor of the New York American:

I find, Sir, in the *Buffalo Whig* of the 1st of April, the following notice of the defeat of the bill to aid in the construction of the New York and Erie Railroad:

The application to our Legislature for a loan to assist in constructing the chartered Railroad through the Southern tier of counties from the Hudson to Lake Erie, was rejected in the Assembly, on the 30th ult., by a vote of 61 to 45.

This result, we see by the *New York American*, is taken very much to heart, by those who had looked for a different result. We could wish, ourselves, the bill had taken a different course. The project of this road was claimed as one, the carrying out of which would be of the highest importance to the city of New York. It might have been well then—inasmuch as the Common Council of New York had seen fit to take some action upon the subject,—to have passed the bill, so amended as to authorize the Corporation of New York to raise, by loan, on the faith of the city, the two millions required, and loan it to the company.

But the truth is the plan is of no value in itself—the road not worth the making. Benjamin Wright's Report of the survey of that Road is conclusive on this point. This it is which has killed all the confidence that ever was in the scheme. We deny not to the many valuable men in New York engaged in this undertaking, good sense and sound discretion in those matters which pertain to their pursuits, there; but this does not fit them for every thing. They talk of using that Road, if constructed, in winter! Was it because an Omnibus can traverse Wall street all the year? They should know, and should reflect that the winter snows fall deep, in the mountains along that route; and that the Rail, if laid, where it winds round the sharp acclivities of these mountains, "upon curves of no more than five hundred feet radius," would often lie buried beneath shapeless drifts, while at others the ice would form far above the surface. Then the route, too, is longer from New York to Dunkirk than by way of Albany and Buffalo, to say nothing of the ups and downs of one hundred feet to the mile! No, no; the scheme of a Rail-road, by that route, is a visionary one; useless to New York, if made,—useless to the country through which it would pass—useless to the west. Mr. Wright has put the seal of condemnation upon the thing so that nothing seems likely to remove it; and gentlemen should look at the subject as if it were a question of science, controllable, of course, by the known laws of traction and gravity, and subject to the known action of the elements. Viewed in this light it shows itself not dependent upon the votes of a Legislative body; it is condemned by physical laws, which legislative enactments cannot remove. A Rail-road from Albany to Buffalo could be used more months in the year, and, with the Hudson would convey property quicker to New York, than the proposed road, if made.

If gentlemen in New York, or elsewhere, will look calmly at this question, and compare it with mathematical demonstration, instead of flying out into "hot and furious condemnation" of us, for these remarks, they will arrive at the same conclusions to which our inquiries have brought us, in the matter.

Even if it were true, which is not admitted, that the road could not be used in winter, its opponents will hardly pretend that it will be obstructed by snow and ice until June—or even until May—or indeed, until the 1st of April—and perhaps they will admit that it would be obstructed only for a few weeks, or just long enough to say that there is not a continued intercourse.

The following reference to the subject, from the *Pittsburg Gazette*, shows conclusively the importance of the work to this city, and to the Southern counties. What is most surprising is

me is, that all works which do not pass through Albany, Syracuse and Buffalo, are impracticable—"of no value in themselves,"—and "not worth making."

OLEAN AND BUFFALO.—Having had some curiosity to know at what time navigation of the Allegheny river from Olean to Pittsburgh usually commences in the spring, we yesterday called on Mr. Joseph Welsh, who keeps the tavern at which many persons from that country stop, to get information on that point. In reply to our question, he furnished us the following statement, taken from his books. The first arrival from Olean was, in 1831, on the 30th of March.

1832,	"	15th	"
1833,	"	31st	"
1834,	"	20th	"

We believe that the harbor at Buffalo is not usually open before about the first of May, or certainly not earlier than the 24th of April. So that New York would have an outlet to the Ohio, by the way of Olean, at least one month earlier than by Buffalo. In that time a steamboat could run from Olean to St. Louis, discharge and receive cargo there, and return to Olean.

The dates above mentioned are the times when rafts arrived at Pittsburgh from Olean, so that they must have left the latter place five or six days earlier. This statement of fact exhibits the importance of the Rochester and Olean Canal, and the Erie Rail Road in a strong light.—[*Pittsburg Gazette*.]

Since writing the above paragraph, we noticed that the Legislature of New York have rejected the bill in relation to the New York and Erie Railroad.

The neglect to make this road will deprive the city of New York of some of the advantages which it might enjoy by the navigation of the Allegheny from Olean.

The New York Canal, not usually being open before the 15th of April, that is, about three weeks later than the average time of the opening of the Allegheny river from Olean. The Railroad, being available earlier, would be adopted to deliver merchandise at Olean, until the Canal would be opened.

If "Benjamin Wright's report is conclusive on this point, that it is not worth making and of no value in itself" it is also conclusive on another point—as the Editor of the *Whig* will learn, viz., that the road, when made, will operate as a machine by which business men may clear the ice in Buffalo harbor—although it may be somewhat difficult for them to clear the harbor of ice—before the first of May. M.

The correspondent of the Philadelphia Enquirer writes that the bill reported from a select committee, by Mr. Heston, entitled "an act to improve the State by Railroads and Canals," passed the House of Representatives, by a vote of 47 to 45.

CHESAPEAKE AND OHIO CANAL.—We learn from the Williamsport Banner of Saturday, that the water was let into the Canal below that place on the 1st inst., and it was expected that in a very few days the Canal would be navigable the whole distance from Dam No. 5, above Williamsport, to Washington City, (about 110 miles). The Banner says: the basin, at the foot of Potomac street, has been, for upwards of a week past, crowded with boats, arks, &c. laden with coal and flour, and that the busy, bustling appearance which the arrival of the boats has given to that part of the town, in the vicinity of the Canal, is truly gratifying, and brings to mind the wharves of a commercial city. No breach had occurred in the Canal, either above or below that town, since the admission of the water.

That part of the work spoken of above is new, and the water has now been let into it for the first time. It is highly creditable to the excellence of its construction that it has stood the test of the first admission of the water, although it is hardly to be expected that it can stand the "searing operation" so far as to remain altogether free from leaks before the work becomes thoroughly settled by use.—[*Nat. Intel.*]

The first arrival at Cleveland.—The Cleveland (O.) Herald of the 21st ult. says,—"The schr. John Q. Adams arrived at this port from Sandusky last evening. She reports that the navigation between the two places was unobstructed. The Atlantic which, she spoke on her passage down, is hourly expected. The John Q. Adams is the first vessel which has arrived this season."

Lake Ontario.—The navigation of this lake may be said to have commenced for the season. A schr. arrived at Oswego, from Toronto, on the 31st ult. Both harbors are free from ice, as are also Port Dalhousie, at the mouth of the Welland canal, and the canal itself as far as St. Catharines. The Oswego Palladium of the 1st inst. says that several schrs. were ready for sea, and would sail on that day; and that that port has never exhibited so great a promise of business so early in the season.—[Argus.]

The first engine has been placed on the London and Greenwich Railway, preparatory to the Easter fair; about 30 dollars per day has been received for penny passengers alone by the foot-path to Greenwich.

A novel machine was a few days ago exhibited in the Kennington and Clapham roads. It consisted of a sort of carriage-wheel which carries a Railroad for itself, upon which the carriage travels with great facility and quickness.—It was composed of a jointed square instead of a circle, and has four rollers, not touching the road, and four feet which alternately come to the ground, producing a kind of walking and escaping obstacles. We understand it is the invention of Lewis Gompertz, Esq. Should these machines be adopted, probably common Railroads may be partially or wholly dispensed with.

[From the New-England Farmer.]

COLD WEATHER.

[Continued from page 192.]

I have said that the air being heavier and more dense in valleys is capable of containing more cold and frost. And I frankly confess I am somewhat a heretic with respect to the theory that cold or frost is a mere negative of heat. From a long course of observation on the effects of frost on the various phenomena connected with it, I have been led to the opinion that frost is something positive, something material, capable of attracting and being attracted. And I think the various phenomena of frost are more easily and satisfactorily explained by this hypothesis than on the other.

I know that air, being a conductor of heat, will sometimes when rapidly applied to a substance conduct off the heat, so as to produce frost. But this does not prove that frost is not material. It only proves that when the heat, the antagonist principle of frost, is drawing off, frost as a substance makes its appearance.

In the spring and fall, when we are afraid, from the coldness of the day, that there will be frost, if a brisk breeze springs up towards night or in the evening, our fears cease, and no frost ensues.

Every person, who makes much observation respecting the effects of frost, knows that in the fall, when cold weather commences, that in a field of potatoes, a slight breeze of air will protect the hills a little elevated above the others, while those hills not more than three feet from them, and depressed six inches below them, so that they cannot feel the influence of the breeze, are much injured—the higher hills breaking the force of the breeze upon the lower.

Every person in Vermont knows that the frost falls later in the spring, and earlier in the fall, in the valleys than on the hills, unless there be a fog in the valleys to prevent it. And there is almost always less motion

in the air in the valleys than on the high lands. Why in these cases should not the brisk air on the hills conduct off the heat so as to prevent frost, while it lights on the lower ground, when there is scarce any motion in the air.

I will mention one more fact in connexion with this subject. Some years since I saw in the paper that a person hung a pail of water on a favorite fruit tree, while in blossom, to protect it from frost. At the time, I supposed that if it could have any effect it must be by creating a miniature fog.

Now for the fact—a few years since I was deliberating where I should place some early potatoes for seed, so as to keep them from frost, and from being mixed with other potatoes. I was advised to put them into a cellar, where there was a water cistern; this was the coldest cellar under my house. But I adopted the advice, and have pursued the practice ever since. On the 4th of January the water froze over in the cistern, and within two days the ice was from one to two inches thick. I then thought of my potatoes, and supposed them worthless. But they were not touched by the frost. Was this because the air conducted the heat from the water to the potatoes? If so, why did it not conduct the heat from the potatoes? Was it not rather that the water attracted the frost, if a material thing, with greater power than the potatoes possessed?

I have stated the foregoing facts, that you and your readers may make the most and the best of them, and not to support any vague theory of my own. And as it is not my intention nor wish to disturb the long repose of the theory alluded to, I will stop here, and subscribe myself, your obedient servant,
A VERMONT.

Jan. 14, 1835.

P. S. Since writing the foregoing, the New-England Farmer of Jan. 21st has come. And to your annoyance, and possibly that of your readers, I have read the communication of A. G. in it, upon which I wish to submit a few remarks.

A. G. says, that the greater density of the air is the cause of the greater degree of cold in the valleys. I certainly shall not quarrel with this, for it is the only reason I have assigned for it in calm weather.

But I am not satisfied with his reasons for that effect. He says that air is a great conductor of heat. That is true. But how does this, by itself, account for the greater degree of cold in the valleys. From what, at such times, does it conduct it? As to this we are left in the dark. It may, if possible, conduct it from the frozen earth, colder than itself. But at any rate, the heat which it conducts from the frozen earth, must be in very small quantities, and a very cold kind of heat.

Although the air frequently robs us, in these hyperborean regions, of more heat than we well know how to spare, yet I doubt, whether we ought to charge all the inconvenience we feel from frost to the air.

A. G. says in answer to Mr. Breck's second question, that he thinks if there had been wind on Sunday morning there would have been very little difference in the cold, in the valleys and on the hills; and adduces theoretical arguments in support of his opinion. But these arguments are in direct opposition to the facts I have stated—facts well known in Vermont since the multiplication of thermometers.

The causes assigned for cold and frost are, generally, mere theory, and present the most repulsive imaginable for disputation, as

they cannot be brought to the "searching" test of facts.

By the Editor.—The facts above stated by our respected correspondent, are, some of them, new to us, and the knowledge they convey may be of much practical utility in agriculture and rural economy. We do not, however, altogether coincide with him respecting the causes of some of the effects, which have met the attention of his observing mind. For instance, we believe that cold or frost is nothing but the want of or rather a less degree of heat. Likewise, we are of opinion that the heat given out by water while freezing saved his potatoes from frost. But we have not at present time nor room to give the reasons for our belief; and this is not of much consequence, since facts are of much more importance than theories. We hope, some time, to resume the subject, with allusion to the valuable facts with which we have been obliged by "A Vermonter," and solicit the continuance of his favors of a kind similar to that for which we are already much his debtor.

[From the Cultivator.]

Root Culture presents many advantages to the stock farmer. Roots are less exhausting to the soil than grain; they are admirably fitted to form a part of a course of crops; are very beneficial in pulverizing the soil; afford abundance of food for grain; and serve to augment and improve the valuable product of the cattle yard. An acre of ground, under good culture, will produce, on a fair average, twenty tons of Swedish turnips, mangel wurzel, carrots, parsnips, or potatoes. Supposing a lean animal to consume one bushel a day, and a fattening animal two bushels, the produce of an acre will then subsist three lean bullocks 110 days, nearly the period of our winter, and three fattening ones 55 days. We merely assume these as reasonable data, and ask if the result does not prove the profitability of their culture. But we are not permitted to doubt upon this subject, if we credit the testimony of those who have tried them, and whose continuance in the culture is the best proof of their value. Roots enter largely into the system of Flemish husbandry, which has been extolled as inferior to none other; and in many parts of Great Britain, turnips are considered the basis of profitable farming. In our country, root culture is winning its way to notice and to favor. Few who have managed it judiciously have been willing to relinquish it; while others are annually commencing it. The great obstacles to the more rapid extension of the culture, among us is the want of experience, the want of proper implements, as drill barrows, cultivators, &c., and the labor of securing the crop in winter. The apparent magnitude of these obstacles is daily diminishing, and we shall ere long discover, that root crops may be cultivated, and secured for winter use, as easily as other farm crops. We have had very little experience in cultivating carrots, parsnips or mangel wurzel, as field crops; but the Swedish turnip has been a favorite crop for some years; and we can truly say, it has been one of the most sure and profitable that we have taken from our grounds.

WINE FROM THE COMMON BRAMBLE.—Five measures of the ripe fruit, with one of honey and six of water, boiled, strained, and left to ferment, then boiled again, and put in dasks to ferment, are said to produce an excellent wine.—[Rochester Industrial.]

NEW-YORK AMERICAN.

APRIL 4—10, 1835.

LITERARY NOTICES.

THE SACRED HISTORY OF THE WORLD. BY SHARON TURNER. Vol. 2d. HARPER & BROTHERS.—The continuation of this admirable series of letters, will be welcomed with pleasure by those who have perused the first volume of Turner's outlines, and appreciated the entertainment and instruction so felicitously blended in this excellent work. The volume before us carries on the investigation commenced in that which preceded it; and the chief object of its ingenious and learned author has been to observe and delineate the divine economy in its more especial reference to mankind, and to exhibit the plans and principles and purposes which seem to have been pursued in respect to them and to the progress of human nature in their successive generations. The work is enriched by the most abundant illustration derived from the most diversified sources; and the fashionable productions of the day—the novels, poems, and travels of the last few years—have supplied the philosophical genius of the author with annotations not less striking than those which he often derives from the most celebrated ecclesiastical and pagan writers.—There are some minds which see good in every thing, which find flowers in barren places, and draw wholesome nourishment from sources which are only fraught with baneful properties for others. To such minds, when bent upon a task like that so happily accomplished by Mr. Turner, the familiar ways of life supply an inexhaustible store-house and armory; and while building up the monuments of religion from the very materials, often, that others have craved for its destruction, they meet infidelity where its attacks are most dangerous and insinuating, and crush the assailant, as it were, upon our own hearth-stones.

The following view of the position of our first parents in Paradise and of the nature of the trial to which they were subjected, affords a most simple, satisfactory, and beautiful series of comments upon one of the most important parts of the scriptures, and may be taken as a fair specimen of the style of the work before us:

But although the knowledge of what is good and evil in our actions and emotions is essential, both to right and conduct and to happy life, yet there is also another circumstance, which daily experience, with our own consciousness proves to be as indispensable, and this is SELF-GOVERNMENT; the power and will of spontaneous self-regulation; the habit of always doing what precept, information, and reason show us to be necessary. No one can doubt how impossible it is for any one to act morally or rationally, if this main element of all rectitude and comfort be omitted.

We see and feel its importance every hour. In the present age of the world, we are living, as it were, in an ocean of moral truth, ever flowing about us, and bathing our eyes, and ears, and intellectual feeling, wherever we move or act.—Every creature is precept, and who is without censurers? Every advice is tuition, and who is wanting in advisers? Conversation is mostly a series of criticism on others; and thus we are all lecturing and hearing lectures almost every time we meet. But does this influx and exercise of moral tutorage produce in any a correspondent rightness of conduct? Is this at any time proportioned to our knowledge of what it ought to be? Do we perform the things we ought to do, and abstain from what we ought not to do, because we are fully apprised of the duty, and of the consequences which will follow its neglect or infraction? The answer is patent to us all in our daily

memory and consciousness. We follow too much the devices and desires of our own heart. We have the abundant knowledge; we have even the convinced judgment; but we have not the necessary self-government. For this reason, we err and stray from His ways, who would by them lead us to increasing happiness. We offend against his laws, although their wise and benevolent operations would, if they were universally observed, soon expunge all evil from human life and human nature; and were meant and given to us to do. It is this want of self-government, which is the source of so much that is annoying and pernicious in every descendant of Adam and Eve. But it was as requisite to them as it is at this moment to ourselves. All laws, and precepts, and instruction, are but words without it. It must produce and therefore precede the obedience which is desired, and the moral conduct on all occasions, which will be so advantageous, and is to every one so honorable. It was, therefore, a foreseeing act of his divine wisdom, and not less of his philanthropy, that their Creator began his benign education of his new creatures, by the mild imposition of one command—whose direct object was, by an easy and daily effort, to lead them gently to the momentous habit of continual self-government; of restraining natural inclination by reason and recollection; of regulating their desires and gratifications, in conformity to rules and tuition; of feeling sensorial excitement, and yet of preventing it from overruling their will and from governing their conduct.

All intellectual life in human beings, or in any other, must be guided by the judgment and by moral principle, and therefore by continual self-restraint and by the proper modifications. How rigidly do we exact it from our domesticated animals; and to the credit of their self-government, and of their acquired habits of obedience, how much self-restraint do they not at least learn to exercise, and become in this respect a pattern to us their instructors!

To the human race self-government, according to appointed rules, to socially exacted observances, or to the due feelings and rights of others, is necessary every hour of our living day. It is not in what concerns property alone, or the use of our hands, or our inclinations and passions; but there are the temper, and the speech, and the behaviour to others, that require unceasing self-guard and watchful regulation, from the want of which, so many evils and so much provocation follow.

These certainties make it expedient that all education should begin with the injunction and practice of self-government; and by causing us all to be born as children under parents, it is naturally made to be so. They take care, as long as we are under their direction, that from our cradle until their instructing duty ceases, the habit shall be daily exercised by us; but Adam and Eve had no other parental tutor than their Creator, and it was expedient that they should be practised by him in this fundamental principle: with this view his command was given.

THE PHILOSOPHY OF A FUTURE STATE. By Thomas Dick. 1 vol. KEY & BIDDLE, Philadelphia.—The increasing popularity of the excellent author on this side of the Atlantic, has induced the publication of a uniform edition of his works, which, judging from the specimen before us, will be very handsomely executed. The works already prepared are—

THE PHILOSOPHY OF A FUTURE STATE.

THE CHRISTIAN PHILOSOPHER.

THE PHILOSOPHY OF RELIGION.

THE IMPROVEMENT OF SOCIETY BY THE DIFFUSION OF USEFUL KNOWLEDGE.

Those which are in a course of preparation are—The Mental Illumination of Mankind, or an Inquiry into the Means by which a General Diffusion of Knowledge may be promoted; and *The Scenery of the Heavens displayed*, with a view of illustrating the doctrine of a plurality of Worlds. The important and interesting character of these treatises will make them form a most

valuable addition alike to the library of the layman and divine.

THE JUVENILE POPULAR LIBRARY—Domesticated Animals, 1 vol; Jno. Allen & Co., Boston.—The habits of the brute creation supply an inexhaustible fund of interesting observation to those who will stoop from their "high estate" to study the humbler parts of creation. The dog alone—of whom an ungrateful anecdote has never been told—might make many a biped blush who should read his history in the entertaining little volume before us. But we fear that the long enumeration of his good qualities here, will hardly plead for him when the days of his evil star come round, and the Corporation fiat has gone forth. This work, like all that we get from Boston, is very neat in its mechanical execution.

THE KNICKERBOCKER, OR NEW YORK MAGAZINE, April 1.—Our two popular magazines for this month come to hand at the same time, but, as in duty bound, we give the first place to the elder of the two. The present number of the Knickerbocker, like those which have for some time preceded it, is enriched with articles from a great variety of popular pens—is exceedingly well printed—and contains more than a hundred pages of diversified reading. We select the following from several pieces of poetry, by Mrs. Sigourney, and others equally well known to fame:

The Silent water.

BY THE AUTHOR OF 'GUY RIVERS,' 'MARTIN FARRER,' ETC

When that my mood is sad, and in the noise
And bustle of the crowd, I feel rebuke,
I turn my footsteps from his hollow joys,
And sit me down beside this little brook:
The waters have a music to mine ear
It glads me much to hear.
It is a quiet glen, as you may see,
Shut in from all intrusion, by the trees
That spread their giant branches, broad and free,
The silent growth of many centuries;
And make hallow'd time for hapless moods,
The Sabbath of the Woods.
Few know its quiet shelter,—none, like me,
Doseek it out with such a fond desire,
Poring, in idle mood, on flower and tree,
And listening as the voiceless leaves respire,—
When the far traveling breeze, done wandering,
Rests here his weary wing
And all the day, with fancie's ever new,
And sweet companions from their fruitful store,
Of merry elves, bespangled all with dew,
Fantastic creatures of the old-time lore,—
Watching their wild but unobtrusive play,
I fling the hours away.
A gracious couch,—the root of an old oak,
Whose branches yield it moss and canopy,—
Is mine: and so it be from woodman's stroke
Secure, shall never be resign'd by me:
It hangs above the stream that idly plics,
Idleless of any eyes.
There, with eye sometimes shut, but upward bent,
Sweetly I muse through many a quiet hour,
While many a sense on earnest mission sent,
Returns, thought-laden, back with bloom and flower;
Pursuing, though rebuked by those who moan,
A profitable toil.
And still the waters, trickling at my feet,
Wind on their way with gentle melody,
Yielding sweet music which the leaves repeat,
Above them, to the gay breeze gliding by,—
Yet not so rudely as to send one sound
Through the thick copse around.
Sometimes, a brighter cloud than all the rest,
Hangs o'er the archway, opening through the trees,
Breaking the spell that, like a slumber, press'd
On my worn spirit its sweet luxuries,—
And with awakened vision upward bent,
I watch the firmament.
How like its sure and unobtrus'd retreat,
Life's sanctuary at last, secure from storm,
To the pure waters trickling at my feet.
The bending trees that overshadow my form;
So far as sweetest things of earth may seem
Like those of which we dream.
Thus, to my mind, is the philosophy
The young bird teaches, who, with sudden flight
Sails far into the blue that spreads on high,
Until I love him from my straining sight,—
With a most lofty discontent to fly
Upward, from earth to sky.

W. G. S.

THE AMERICAN MONTHLY, for April, exhibits a marked improvement in its typographical department, and the reader will find in the present

number ample fulfilment of our prophecy, as to the literary merits of this Magazine. "The Chevalier Bayard and the Fair Widow," is a graceful and entertaining story, sustaining throughout an admirable tone of legendary simplicity. The article entitled "A Hundred Years Ago," is a great improvement upon what was well commenced in the last number, a comparative view of the world now, and a century since. The writer evinces unusual and varied erudition, and a witty, polished, and vigorous style. His promise of a continuation of his sketches, will, we trust, be fulfilled. "The Voice of the Streamlet," from the initials, we take to be from the pen of the clever and popular author of *Guy Rivers*. "The Gallery of a Misanthrope," we cannot altogether commend: it is outre and original to a degree that rather transgresses the rules of good taste; but it is written with decided vigor and power. "Public Instruction," noticing Commin's work on the state of Public Instruction in Prussia, is a grave and learned essay, and exposes very cleverly our popular error in supposing the standard of education in this country to be more elevated than elsewhere; and points out deficiencies and evils, the correction of which requires vast and determined exertion.

"The Fortunes of the Maid of Arc," is one of the most brilliant sketches which we have seen from the pen of its brilliant author. We have often had occasion to commend his productions, and know few periodical writers who so uniformly sustain the interest and ability of their performances. The hawking scene, with which it opens, is worthy the happiest mood of the author of *Richelieu*. The other articles of the work, including the literary notices, we have not examined, with the exception of Benedict Arnold, which is a strong and manly paper upon the subject of American Biography, and which we should like to see followed up by others in the same vein.

FOREIGN INTELLIGENCE.

Thirty Days Later from Europe.

By the *Roscoe*, Capt. Delano, from Liverpool, 12th March, we have very late and interesting news. The *Caledonia*, Capt. Graham, of the 21st from Liverpool, and the *Utica*, Capt. Depyster, of the 28th February, from Havre, have also arrived.

In addition to our regular files by the *Roscoe*, which are London to the evening of the 10th, and Liverpool of the 12th, inclusive, we have, through the politeness of Capt. Delano, a London paper of the 11th.

We find in the *Liverpool Advertiser* of the 12th March, the following extract of a letter from Captain E. Rosseter, of the *Silas Richards*, dated Studwall Road, March 3, 1835:

"It is with sincere regret I have to inform you of my being here. Last night, at eleven o'clock, off Wicklow Head, the night dark and blowing fresh, I came in contact with the brig *Sarah*, from Liverpool to Charleston, which vessel soon filled and sunk. I have the Captain, his wife, and eight of the brig's crew on board. I am sorry to inform you that we lost our bowsprit, there being a heavy sea on, the foremast, main topsail yard, fore topgallant yard, cross-jack yard, &c.; in fact the ship is a complete wreck in rigging, hull and sails. The sea was so high and the ship laboring so hard that there was no time to be lost in clearing the wreck. We therefore cut away as fast as we could; the only thing left to carry sail on was the main yard."

The Paris dates are to the 9th, from which we learn that the indemnity bill had not been acted

upon. It was, however, believed that it would be, and that the result would be favorable, although it is pretended that important documents are in the hands of the Duke of Fitz James, which had not been laid before the committee.

The French Ministry is again dissolved, and it would seem a matter of no small difficulty to re-organize it.

It will be seen that the *Peel* Ministry have been twice defeated in the House of Commons; yet they, however, still retained their places, and Mr. Peel is reported to have said, that "he hoped and believed he should be able to carry on the Government."

A great effort has been made to repeal the malt tax.

DEATH OF THE EMPEROR OF AUSTRIA.

Later accounts than those contained in the following paragraph as will be seen, intimate a continuance of the long prevailing policy of Austria, and of the entire success of Metternich.

The *Moniteur* of Saturday, contains a telegraphic despatch from the French *Chargé d'Affaires* at Vienna, stating that the Emperor of Austria died suddenly at one o'clock in the morning of the 3d inst. He was in his 67th year, and had been Emperor, first of Germany and then of Austria, since 1804. He is succeeded by his son Ferdinand, now 42 years of age. This event, it is probable, will cause a great change in the future policy of the empire, as the present emperor is said to entertain a strong dislike against Prince Metternich.

The *Courier* of the 10th has the following rumor, which is fully sustained by the latest accounts from Paris.

"It is reported that accounts have been received from Vienna, by express, stating that Prince Metternich has received from his Emperor the same unlimited confidence shown to him by the late Emperor of Austria."

The Paris correspondent of the *London Times* points out a cause of difficulty amongst the Powers of the Holy Alliance.

The Presidency of the Germanic Diet, is now likely to set Prussia and Austria at variance. The mass of the Germans have long looked at Austria, whose possessions in Germany form but a small part of that empire, with great jealousy and dislike. By the true Germans she is invariably spoken of as not a German Power, and they desire to see the Presidency of the Diet conferred on Bavaria or Prussia. The claims which FRANCIS derived from his age, and from having been Emperor of Germany, will not devolve on his son, whose title to the Presidency may probably be disputed with success by either of the two other powers just mentioned. The Emperor of Austria cannot make up, we believe, by commanding talents, for want of the advantages possessed by the late Emperor. Prince METTERNICH will, of course, desire to retain the Presidency for Austria. We have both German and Dutch papers this morning, but they do not allude to this subject, and do not otherwise bring any intelligence.—[*Courier*.]

The *London Courier* of 10th March says: "We have received Lisbon papers to the 23d of February inclusive, which announce a change in the Portuguese Ministry, the particulars of which are stated elsewhere. The Legislature is carrying on its measures of improvement quietly. The Project of the Law for the sale of national property was still under discussion, as was a law for excluding from all their titles, employments, and decorations, several numerous classes of functionaries who served under the Usurper."

Opening of Parliament, Election of Speaker and Defeat of Ministers.

"Parliament was opened with the usual pomp and formality, on Thursday Feb. 26, by the King in person. His Majesty, on his progress to, and

arrival at the Parliament-house, was respectfully if not enthusiastically, received by his loyal subjects, who, whatever might have been their feelings, touching the recent exercise of the prerogative in the dismissal of the Melbourne Ministry and in the dissolution of the first Reformed House of Commons, never forgot, even while disapproving and condemning those acts, that to William the Fourth the nation owes a debt of gratitude for his early, and for a time consistent, support of the cause of constitutional reform."

SPEAKER OF THE HOUSE OF COMMONS.—The Reformers carried their candidate for Speaker, Mr. Abercromby, by a majority of 10 votes, thus:—

For Mr. Abercromby, 316
For Sir C. M. Sutton, 306

Majority for Mr. Abercromby, . . 10

On the announcement of the division, the cheers both within and without the House were deafening beyond precedent.

SECOND DEFEAT OF MINISTERS.—In the House of Commons February 26th, after a debate of three days, an amendment to the Address in reply to the King's Speech, moved by Lord Morpeth, was carried against Ministers by a majority of 7.

LONDON, Feb. 24.—This day his Majesty proceeded in state to the House of Lords, and delivered the following speech in a firm tone of voice.

"MY LORDS AND GENTLEMEN—I avail myself of the earliest opportunity of meeting you in Parliament after having recurred to the sense of my people.

"You will, I am confident, fully participate in the regret which I feel at the destruction, by accidental fire, of that part of the ancient Palace of Westminster which has been long appropriated to the use of the two Houses of Parliament.

"Upon the occurrence of this calamity, I gave immediate direction that the best provision of which the circumstances of the case would admit should be made for the present meeting; and it will be my wish to adopt such plans for your permanent accommodation of the two Houses of Parliament as shall be deemed on your joint consideration, to be the most fitting and convenient.

"I will give directions that there be laid before you the Report made to me by the Privy Council in reference to the organ of the fire, and the evidence upon which that Report was founded.

"The assurance which I received from my Allies, and generally from all Foreign Princes and States of their earnest desire to cultivate the relations of amity, and to maintain with me the most friendly understanding, justify on my part the confident expectation of the continuance of the blessings of peace.

"The single exception to the general tranquillity of Europe is the civil contest which still prevails in some of the northern provinces of Spain.

"I will give directions that there be laid before you Articles which I have concluded with my Allies, the King of the French, the Queen Regent of Spain, and the Queen of Portugal, which are supplementary to the Treaty of April, 1834, and are intended to facilitate the complete attainment of the objects contemplated by that Treaty.

"I have to repeat the expression of my regret that the relations between Holland and Belgium still remain unsettled.

"Gentlemen of the House of Commons—I have directed the Estimates for the ensuing year to be prepared, and to be laid before you without delay.

"They have been framed with the strictest attention to economy, and I have the satisfaction of acquainting you that the total amount of the demands for the public service will be less on the present than it has been on any former occasion within our recent experience.

"The satisfactory state of the trade and com-

merca of the country, and of the public revenue, fully justifies the expectation, that notwithstanding the reductions in taxation which were made in the last session, and which, when they shall have taken effect will tend to diminish the existing surplus of the public revenue, there will remain a sufficient balance to meet the additional annual charge which will arise from providing the compensation granted by Parliament on account of the abolition of slavery throughout the British dominions.

"I deeply lament that the agricultural interest continues in a state of great depression.

"I recommend to your consideration whether it may not be in your power, after providing for the exigencies of the public service, and consistently with the steadfast maintenance of the public credit, to devise a method for mitigating the pressure of those local charges which bear heavily on the owners and occupiers of land, and for distributing the burden of them more equally over other descriptions of property.

"My Lords and Gentlemen.—The information received from the Governors of my Colonies, together with the Acts passed in execution of the law for the abolition of slavery, will be communicated to you.

"It is with much satisfaction that I have observed the general concurrence of the Colonial Legislatures in giving effect to this important measure; and, notwithstanding the difficulties with which the subject is necessarily attended, I have seen no reason to abate my earnest hopes of a favorable issue.

"Under all circumstances, you may be assured of my anxious desire and unceasing efforts fully to realize the benevolent intentions of Parliament.

"There are many important subjects—some of which have already undergone partial discussions in Parliament—the adjustment of which at as early a period as is consistent with the mature consideration of them, would, be of great advantage to the public interests.

"Among the first in point of urgency is the state of the tithe question in Ireland, and the means of effecting an equitable and final adjustment of it.

"Measures will be proposed for your consideration which will have for their respecting objects—to promote the commutation of tithes in England and Wales, to improve our civil jurisprudence and the administration of justice in ecclesiastical causes, to make provision for the more effectual maintenance of ecclesiastical discipline, and relieve those who dissent from the doctrines or discipline of the Church from the necessity of celebrating the ceremony of marriage according to its rites.

"I have not yet received the Report from the Commissioners appointed to inquire into the state of Municipal Corporations, but I have reason to believe that it will be made, and that I shall be enabled to communicate it to you at an early period.

"I have appointed a Commission for considering the state of the several Dioceses in England and Wales, with reference to the amount of their revenues, and to the more equal distribution of episcopal duties; the state of the several Cathedrals and Collegiate Churches with a view to the suggestion of such measures as may render them most conducive to the efficiency of the Established Church; and for devising the best mode of providing for the cure of souls, with reference to the residence of the Clergy on their respective benefices.

"The especial object which I have in view in the appointment of this Commission is to extend more widely the means of religious worship according to the doctrines of the Established Church and to confirm its hold upon the veneration and affections of my people.

"I feel it also incumbent upon me to call your earnest attention to the condition of the Church of Scotland, and to the means by which it may be enabled to increase the opportunities of religious worship for the poorer classes of society in that part of the United Kingdom.

"It has been my duty on this occasion to direct your consideration to various important matters connected with our domestic policy.

"I rely with entire confidence on your willing

co-operation in perfecting all such measures as may be calculated to remove just causes of complaint, and to promote the concord and happiness of my subjects.

"I rely also with equal confidence on the caution and circumspection with which you will apply yourselves to the alteration of law which effect very extensive and complicated interests, and are interwoven with ancient usages to which the habits and feelings of my people have conformed.

"I feel assured that it will be our common object, in supplying that which may be defective or in renovating that which may be impaired, to strengthen the foundations of those institutions in Church and State which are the inheritance and birthright of my people; and which amidst all the vicissitudes of public affairs, have proved, under the blessings of Almighty God, the truest guarantees of their liberties, their rights, and their religion."

His Majesty then retired; a royal salute was fired, and on his return to the palace the same mixed demonstrations of popular sentiment were observable.

The House adjourned till five o'clock, when the Lord Chancellor took his seat on the Woolsack, and his Majesty's speech was read.

TOULON, Feb. 24.—We are assured that instructions have been sent to the Commander of the Bellona frigate, which has just left our port for Mahon, to remain there, in order to keep in observation the American squadron which is to rendezvous in that port. On the same account, orders have been issued for several maritime armaments to be held in readiness to act until the issue shall be known of the pending discussions between France and the United States.

PORTUGAL.

LISBON, Feb. 23.—The change of Ministry which has been in contemplation for some time has at length taken place. The Duke of Palmella has accepted the office of Minister for Foreign Affairs; the Bishop of Coimbra has been raised to the peerage, and, in consequence, has resigned the Home Department, which has been given to Freire—the latter has been, as you know, Minister of Marine; and Count Villa Real has been appointed to the office thus left vacant.

We are here perfectly quiet. The Cortes and the Government appear, at present to go in present in perfect union.

GREECE.

ATHENS, Jan. 21, 1835.—The latest intelligence received from the Morea represents that peninsula to be in a very disturbed state; and it appears that in the districts of Messenia, which were last year the scene of civil discord, discontent is most openly manifested.

The basis of a treaty have been entered into between our government and Mr. George Cochrane, for the establishment of a line of steam-packets between Marseilles, Malta, Athens, Lyra, and Turkey.

TURKEY.

Tremendous Conflagration.—Two thirds of the city of Adrianople, the quarter inhabited by the Greeks, was on the 24th Feb. destroyed by fire. The value of English manufactures destroyed is said to have amounted to 2,000,000 piastres.

Advices from Constantinople to 28th January state that the insurrection in Albania was at an end. The troops were returning.

LONDON, MARCH 5th.—The following intelligence from Levant has been brought by a vessel which left Alexandria on the 23d of January, and has just arrived in France, after touching at Malta—"As soon as the departure of the English squadron was known at Constantinople, three Russian ships of war passed the Dardanelles, and have, it is said, cast anchor at Mytilene. A fourth ship, which left the straits at the same time, is gone to take up her station at Tenedos. The Admiral at Malta has sent notice of these movements to London. On the 28th of January, the squadron of Josias Rowley, had been several days at Malta. The retreat of the English squadron is attributed to a promise made by Russia to the Porte, to relieve it from the importunate presence of the English—a promise, the fulfilment of which is due to the good will of the Wellington Ministry."

PARIS, March 5.—The new Ambassador from the Ottoman Court to that of London, Nouri Efendi, arrived at Paris yesterday, and alighted at the hotel of the Turkish Embassy.

On the 21st ult. Don Miguel was at Rome, leading a retired life.

Sir Charles Manners Sutton, the discomfited candidate for the Speaker's Chair, had been called to the peerage by the title of Lord Canterbury.

SIR FRANCIS BURDETT, the long tried friend of the people, has given great umbrage to his constituents, by voting for the re-appointment of Sir C. M. Sutton, as Speaker of the House of Commons.

Mr. Cobbett, after stating that he could not vote for Mr. Abercromby, left the House.

A debate had taken place in the house on Canada affairs, in which the ministers had expressed their intention to send out a commissioner to Canada, with full powers to act on the questions which agitated that part of the British dominions.

The *Morning Herald*, which originated the gossip about the Queen, stated, on Friday,—"We have authority to say that there is no truth in the statement which has lately been circulated as to the interesting situation of her Majesty the Queen."

The price of gold is raised; it is now 3l. 17s. 10 1/2d. per ounce.

Raise of the Cotton Trade.—In the beginning of the reign of George the Third (1760) this trade gave employment to 40,000 persons, and the value of the goods produced was 600,000l.—It now employs not less than 1,500,000 persons, and the value of the goods produced exceeds thirty-one millions. The cotton yarn annually spun in England would, in a single thread, girdle the globe 303,775 times; it would reach fifty-one times from the earth to the sun, and it would encircle the earth's orbit eight times and a half. —[Athenæum.]

HENRY HUNT.—Well known as one of the greatest demagogues that ever lived, died recently in England. The London Standard says, he "was seized, about three weeks ago, with a violent attack of paralysis, when in the act of stepping from his phaeton, which deprived him of the power of speech, and threatened immediate dissolution; but, by the prompt administration of active remedies, the immediately alarming symptoms were subdued, and his friends, who were best acquainted with his vigorous constitution and powerful frame, indulged hopes that years might be added to his life, although his medical attendants gave no expectations of his ever recovering the use of his left side. During his illness Mr. Hunt enjoyed the perfect use of his faculties, and maintained a composed and even cheerful demeanour throughout. On Tuesday last, a return or unfavorable symptom rendered it necessary to call in the aid of Dr. Lightfoot, from Winchester, who abandoned all hopes of his recovery, and since that day he gradually sunk till Friday, when upon his busy and active life the scene closed forever. He had recently left London, on a journey of business into the west of England. Mr. Hunt was lord of the manor of Glastonbury, in Somerset, and possessed some property in the city of Bath, as well as in the vicinity of Bristol. He had been bred a farmer in Somerset, and was afterwards a brewer in Bristol; and during the last twenty-five years had been a Radical Reformer. He died possessed of but a small property. He was an exceedingly good farmer, and a man much devoted to field sports. He was considered a first-rate shot, and a skilful angler; and as a fly-fisher, was equal to the celebrated Isak Walton.

The name of Henry Hunt will long be remembered, in association with the "Manchester Massacre"—he was chairman of the meeting on that occasion. He was the session before last M. P. for Preston—and latterly extensively engaged in manufacturing blacking.

LONDON, March 3.—From the following extract which is taken from the *Brest Journal* of the 24th ult., it will be seen that public opinion is not very favorable to the idea of a speedy settlement of the American claims:

"Several applications for letters of march

have been sent from our department to the ministry. The Minister of Marine has replied to one of these applications, that in the uncertainty which prevails respecting the issue of the difference with America, he could not at present positively accede to this application, but that he would take due notice of it, promising to pay attention to it if occasion should arise."

PARIS, March 3.—There are terrible accounts in the *Moniteur* of the consequence of the gale on the African coast.

The Duke of Gordon had been robbed of jewelry to the amount of £10,000.

A letter from Florence, of the 9th of February, says that on the 7th, at 50 minutes past 7 in the evening, several shocks of an earthquake had been felt there. No damage had been done, except some trifling injury to the Castles of Lucio and Vecchio, nor had any persons been hurt.

COPENHAGEN, Feb. 28th.—I hasten to inform you that the address I spoke of, signed by near 600 individuals, most of them persons of high standing in the esteem of their fellow citizens, has been—not carried up by a deputation, but—smuggled by a back door into the palace of the King. His Majesty has been pleased, through its medium, to reply to the petition of his subjects in the terms following:—

"We have seen with surprise that a body of our dear and faithful subjects have petitioned us to make an alteration in the existing law of the press; for, as it constantly has been the object of our paternal solicitude to do all that lay in our royal power, tending to promote the welfare of the State, and the People, so, likewise, none but ourselves alone can be in condition to judge of what is to the true good and benefit of both—an object which it will be our care to promote, in the time to come, with the same zeal and unabated love for our people as heretofore. We pray God to take you into his holy keeping.

IMPORTANT FROM FRANCE.—The packet ship *Francis I.*, Capt Castoff, from Havre, came up yesterday. She sailed from Havre on the 13th ult. The packet *Silvie de Grasse*, from this port, arrived on the 10th. The market for Cotton continued lively.

A letter from Paris of the 10th March, says—"We remain still without any Ministry being formed, and it appears that the difficulties rather increase than diminish. This is particularly to be regretted, as the report of the Committees on the American question is ready to be made, and is waiting only for a Ministry to present it. Let the Ministers be who they may, it will pass by a large majority.

[From the *Canton Register*.]
Population of China.

The Roman empire, including the provincials and conquered nations, is said to have comprehended, under the Antonines, about 120 millions of inhabitants. The extent of its territory was fully equal to China proper; and although some of the provinces were only lately reclaimed from barbarians, and therefore by no means well cultivated, its ancient possessions in Europe, Asia, and Africa, were, if not superior, at least equal in populousness to China. From whence does then arise the disparity between 120 and 361 millions? Luxury, as well as the frequent wars may have thinned the population, but they cannot have reduced it to such odds.

In our humble opinion, we can cherish no doubts about the correctness of the imperial statement, that the numbers are according to a well authenticated census, as near to the truth as possible, but we state freely some difficulties, which wiser men than ourselves will be able to remove.

In Shing-king or Leao-tung, the imperial statistics, estimate the census to 949,003; now we have visited some districts of this territory ourselves, and with all allowances for mistakes, we suppose that the number of inhabitants must at least be four-fold. In Kirin, it is said that there are only 307,761 inhabitants. We know that this country is extremely thinly inhabited, but this census would only give 11 inhabitants to a square mile, which is incredible, on account of the continued influx of Chinese. In Tsitsihan

there are only 2398 families, which considering the numerous tribes living scattered throughout this extensive country, must be far below the truth. Perhaps those only who pay tribute, and serve in the militia, are included in the number. We will not now discuss the census of Kokonur and of Ele (the same remarks apply to this country) but merely intimate, that the numerous Mongul tribe is not comprised under the 361 millions.

So far as we have seen, the census is below the actual number, but in some provinces it is the reverse. But we are rather cautious to advance opinions, which might militate against facts, that give here the list of the extent and population of each province.

Pe-chih-le; extent, 58,949 square miles; inhabitants 27,990,874; upon each square mile 473. Shon-tung; extent, 65,104 s. m. inhabitants 28,958,764 upon each s. m. 515.

Keang-nan (the two provinces Keang soe Ganhwuy) extent, 92,961 s. m. inhabitants 72,011,560 upon each s. m. 774.

Shan-se; extent, 55,368 s. m. inhabitants 14,004,210; upon each s. m. 253.

Honan; extent, 65,104 square miles. Inhabitants 23,037,171: upon each s. m. 354.

Keang-see extent, 791,176 square miles, inhabitants 30,426,999; upon each s. m. 421.

Fokien; extent, square miles 53,480, inhabitants, 14,777,410; upon each s. m. 276.

Che-keang; extent, square miles 39,150 inhabitants 36,256,784; upon each s. m. 671.

Hoo-pih and Hoonan; extent, square miles 144,770, inhabitants 46,022,605; upon each s. m. 317.

Shense and Kan-suh; extent, square miles 154,008, inhabitants 25,420,381; upon each s. m. 164.

Sze-chuen; extent, 166,800, square miles, inhabitants 21,435, 678; upon each s. m. 128.

Kwang-tung; extent, 79,456 square miles, inhabitants 19,174,030; upon each s. m. 241.

Kwang-se; extent, 78,250 square miles, inhabitants 7,317,895; upon each s. m. 93.

Yun-nan; extent, 107,869 square miles, inhabitants, 5,561,320; upon each s. m. 51.

Kwei-chow; extent, 64,554 square miles, inhabitants 5,288,219; upon each s. m. 82.

We ask the political economist, whether 774 human beings can live upon one square mile, which is thrice the population of England, where only 225 live upon the same spot. If, however, the census of Ganhwuy and Keang-soo is correct, we are persuaded, that there is no spot upon the whole globe which is so thickly populated; nor can a larger number possibly live upon the same extent of territory. Keang-soo, moreover, is full of lakes, and has also considerable marshes, which are of course not arable. The utmost industry can subvert the cultivator, yet he has nothing to spare from his hard earned produce; and nevertheless both Gan-hwuy and Keang-soo have very largely to contribute towards the maintenance of the imperial court. Shan-fung and Che-keang are mountainous provinces, with many barren tracks and unproductive plains, yet according to the imperial census the former has 515 and the latter 671 inhabitants upon each square mile.—We allow the Chinese to be a most frugal people, who do not require half the extent of territory to maintain themselves as an European would need, to live in a state of comfort, but can 617 human beings find subsistence in so small a space? Surely if the imperial statistics are correct, the populousness of Keang-so, Gan-hwuy and Che-keang overthrows the theory of Malthus. Pihchile is apparently barren, but has nevertheless 473 inhabitants upon the square mile.

We are also at a loss to find out why Yan-nan should have fewer inhabitants than Kwei-chow, the most unproductive of all the provinces, nor can we make out why Kwan-tung and Honan, both possessing a dense population, should not have an equal number with Che-keang upon each square mile, whilst the former is only one third, the latter one half as populous.

It is not with a view to impeach the statements given in the Repository, that we write this, but we are anxious that our doubts should be solved for our own satisfaction. Upon the whole, we think that the total amount of 361 millions is not too much for the Chinese empire. It is very evident, that the Chinese are the most prolific

nation on the globe. Instead of conquering other nations like the Romans, they took possession by the numerical force of their population, colonized and spread until mountains and deserts prevent their farther progress. A nation like the Chinese, so numerous, guided by the same laws, attached to the system of the ancients, were more likely to abide the subjects of one prince, than the heterogeneous tribes who acknowledged the sway of the Romans. The striking characteristics, which doubtless constitute the Chinese nation a people distinct from all human kindred, contributed much to that unity of design, which caused them to abhor foreigners and to crowd under the protection of their native leaders.

Has China ever been so populous as it is now? Can a nation continue to increase in proportion, without absorbing finally all resources? These are the questions which we should fairly ask, to come to a satisfactory conclusion. The rising generation is at the present moment so great, as to frighten the mandarins, who tremble at the prospects before them. Fully persuaded, however, that in the providence of God, the population keeps pace with the means of subsistence, and if increasing to excess, finds an outlet in emigration, we fondly hope that the threatening evil may be averted from this empire. Manicheria presents a still larger field for Chinese colonists, they may also find uncultivated lands on the western frontiers, and may even send colonies to the west coast of America. It is very obvious, that this great mass of mankind is near a grand crisis. The world has changed, without their partaking in those changes, and it will be finally their turn to yield to the common impulse given from the west. If a handful of barbarians from the desert, could change the face of the country, should the enlightened spirit of enterprise, which now pervades Europe, remain dormant on its approach to the Chinese frontiers? We should regret if so many millions got into a state of fermentation, for the consequences would be awful; but if they do not advance with the world, they will sooner or later fall a sacrifice to their stubbornness.

Intelligent Chinese in reading this paper might perhaps quote a passage of their sages, and leave matters to proceed in their natural course, whilst they with all their countrymen persevered in the beaten track. Such is also the maxim of the government; nothing influences it but rare necessity. Time is on the wing with its revolutions, but they do not heed this flighty companion, until it is too late to keep pace with him.

SUMMARY.

NEW YORK CITY has a greater population than either of the States of Rhode Island, Delaware, Mississippi, Louisiana, Illinois, or Missouri.

Defence of New Orleans.—The steamboat *Henry Clay* passed down the river, opposite Natchez, on the 5th ult., with fifty tons of cannonballs, bound to New Orleans. A hundred tons of cannon have been ordered from the Pittsburg foundry for the same post—at least so says the Natchez Courier.

NEW CATHOLIC CONVENT.—The Church of Rome has appropriated \$60,000 for the establishment of a Catholic Convent, at Bertrand, Michigan.

Meeting of Wool Growers.—A meeting of a number of the wool growers of the County of Franklin was held at Shelburne Falls, on the 27 ult. A corresponding committee of eleven members was appointed, who were requested to ascertain the number of fleeces raised for the market in their respective towns, and to report at an adjourned meeting on the 20th of May. The Franklin Mercury states, that the proceedings of the meeting are preparatory to the establishment of a general wool market, to be held in some central place in the wool growing district.—[Boston Daily Advertiser.]

Another Steamboat sunk.—The Steamboat *Sheldon Thompson* was discovered about daylight this morning, sunk at her moorings near the south bank of Buffalo Creek, opposite the Storehouse of J. Mayhew & Co. She lies with the principal part of her main deck under water. No satisfactory cause has been assigned for this fresh disaster.—[Buffalo Com. Adv.]

[From *Tait's Magazine*.]
Private History of the London Newspaper Press.

"If I live to return to London, I will tear the mask off these men, and show the public what sort of persons they are who thus govern the world under the mysterious appellation of 'We.'"
 —[Speech of D. O'Connell, Esqr., at Dublin, November.]

Mr. O'Connell, you are right. It is due to justice, to honor, to liberty, and to the magnanimous character of this nation, that these men should be unmasked. When so vast an influence is exercised by the Press, it is merciless that the mask should be worn: the most distinguished of our public men, themselves unprotected by the vizor, have thus fallen by mysterious hands—stabbed in the back by men who fight upon the 'vantage ground.' As circumstances have given us an extensive knowledge of the *personell* of the Press, we are willing to lend a passing hand in this good cause—thus doing for you and for the world, what neither you nor the world, without such assistance, can have the means of doing for yourselves.

The order to be observed, in our account of the Newspaper Press, is evidently to examine its divisions as they principally appear before the public eye. These are, *first*, the Morning Daily Newspapers; *second*, the Evening Papers; and *third*, the interminable varieties of the Weekly Press.

Accordingly, we proceed to raise the curtain upon the operators at the morning newspapers, commencing with that monarch of periodical literature—the all powerful *Times*.

The *Times* is a joint-stock company. It is held in twenty-four shares, which, in the time of the late Mr. Walter—the father of the present honorable member for Berkshire—were sold at the low rate of £100 per share. Through the exertions of that talented, high minded, and much-persecuted man, and the continued exertions and talent displayed by his son, this once insignificant concern has risen to its present extraordinary height of prosperity and power in the political world. It is now valued at the rate of £20,000 per share. Of the number of shares, sixteen, or two-thirds of the whole, are the property of Mr. Walter himself—he deriving from his interest in the *Times* an income of more than £20,000 per annum—and this continually on the increase. For many years he was the managing proprietor—receiving an additional allowance of £2,000 per annum; but since the acquisition of his very enormous fortune, he has retired from Printing-House Square, and set up in the capacity of a country gentleman. He now, in no way whatever, interferes in the management of the *Times*.

The great gun of the establishment is now a Mr. Sterling. This gentleman was a captain in the army, and served in the Peninsular War. He is well known to the Duke of Wellington; and though no longer connected with the service, he yet continues to reside at Knightsbridge, opposite the horse barracks, and in the constant society of military men. He is the writer of the principal leading matter in the *Times*—all the "thunder" of that journal having, for now a number of years, proceeded from his pen. He first introduced himself to the concern by sending in a series of letters under the signature of "Vetus," the brilliancy of thought of which procured him an engagement upon terms which have been continually increasing to his present great salary of £1500 per year. Mr. Sterling has, however, no connection with the general business of the establishment, receiving that large income only for sending in from his own fide the principal leader of the day. He is possessed of the most rapid and extraordinary powers of composition—sometimes producing in a single hour a full column of matter—compared to which nothing certainly has been seen in the political literature of England since the days of Swift. It is mere style however, for which this gentleman is distinguished; for, in the impetuosity and fire of his mind, political principles are deserted, returned to, and deserted again, with all that rapidity which gives so strong a character for inconsistency to the politics of the *Times*. This has often been felt by the proprietors; but so military are his de-

portment, habits, and political views, and so proud and unmanageable the temper of the man, that they are compelled to bear much upon this head, for the influence derived from the power and splendor of his style. Thus does Mr. Sterling carry over the *Times* to which camp he will. The present support of the government of the Duke of Wellington is entirely attributed to him. It is not asserted, however, that there is any thing corrupt in his motives—for Mr. Sterling is a man who would neither brook the control nor touch the mercenary gold of the mightiest monarch on the globe. The public may rest assured that he never will be enslaved to any party whatsoever, nor part with the power to dash into ten thousand pieces all who dare to prove disobedient to his will. Thus, in his rage at being baffled in his efforts to prevent the passing of the Poor-Law Bill, he has mercilessly malleted out the brains of the fallen tumbler of Vauxhall. The somewhat brutal attacks upon Mr. O'Connell respecting his rent—an affair altogether of a private nature between himself and those who choose to retain him in the service of his country; the scorn heaped upon that invaluable public servant, whom he designates as a "Mr. Joseph Hume;" the abuse of that accomplished politician, "his apprentice Roebuck," who presumed, contrary to the will of Mr. Sterling, to prevent a contemptible little Tory from becoming the representative for Bath; all the abuse of the "dirty Radicals," the "Kensington butcher," and the "Brummen Hampden," proceeds from the pen of this Man in the Iron Mask. So great his power for evil or for good, and so savage is the use which he latterly has made of its abilities, that it really is high time that the people of England should know something of the profession and temper of a man, who thus, from his house at Knightsbridge, can fling down, as he would make-believe, Ministers of State, and make and mar whom he will. Let us hope that he will become more moderate now that he is known, and that these lines will be felt as a salutary hook in the nose of this leviathan of all the waters of the political world.

Next in importance as manager, or what is termed "the responsible editor" of the *Times*, is a gentleman named Barnes. The thunder has long been wrongfully attributed to him. He seldom, indeed, produces original matter of any kind—and then principally upon subjects of literature and the fine arts. He is an excellent linguist, and a very learned and accomplished man. He is also an indefatigable man of business, and, by night and by day, none can labor harder at the wheel. His salary is 1000*l.* a year, and he is now the possessor of one-half of a twenty-fourth share in the concern. Possessed of a well-ordered and very comprehensive mind, this gentleman carries on, with infinite ability, the whole machinery of the vast establishment of Printing-House Square. Whether in the appointment of correspondents abroad, or in the selection of the corps of reporters and others, who in numbers are supported from the profuse and well directed expenditure of the establishment, the discernment of Mr. Barnes is seen in every number of the *Times*. He exacts the most implicit obedience to his will; and, excepting the mighty Mr. Sterling, all bow down to Mr. Barnes. In politics his views are favorable to liberty—he feels the dignity of his post, despises all attempts to draw him from his own course—has no disposition abuse his power, and is, in every respect, a fair and honorable man. Therefore we advise him to live further from Printing-House Square than his present house in the borough; and thus, taking more pedestrian exercise, endanger not himself, from huge overgrowth of body and from over exertion of the mind—to that kind of dissolution—which comes "as butcher falls an ox."

The division of the *Times* called "the city article," is written by Mr. Alsager, a gentleman in Birchin Lane. He has the large salary of £800 per annum, which he, indeed, very amply deserves. Mr. Alsager is possessed of the most comprehensive knowledge of the principles of commerce & finance, through which he has rendered important services to his country through the columns of the *Times*, and also, by well directed speculations, procured a considerable fortune for himself. His opinions are of great weight

amongst the monetary bodies in the city, and many a tremendous blunder his warnings have prevented amongst the men who, seated in a parlor in Threadneedle street, have the keeping of the welfare of the millions of the greatest empire on the earth. Were things well ordered in this commercial community, such men as Mr. Alsager would become Chancellors of the Exchequer and the like. Sheep-feeding Lords make sad slaughter in finance.

Mr. Bacon is the sub-editor of the *Times*; he and Mr. Murray write well and in a smooth style. Mr. Walters himself has not force enough for the *Times*; and, knowing that Mr. Barnes has a decided objection to his matter, he has long had too much judgment to attempt any thing of the kind. The productions of Mr. Sterling have been frequently attributed to Lord Brougham. Every possible precaution is taken to conceal this Mr. Sterling; and a reporter who wishes to remain upon the *Times*, must be at a considerable distance from any third person, and look very carefully round all points of the compass, before he will venture even to mention his very name. It is death without benefit of clergy. Altogether, there is no newspaper establishment in the world which can bear the shadow of a comparison with this; and notwithstanding the armies of enemies raised up by the occasional indiscretions of Mr. Sterling, there cannot be a doubt that the *Times* will very long continue to maintain a considerable share of power in the political world.

Next in antiquity, and till recently, in political consequence, comes the memorable *Morning Chronicle*. All remember this newspaper in the high and palmy days of the illustrious Mr. Perry. Upon the death of that gentleman, the *Morning Chronicle* was sold to Mr. Clements of the Strand, for the sum of £30,000, a price not certainly too large to a person of the capital and ability of mind to grapple with such a speculation. The new purchaser was, unfortunately, not possessed of either of these requisites to success in this very perilous attempt, and his paper maker very soon obtained an extensive mortgage upon the copy right of the paper. Thus crippled in his resources, the great expenditure required for foreign correspondence, and for first-rate talent in reporting from the Houses of Parliament, and the Police Offices, and the Courts of Law, was nowhere to be found. Then did the *Chronicle* fall fast into the rear. Not only was the foreign correspondence invariably copied from the *Times* and the *Herald* of the preceding day, but the expenses of the establishment were curtailed by the use of types of double the ordinary size, with straggling intervals called "windows," and other expedients for saving a few daily shillings of expense. Thus dwindled away the circulation of this once celebrated paper; and, latterly, its sale did not amount to more than about two thousand copies per day. Under these circumstances, Mr. Clements, in January last, disposed of his interest in the *Morning Chronicle* for the sum of £17,000, to Messrs. Grote the banker, Easthope the stock-jobber, and Joshua Parkes, the great Birmingham Whig. But even these gentlemen cannot be much flattered upon their present knowledge of the very difficult mysteries of the newspaper trade. The foreign correspondence is certainly improved, and, from the important points of Paris and Madrid, the *Chronicle* is amongst the earliest in the field; but still the windows remain open in the type, and there is not more than two-thirds of the quantity of matter which appears in the *Times*. But more injurious by far is the interpolation of the writing of some of the proprietors themselves in the columns of the *Chronicle*. This is a most fatal mistake. How many fortunes have been melted into thin air through this most expensive of all the follies of the vain! Though Mr. Parkes should write himself up into the Cabinet of the Whigs, yet not then will he find himself repaid for all the thousands he will squander on the way. Men follow not, in these days, the leaders whose battle is not for the liberties of mankind, but for the high places for themselves. The philosophic and invaluable Mr. Black should here be allowed, without let or molestation, to expound to the world his own

* The errors of the *Times* have, of late, got far beyond indiscretions.

most masterly views upon politics and life. He is the Scourge of the age, and ought not to be superseded by babblers. Upon public grounds we take the liberty of saying these things, because it is the absence of all power of competition which enables the giant of the Times to drive back, and to scorn and defy the advancing spirit of the age. There never was such an opportunity as the apostasy of the Times presents to the advance of the Chronicle.

The *Morning News* has been built upon the ruins of the *Guardian and Public Ledger*, which it is fast following to the tomb.

The *Morning Post* is well known upon the Conservative side. It was the property of the Messrs. Byrne, one of whom, dying of the cholera in the course of a few hours in the year 1832, occasioned the Post to be sold, for the sum of £24,000, to the tame elephant, and others of his party. The circulation is small, but, going much into the aristocratic circles, the advertisements are charged at a high price, and form a profitable return. Mr. Walton is the writer of the political articles, which are rabid, and therefore lose their effect.

Morning is now over, and we pass to the doings of the Evening.

Of the evening papers, the *Globe* has been the most conspicuous since the advent of the Whig administration. It is edited by Mr. Gorton, the compiler of a Biographical Dictionary, and other very fair works. This gentleman has, however, been a mere cipher for the last four years, the political articles having come regularly and daily from the offices of Lords Palmerston and Melbourne. It is called "Cupid's Album," because it is written by Lord Palmerston, and Lord Palmerston is called Cupid, because he kills ladies with his gold chain. Should the course of Cupid not again run smooth, the *Globe* will—but we will not prophesy its fate till we have further proved its new character.

The *Courier* is a joint-stock company, the shares twenty-four, and held by a diversity of persons. Political principle it has absolutely none, and of all the s———s that ever walked the streets, this has probably been the worst. Amongst others who write editorial articles for its columns, is no less a personage than Louis Philippe, the King of the Barricades. Thus, if the reader will turn to the file of the *Courier* of the date of Thursday, March 29, 1833, he will there see, in the shape of an editorial article, the defence, by himself, of the King of the French—and certainly a very satisfactory defence—upon the charge of ingratitude towards his Minister Lafitte, in suffering his property to be sold. For the last twelve months the *Courier* has been under the editorship of Mr. James Stuart, a Scottish gentleman of talent, and the author of a popular work of travels in the United States of America. This gentleman was before the public some years since, in consequence of his duel with Sir Alexander Boswell. Why we mention the private affairs of Mr. Stuart, which is done with the greatest respect, is to undeceive the public as to the present standing, property, and influence of the new *Courier*; for it is given out, and, out of Scotland, very extensively believed, that Mr. Stuart has merely become editor of the *Courier*, for the purpose of mental occupation, and to drive away his cares consequent upon the affair alluded to above. So honorable, wealthy, and dignified a person, it is said, would never have accepted an appointment as the editor of a newspaper, without the most perfect liberty of action, upon principles of his own; and, therefore, the independence of the *Courier* is now undoubted and complete. These assertions may be true, and the public may probably possess the guarantee for the independence of the *Courier*, but that is no reason why we do not inform our readers that Mr. Stuart no longer is possessed of any property whatever, his estates in Scotland, and everything possessed by him in the world, having been swept away by reason of indiscreet speculations at the period of the panic. The public has an undoubted right to be informed that the person who states "that Mr. O'Connell wheedles and cheats the peasantry of Ireland out of two-pences and pence," is quite as likely to be commanded by his employers to say those things, as any other person whose subsistence depends upon his pen. The *Courier*

lately preterated itself in the dirt at the feet of the Duke of Wellington. His Grace did not deign to pick it up. It is trying to recover from the false amble—but the mud sticks.

The *Sun* is an evening paper of moderate notoriety. Mr. Murdo Young is the proprietor of this luminary. He also found favor with the Whigs, and he still fights well in their behalf.

The *Standard* is owned by Mr. Baldwin and edited by Mr. Gifford and the well known Magina. This paper is another instance of the power of mere style; for it has fought its way to a large circulation under all the disadvantages of a losing cause.

Finally, we shall glance at that very important division of the metropolitan press, the Sunday newspapers.

First, then, is the colossus of weekly literature, the *Dispatch*. It is the property of Mr. Harmer of Hailton-garden, who has made many thousands of money by its success—previous to which he possessed not much. Its principal writer is a Mr. Williams, who produces the first or principal leading article, and the letter under the signature of Publicola. This gentleman was formerly a Lieutenant in the Navy, in which capacity he acquired his view of the former tyrannical horrors of our vessels of war, the remembrance of which has given such a tremendous power to his pen. His father was an American loyalist, and related to General Hayne, the late very distinguished Governor of South Carolina. Mr. Williams has also been the editor of an edition of Thompson's Seasons, and of Milton's Paradise Lost, and the author of an original and powerful work, called "The Tales of Old Mr. Jefferson;" books which the public ought to buy, in honor of one of the noblest warriors that ever yet appeared in the cause of the liberties of man.

Superior in brilliancy of style, and little inferior to the *Dispatch* in fixedness of purpose, comes that bright gem of political literature, the *Spectator* newspaper. Great sums of money here have been lost, and certainly very honorably lost. Mr. Day, formerly the blacking-maker of Holborn, has had much connection with this paper, expending most liberally—because with little prospect of remuneration—a portion of his fortune in the support of this bright and liberal publication. The price of the *Spectator* is the only stumbling block to its triumphant success. We, therefore, suggest that, by a diminution of the size of the paper, and the partial discontinuance of its refined productions in literature, theatricals, and the fine arts, the *Spectator* might be conveniently sold at the ordinary price. With this change it would rise to a circulation of ten thousand in a single month. Its editor is a Scottish gentleman—Rintoul by name.

There is also the *Sunday Times*, a pleasant and inoffensive print. It goes chiefly into "families," and, therefore, pretends not to any particular political decision. This paper was founded by Mr. D. W. Harvey; whose energetic writings advanced it to the large circulation of ten thousand copies per week. That gentleman then sold it for the sum of £7000 in money, and an annuity of £400 per annum, which he enjoys at the present time. Its circulation is good, but has much gone down. Mr. Gaspary is the editor and partly the proprietor of the *Sunday Times*.

The *John Bull* is still edited by Mr. Theodore Hook. This paper was established by the Government—the expenses having been paid by the Treasury for the first six weeks. Owing to the assistance of Mr. Croker, and style of Mr. Hook, further assistance was not required—the paper having been brought to be a valuable property in that unexampled short period of time. Owing to the change in the health of Mr. Hook, the *John Bull* is now much less prosperous than in the early part of its career. This gentleman was seized with apoplexy at his house at Putney, and lay for a considerable time in a very debilitated state. Since that period, both in his political writings and in his literary productions, there has been a corresponding diminution in the vigor of his mind. Mr. Hook has recently sold one of his remaining quarter shares in the *John Bull* for the sum of £4000.

Into the lower region of the press—the stews wherein dwell the *Age*, and the other children of

John Bull—at present at least we will not go to. The *True Sun*, the *Morning Advertiser*, and the *Examiner*—all honest men laboring in the good cause—we also reserve for the present.

RAILWAY IRON.

95 tons of 1 inch by 1 inch,	Flat Bars in lengths of
200 do. 1½ do. do.	14 to 18 feet, counter sunk
40 do. 1½ do. do.	holes, ends cut at an angle
800 do. 2 do. do.	of 45 degrees, with slij-
800 do. 2½ do. do.	cing plates and nails to
	soon expected.

230 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2½, 2¾, 3, 3½, and 3¾ inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. RALSTON,
9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d11mowr

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent,
Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 233 Water street, New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1831sam H. BURDEN.

MILL DAM FOUNDRY FOR SALE.

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 30, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 130 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathe, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Sovers, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and iron can be carried from vessels in the harbor of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggon, could be made per annum.

For terms, apply to
THOMAS ECKLEY, Treasr. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, Dec. 29, 1834.

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
APRIL 9, 1835.

	PER CENT.		
	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	116	115
Pateron.....	50	101½	101½
Saratoga.....	—	106½	106
Harlem.....	—	89	88
Boston and Providence....	100	115	114
New-Jersey Railroad and Transportation Line...	100	115	—
Camden and Amboy.....	100	—	—
Providence and Stonington..	100	100½	—
Boston and Worcester.....	—	103	102½
Philadelphia and Trenton..	100	100	96
Utica and Schenectady....	100	116½	116½

**RAILROAD JOURNAL AND ADVOCATE OF
INTERNAL IMPROVEMENTS.**

This work is published once a week, in quarto form, of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP,

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2.

**MECHANICS' MAGAZINE, AND REGISTER OF
INVENTIONS AND IMPROVEMENTS.**

This work has completed 4 volumes, or two years. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Volumes 6 and 7, or 1 and 2, new series, \$3 per volume.

**QUARTERLY JOURNAL OF AGRICULTURE,
MECHANICS, AND MANUFACTURES.**

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
35 Wall street, New-York.

GOLD REGION OF THE UNITED STATES.

Now in press and will be published in a few days the first of a series of numbers, giving a minute and particular description of the entire Gold Region of the United States.

Each number will be accompanied by a Map, on which will be laid down, and numbered, with owner's name, in the order of discovery, of every Gold Mine within the district of which the number treats, so that any person can ascertain the location, owner's name, and condition, as late as January 1, 1835, of every Gold Mine, or place where gold has been discovered in the United States.

The first number, which will be issued by the 20th of April, will give the Gold region of North Carolina: together with a very interesting Essay, upon the Gold region of the United States, from the transactions of the Geological Society of Pennsylvania, by James Dickson, Esq., F. G. S. of London, C. M. G. S. of Pennsylvania, &c. &c.—With other interesting and important information in relation to the supply and consumption of Gold.

The information and maps are by a scientific gentleman, who has visited personally what he describes.

No. 2, including the States of Virginia and Maryland, will be published by the first, or during the month of June.

No. 3, giving Pennsylvania, New Jersey and New-York, by the first of August. And the succeeding numbers, 4 and 5, which will probably complete the series, by the first of January next.

The terms will be \$1 per number, or \$5 for the Series.—Subscriptions addressed to D. K. MINOR, or to the publishers, T. & C. WOOD.

No. 7 Wall street.

Gentlemen who may have particulars, or details, of present condition of mines in North Carolina, will oblige me by communicating the same, that the work may be as complete as possible. D. K. MINOR.

NOTICE.

The Board of Directors of the NEW YORK AND ERIE RAILROAD COMPANY, believing that the interests of this City demand that the construction of their Railway should be immediately commenced, and having resolved, with undiminished confidence in the merits and early productiveness of the undertaking, to proceed in their operations without delay, hereby give Notice, that in order to provide means adequate to the completion of a single track of the Railway over an extended and most important portion of the route, subscriptions for Two Millions of the capital stock will be received at their Office, No. 29 Wall street, on the 15th day of April next, and the two succeeding days. Five Dollars on each share is required to be paid at the time of subscription.

It is to be understood that no further issue of Stock will be made within two years, and that it is the object of the Company, before the expiration of that period, with this and the former subscription, to put such portion of their Road in operation, as will, they confidently believe, yield a profitable return on the cost thereof.

New York, 30th March, 1835.

By order of the Board.

JAMES G. KING,
JOHN G. COSTER,
PETER G. STUYVESANT,
MICHAEL BURNHAM,
ELEAZAR LORD,
GOULD HOYT,
STEPHEN WHITNEY,

m:30 tA18

Committee to receive Subscriptions.

LAFAYETTE.

THE Eulogy by JOHN QUINCY ADAMS, on the Life and Services of this Benefactor of Mankind; on a beautiful paper and type; with a spirited medallion *pentographic* likeness. Is just published and for sale by D. K. MINOR, 35 Wall st.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

**PATENT HAMMERED SHIP, BOAT, AND
RAILROAD SPIKES.**

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 18-1y

STEPHENSON.

Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25 tf

**RAILROAD CAR WHEELS AND BOXES,
AND OTHER RAILROAD CASTINGS.**

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shingles. The nails are hammered and come from the machine completely headed to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 18, 1833. A29 (C) M&F

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

J31 Gt

**SURVEYING AND ENGINEERING
INSTRUMENTS.**

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. Y. UNG.

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to the inquiries respecting the instruments manufactured by me, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of the make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction of Baltimore and Ohio Railroad. Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's Patent Improved Compass, I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

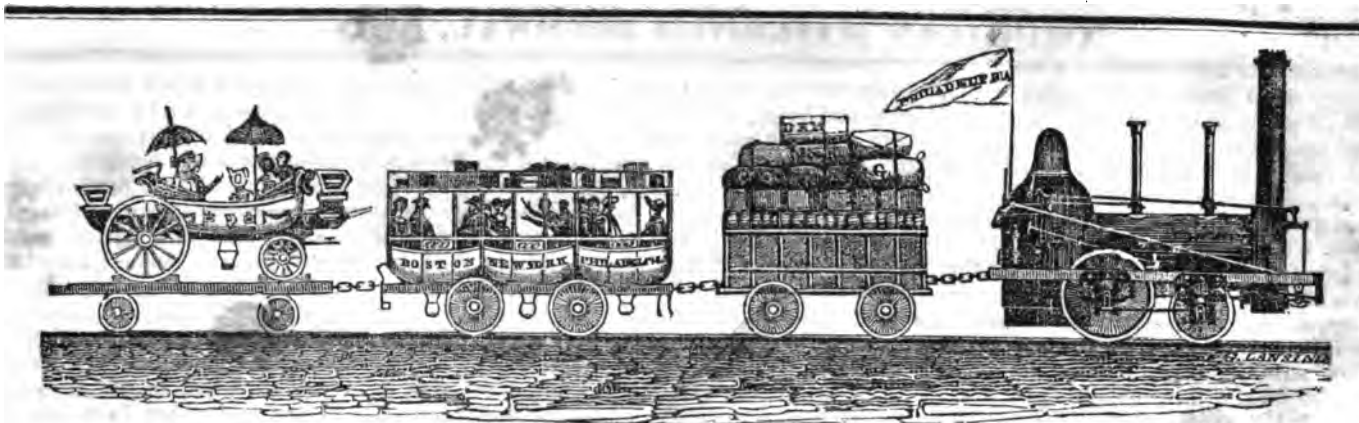
E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for the purpose.

m 1y HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, APRIL 18, 1835.

[VOLUME IV.—No. 15.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, APRIL 18, 1835.

We lay before our readers a very interesting letter from an American gentleman in London, upon the subject of rapid travelling on canals, and of steam carriages on common roads. The writer will please accept our thanks for this, and other favors past; and permit our readers to thank him also, *in advance*, for other letters which they anticipate from him through the medium of the Journal.

A continuation of Mr. Mills' Report of his survey of the Rochester and Olean Canal will be found in this—it will be concluded in the next number.

☞ The books of the Company for a further subscription to the stock of the New-York and Erie Railroad, were opened on Wednesday. On the first day over \$600,000 were subscribed, and on closing them it was found that the amount of subscription was over a million; which, with the \$1,000,000 before subscribed, will enable them to commence operations at once, and to complete about 200 miles of the road. This will beyond question secure the construction of the road, notwithstanding the opposition of gentlemen in the more favored section of the State.

Charleston Railroad.—The southern Patriot says, the increasing travel and transportation on the Charleston Railroad, since the commencement of the present year, have exceeded the expectations of every one. The actual receipts, as is well observed, furnish the best evidence of the prosperity, and by comparison, of the increasing business of the road. These receipts are given for the first three months of the current year, and the corresponding period of last year, as follows :

1834.	1835.
January, \$4,229	January, \$13,290
February, 8,174	February, 14,875
March, 11,988	March, 17,458
\$24,391	\$45,624

This shows a great increase, indeed; the receipts nearly doubling, in the course of a single year. The number of passengers who travelled the road, during the year ending on the 1st of April, is stated 29,240.

Thus it is on the Charleston Road, and thus it will be on the New-York and Erie Road. The increase of business from improved facilities is not generally appreciated.

[From the Baltimore American.]

WASHINGTON RAILROAD.—We learn that a definitive and entirely satisfactory arrangement has been agreed upon between the Corporation of Washington and the Baltimore & Ohio Railroad Company in relation to the location of the railway within that city. A most liberal and accommodating spirit, we are informed, has been manifested by the city authorities there towards the Company, and under the provisions of the ordinance just passed, the Railroad Company are authorized to use steam as a moving power to the point desired by them, near the western foot of Capitol Hill, from which place the road will be continued across Pennsylvania avenue to the Canal.

The satisfactory adjustment of this matter leaves the Co. from free any obstacle in the way of their immediate completion of the work, and the entire line both for graduation and masonry is already under contract, under a confident expectation that within three months the road will be open for travel.

The accomplishment of this work will bring the two cities into a very intimate intercourse, reciprocally beneficial. The trip will no doubt be regularly performed within two hours, and will afford a most delightful excursion—hundreds will daily avail of it, and we doubt but that the commercial as well as social relations of both cities will be greatly promoted. Indeed the whole Union has a deep interest in the work; and we venture to predict that the day is not distant when travellers leaving Washington in the morning will dine in Philadelphia, and arrive the same evening in New York.

Swift Passage-Boats on Canals, and Steam Carriages on Common Roads.

London, February 6, 1835.

To the Editor of the Railroad Journal:

SIR,—I observe you have published in your Journal of the 12th December last my letter to you relative to the locomotives plying on the common turnpike—the “City road”—from the neighborhood of the Bank of England to Paddington. Since I addressed you, I have been on a tour to the north, as far as Dundee, in Scotland, and visited most of the railways and manufactories of locomotive engines of the island.

When at Glasgow I visited the “Paisley” and the “Forth and Clyde” canals; and as our country is very much interested in canal navigation, some memoranda relative to the *swift passage boats* on those two canals may not be uninteresting to your readers.

First, of the “Paisley Canal,” which has been the longest known, and is still most successful as regards quick travelling. This canal commences at Glasgow, and goes through Paisley (8 miles distant) to Johnston, where it terminates; 12 miles long; no lock in the whole distance. The boats are of iron, of one sixteenth of an inch thick, 70 feet long, 5 ft. 9 in. broad, and weigh 16 cwt. 14 lbs. This is the weight of the iron part alone. The total weight of the boat, including the wood work, (the cabins are of this material,) fixtures, &c. is 33 cwt.; and with 100 passengers, draws 19 inches aft and 18 inches forward. Two horses draw the boat in stages of four miles each; the pair of horses go only 12 miles per diem. There are four boats, which make six journeys each, or twenty-four journeys for the whole, each day. These boats have been running four years. They are generally full. They meet the greatest encouragement, and are very profitable to the proprietors, notwithstanding the fare is so very moderate. The charge is 6 pence, in the after cabin, and 9 pence in the forward, to Paisley, 8 miles; to Johnston, 12 miles, the

charge is 9 pence in the after cabin, and 12 pence in the forward cabin. The time usually employed between Glasgow and Paisley is 50 minutes, or $9\frac{1}{4}$ miles per hour. This is the narrowest canal I ever saw, generally 30 feet wide and 5 feet deep. The captains of the boats on board of which I travelled, told me that on a narrow canal, such as this, the horses can pull a boat easier, *when travelling rapidly*, than on one of greater section. This, paradoxical as it may appear, is verified by the fact, that on the "Forth and Clyde" canal, which is of 9 feet depth, and 68 feet breadth, the boats, which are of nearly the same dimensions (68 feet long, and $5\frac{1}{2}$ feet broad,) as those on the Paisley canal, are drawn by *three* horses, with 70 passengers on board, and yet travel at about the same velocity as on the narrower and shallower canal. I asked these captains, and also a civil engineer of some eminence, whom I met on board, returning from Johnston, how they could account for this circumstance. Their reply was as follows: On a narrow canal, say 30 or 40 feet wide, the boat passing swiftly through the water, throws the wave against the shore, which being thrown back again against the boat, raises it up, and thus propels it. The wave strikes the boat about two thirds of its length from the bow. But if the canal were much wider, the boat would pass by before the *reflected wave* could reach the boat, and thus give it aid. I give this explanation nearly in the words of these captains, and am responsible only for the correctness of the report of what they told me. I hope this will meet the eye of our distinguished countryman, Gen. C. F. Mercer, Chairman of the Committee of Internal Improvements in the H. of R., who advocates with so much ability *broad and deep* canals for transportation, as far more economical than narrow canals. I will now finish what I have to say respecting the fast travelling on the "Forth and Clyde" canal.

This canal, as I have said above, is 68 feet broad by 9 feet deep, and the iron boats are 68 feet long and $5\frac{1}{2}$ feet broad, and when light draw 8 inches water, but with 70 passengers draw 20 inches; this is when in a state of rest,—when in rapid motion they draw less. There are 3 horses employed to each boat, and the passengers who get into the boats at Port Dundas (Glasgow) are set down at Port Hopetown (Edinburgh) in $6\frac{1}{2}$ hours, a distance of 56 miles, or nearly 9 miles per hour. It is necessary to explain to you that the passengers go only a part of the distance on the "Forth and Clyde" canal. They start from Port Dundas and go to Port Downie, (the commencement of the "Union Canal,") a distance of $24\frac{1}{2}$ miles, which includes 4 locks. In the next half mile are *eleven* locks, which are avoided by the passengers being conveyed in omnibuses to boats in the "Union Canal," which carry them on a level of 31 miles to Port Hopetown (Edinburgh). I regret that I did not take a memorandum of the cost of these iron

boats, which are light and beautiful vessels, and being fearful of making a mistake I do not quote from memory. On the Lancaster, Carlisle, and Kendal canals, there are rapid boats, but not having travelled by them I do not give you any details. But if any of your readers feel an interest in the above remarks, and wish further information, I can with facility procure it, and will with pleasure communicate it to you.

Since my return from the north I have called on Mr. Hancock, in company with Mr. T., one of the engineers of the Boston and Providence Railway. We found that for the last two months the "Era" and the "Autopsy" have discontinued running, owing to the absence of Mr. Hancock in Ireland, whither he went with the "Era," for the purpose of ascertaining if he could profitably introduce locomotives on the roads of that country. He is now returned to London, and will, I am informed, recommence running these two engines on the metropolitan roads in a few days. Mr. T. and I also went to see Mr. Russell's steam carriage, recently arrived from Glasgow, which will in a few days ply regularly, in conjunction with others of this gentleman's make, between Hyde Park Corner, and Hammersmith (the commencement of the great western road out of London.) This carriage is by far the most tasteful of all the steam carriages I have seen. It is built exactly like the stage coaches of this country, except the dimensions are larger. The whole of the machinery is in the hind boot. The water and the coke are in a *tender*, or separate carriage on two wheels, behind the locomotive. This steam coach will carry six inside passengers sitting *vis-a-vis*, 14 outside on the roof, and six on the tender; total, 26 passengers. From the favorable terms in which I have heard Mr. Russell's engine spoken of, both here and in Glasgow, I feel a great curiosity to ride on it, and I will take advantage of the first opportunity to do so, and will report to you respecting it, as well as others which will no doubt be introduced as the spring advances. You may inquire, why did not Mr. R. remain in Glasgow? I will reply in nearly the words of the gentleman who shewed us this carriage. He said the prejudice against it was great, in consequence of the unfortunate accident by which 12 or 13 passengers were killed or wounded; that it was expedient to come to a distant part of the country. He told us, that for several months this engine plied between Glasgow and Paisley, and performed in a manner to give entire satisfaction; and in consequence, the stage coach proprietors and trustees of the road were alarmed lest this and others would gain so much in public estimation as to become regular coaches. They therefore resolved to drive it off, if possible. This they accomplished by *picking up* the turnpike, and putting fresh metal down in unusual and extraordinary quantities. Notwithstanding the road was made almost impassable, the engine was still continued, and plied regularly several

times each day for a whole month, and excited the admiration of all intelligent persons, that it *could* overcome such difficulties. It however was finally injured by being driven for so long a time over a road so much worse than it was constructed for, and one of the hind wheels getting into a hole (made by order of the turnpike proprietors), it broke, and the carriage tumbled to the ground; 4 or 5 persons were killed, and 8 or 9 others seriously maimed and wounded. But none of them were hurt from the explosion of the engine, or the escape of steam, but from being thrown with great violence against the rough, new metalled road—the same kind of injury as would be received from a common stage coach breaking one of its wheels when travelling rapidly. I am informed that an action is brought by the owners of the steam carriage, as well as by several of the survivors and the friends of the deceased, killed by this melancholy event, against the road company, for obstructing the King's highway, and causing the injury and death of a number of persons, besides loss of property. sanguine hopes are entertained that the guilty will be severely punished.

I forgot to tell you above, that the swell on the two canals, caused by the quick passage of the boats, is very inconsiderable.

I am, very respectfully, your obedient servant,

GERARD RALSTON.

P. S.—The demand for railway locomotives is very great. I am sending nine to different parts of the United States, and both Mr. Robert Stephenson and Mr. Bury have orders to give them full employment for several months to come.

Report of Frederick C. Mills, Engineer, to the Honorable the Canal Commissioners of the State of New-York.

(Continued from number 14.)

For the purpose of ascertaining the quality of stone, and the facility of procuring them, I examined the quarries within a reasonable distance of the canal. For the line from Genesee to Rochester, limestone will be used, and is found of a very superior quality near Avon Springs and at Caledonia. There is stone at Rochester which may be used in some parts of the work adjacent; but of an inferior character.

All the quarries from Mount Morris south, either on the Dansville side cut or in the vicinity of the main canal, are sand or grit stone varying in hue from pale blue to ash color. They are fine building stone, (of the kind) quarry easily, and in good shape for the construction of the mechanical work; they are abundant and generally convenient to the line, especially on that part of the route from Portageville to Olean.

It will be seen by referring to the detailed estimate of the different proposed kinds of locks, that the average cost of a composite lock of 10 feet lift will be \$3,700.79, and of a hammered stone lock \$5,193.98, making a difference in favor of the first description of lock of \$1,493.19.

The difference between these two modes of construction is small when it is borne in mind, that the former will require a thorough repair of all the wood work connected with the chamber, once in 8 or 9

years, which is rendered still more expensive on account of the season of the year at which it would be necessary to perform the work, in order to obstruct the navigation as little as possible. The estimates throughout the line are made upon the latter mode of construction, which I think it would be well to adopt, at least between Mount Morris and Rochester, where the stone is particularly suitable, and where the suspension of the navigation would be sensibly felt. On the other parts of the line it may be found advantageous to substitute the composite lock, as with the exception of a few quarries on Cananda creek and in that vicinity, the stone is not of so good a quality as that below for making permanent hammered work, coping or quoins.

FEEDERS.

The question of supplying the summit of this canal, and the lower levels dependent upon it with water, is one of the most interesting and important, which now presents itself for consideration.

On referring to gauges taken by Judge Geddes in 1825, on the same summit, I was led to doubt, whether a quantity adequate to the demand could be obtained, and consequently devoted much time to a careful investigation of the subject.

From the best information I could obtain, a more favorable opportunity has not occurred for several years, of ascertaining the quantity of water which may at all times be relied upon, for the supply of the summit level, on account of the very low state of the water in all the streams at the time of gauging. For this purpose dams were thrown across the several streams, with apertures and sluices, in a form best calculated to concentrate and shape the volume of water for measurement.

The following statement shows the minimum flow of running water, that may be commanded for the summit, viz:

	Cubic feet in a minute.
Ischua creek, - - - - -	1,122.00
Lime lake, - - - - -	258.00
Fish lake, - - - - -	311.64
Beaver and Mud lakes, - - -	244.80
Black creek, - - - - -	33.56
Oil creek, - - - - -	36.00
Little Oil and Swamp creek, -	38.00
Total, - - - - -	2,044.00

To conduct this water to the summit 9 $\frac{3}{4}$ miles of artificial feeders will be required, viz:

For Ischua creek, - - -	2 miles 52 chains.
" Lime lake, - - -	1 " 39 "
" Beaver and Mud lakes, - - -	2 " 66 "
" Fish lake, - - -	2 " 27 "

Which, together with the requisite dams and bulkheads, are estimated to cost \$29,069.33.

The water from these lakes must be turned into Ischua creek, and occupy its channel to Ischua feeder, a distance of about 14 miles, through which it will be received into the summit level.

Lime, Beaver, Mud and Fish lakes, lie in the towns of Machias, Freedom and Farmersville, all within the compass of 7 miles.

Lime lake is 18 $\frac{1}{2}$ miles from the canal, and 156 feet above the summit level. Beaver lake is 209, Mud lake 218, and Fish lake 267 $\frac{1}{2}$ feet above the same point. The south end of Lime lake is separated from the Ischua, by a Tamerack swamp 1 $\frac{1}{2}$ miles in length, and rises on an average, 2 $\frac{1}{2}$ feet above the surface of the water in said lake. At the time of making the survey, I was informed that the water in this lake had

been raised from 2 to 3 feet above its ordinary level, by a dam at the outlet, and that it was the intention of the proprietors to raise it 4 feet more. This may be done at small expense, and by excavating a channel to the Ischua, not exceeding 8 feet in depth, the lake may be drawn down 7 feet.

On the outlet, near the above mentioned dam, a grist-mill is being built, estimated to cost \$5,000, and should the water of Lime lake be turned to the south, this mill will sustain an injury, and be a subject of claim for damages. The reservoir would average an area of 135 acres by 7 feet deep.

Fish lake is divided into two parts of unequal size and of different elevations; the upper and largest division is 6 feet above the other, and in the dry season has no discharge into the lower division, unless it be through a subterraneous passage.

Willard Law has a saw-mill at the outlet of the lower pond, and is building a dam 180 feet long, by which he designs raising the water so as to flow back into the upper pool 2 $\frac{1}{2}$ feet.

In order to use this lake as a reservoir, it is proposed to raise Mr. Law's dam 7 feet higher, which will give an area of 120 acres, from which 10 feet in depth may be drawn.

The outlet flows into Clear creek, a branch of Cattaraugus creek. Between Fish lake and Cattaraugus creek, there are 3 grist-mills, 3 saw-mills, and 2 card and clothing works, which in part receive their supply of water from this source, and should the water be used for a feeder or reservoir, claims for damages will ensue.

Mud lake lies about three miles south west of Fish lake, and upon the plan proposed, the waters of the latter may be drained 10 feet deep below its contemplated surface into the former, by a channel not exceeding 9 $\frac{1}{2}$ feet in depth, and 2 $\frac{1}{2}$ miles in length. On referring to the map, it will be seen, that the waters of these lakes will then pass on through a natural channel, and unite with those of Beaver lake near its outlet, whence they will be conducted into one of the branches of the Ischua, by an artificial feeder of 2 miles and 66 chains in length. Mud and Beaver lakes cover 50 acres each, and may be conveniently raised 6 feet higher, which will add about 70 acres to their area = 170 acres. On the outlets of these lakes, there are a few saw-mills and other works of small note, which will sustain some injury. The surface of country drained by them, is estimated at 20 $\frac{1}{2}$ square miles. Their principal and most permanent sources of supply, especially in the dry seasons, is from springs.

It is difficult to determine with much precision, the extent of damage that may be sustained by diverting the waters of these lakes from their natural channels. They flow north into Cattaraugus creek, and should there be any want of water at the mills on that stream, it may not be improper to suppose, that claims for damages will be presented; the most depressed of these lakes, is about 1,072 feet above Lake Erie.

The following statement shows the capacity of the lakes, and other streams available on the summit level; and the quantity that may be held in reserve by damming the lakes to be used during the dry season, which from my investigations on that subject, I have reason to believe, rarely if ever exceeds 140 days, showing also how much may be drawn per minute

for the above time, after making allowance for the filtration and evaporation incidental to the increased surface of the lakes, together with the cost of construction, which will perhaps, be as well calculated to aid you in determining the relative advantages and feasibility of this plan of supplying the canal with water, as any thing I may say further on the subject.

Names of Feeders.	Free area in acres.	Cubic ft. of water after deducting loss by evaporation, &c.
Lime lake,	130	208.00
Beaver and Mud,	100	151.80
Fish lake,	82	236.64
Ischua feeder,		652.00
Black creek,		33.56
Oil creek,		36.00
Little Oil and Swamp creeks,		38.00

Total cubic feet per minute, 1,556.00

Names of Lakes.	Cubic feet of water after deducting loss by evaporation & filtration.	Cubic ft. per minute to discharge the reserve water in 140 days.
Lime lake,	41,004,117	208.30
Beaver lake,	22,241,734	110.30
Mud "	19,948,302	98.00
Fish "	51,631,668	256.10

Amount per feeders as above, 1,556.00

Total, 2,223.70
Cost of feeders and reservoirs, \$4,825.38

The summit level, and the levels principally dependent upon it for their supply of water, are together 80 $\frac{1}{2}$ miles in length, and (with the exception of a few points where lining must be used) the material of which this portion of the canal will be constructed, is of the best quality for making tight banks, and on that part of the line extending through the deep cutting in the summit swamp very little, if any, waste of water will occur, except what is occasioned by evaporation.

It now remains to determine what quantity of water will be adequate to the demand in this portion of the canal.

John B. Jarvis, Esq. gives 487 cubic feet per minute per mile, as the probable quantity of water that will be required to supply the Chenango canal, from the summit level. This estimate is predicated upon a quantity sufficient to pass 20 boats each way every 24 hours, allowing 20 per cent. for waste from the locks, and 100 cubic feet per minute per mile for filtration and evaporation.

In referring to this subject in your annual report to the Legislature in 1834, I find the Commissioners were apprehensive that the amount allowed for filtration and evaporation on the Chenango canal, would be found insufficient; but that they were "inclined to the opinion that with proper care in guarding against the waste of water, 100 cubic feet per mile per minute for leakage, filtration and evaporation would be a safe estimate for the western and middle sections of the Erie canal." If necessary I might go into detail on this subject, and state the results of a variety of experiments made in this and in other countries. Those, however, upon which much reliance may be placed with regard to our canals, have been principally made in the States of New-York, Pennsylvania and Ohio, and as those together with my own estimates and experience in this matter, only go to corroborate and confirm the opinion advanced by the Commissioners, I deem it sufficient to

mention, that from the knowledge I have of the materials composing the banks of the Erie canal, the soil through which this 30½ miles of the Rochester and Olean canal passes, will not suffer by comparison, and should the work be performed with proper care, I am fully of opinion that no more water will be required for leakage, drainage and evaporation per minute per mile, than was found necessary for the same purpose on the twenty miles of canal west of Rochester aqueduct, as gauged by Mr. Bates in 1824.

It results then, that by a careful construction of the work contemplated, the estimated 100 cubic feet per minute per mile, will be a safe allowance for filtration and evaporation.

Now assuming an average of 28 boats* to pass each way from the summit every 24 hours, provision must be made for a maximum of 60 lockages of water per day, and as the locks which govern this question are 7 feet lift each, the quantity required will be 367½ c. feet; to this add 25 per cent. for waste from the locks, and we have 459 c. feet for lockage water per minute.

Hence it appears that the quantity of water requisite to supply the summit and south to Olean, and then north to Ketchum's, (where it is proposed to take in the Genesee river as a feeder,) is,

For filtration and evaporation
30½ miles, 3,025 c. ft.
For lockage water per minute, 459 "

Total, 3,484 "

The sources of running water as heretofore contemplated, 2,044

Deduct loss by filtration and evaporation in conducting said water on to summit, 488
1,556 "

Deficiency, 1,928 "

To make up this quantity it becomes necessary to resort to reservoirs, three of which are artificial and four natural ponds or lakes. The lakes will furnish per minute, (as seen in the preceding table,) 667.70

1,260.30 cubic feet per minute still remain to be made up entirely from artificial reservoirs.

The subject of supplying canals from these sources has been treated on at large in relation to the Chenango canal, and presuming that I can present nothing new, or that would aid the Commissioners in determining the practicability of the plan, I will briefly state the result of my survey, the capacity of the reservoirs, and the plan upon which the estimate is made.

The Ischua creek reservoir is located 3 miles from the summit level, near the head of the feeder at Farewell's mill dam. The present dam is 4 feet high and 9 feet above the bottom of the canal. It now overflows about 15 acres, the principal part of which is covered with timber. The creek has an average fall of about 12 feet to the mile. The hills on either side are high and precipitous. The width of the valley at the dam is 14 chains, and for the length of the reservoir average 15 chains. By raising the

* This is quadruple the number necessary to do the present business of the canal; but it has been thought proper to make provision for a large increase of trade.

mill dam 12 feet higher, the water will set back 1½ miles, covering an area of 180 acres. The soil is clayey, of an impervious character.

The road up the valley will be overflowed by the pond, making it necessary to build a new one along the side of the hill, for 20 chains in length.

An allowance must be made for damages to Farewell's saw-mill, which is supplied with water from this source.

This reservoir has a drainage into it of 65 square miles of country, and taking one-fifth of the down fall water, (36 inches,) as the quantity which will drain off, we have 1,093,825,760 cubic feet, a quantity more than sufficient to fill the reservoir eleven times.

I proposed building two reservoirs on Oil creek, which crosses the canal about 2 miles north of Cuba. At Cady's mill the valley bordering on the creek is contracted to 5 chains in width, by the near approach of the high grounds, at which point it is contemplated to raise an embankment and dam 12 feet in height above the mill pond. Cady's dam overflows about 12 acres, which will be increased by adding to the height of the dam to 120 acres, affording a spacious reservoir at comparatively small expense. Immediately above is the site for upper Oil creek reservoir: this artificial pond will cover an area of 260 acres, the principal part of which is a swamp of little value. The plan contemplates a dam and embankment 12 feet high and 25 chains in length, with the requisite gates and fixtures for drawing water and passing surplus.

Baldwin's saw-mill near the head of the lower reservoir will be destroyed, for which allowance must be made, and also for damages that will occur to Cady's mills at the lower dam. The drainage of 9,817 acres will descend into these reservoirs, and (as will be seen in the subjoined statement showing the capacity and cost of the artificial reservoirs,) is equal to 256,577,112 cubic feet.

Reservoir.	Am't of cubic feet contained in reservoir after deducting 6 per cent.	Cubic feet per minute to discharge the reservoir in 140 days.	Cost.
Ischua cr'k,	86,543,432	492.20	\$6,767 65
Lower Oil,	57,708,288	284.20	9,215 00
Upper "	125,034,624	620.20	9,080 00
Total,		1,396.60	\$25,062 65

Area of drainage in acres of
Ischua creek reservoir, 41,660
That of Upper creek " 9,817

It appears, then, that from the above sources, we may have a surplus over and above the quantity required of 136 cubic feet per minute, which is more than sufficient to make up any deficiency that may arise from the location of the ponds or reservoirs on the streams proposed for feeders.

The Ischua creek valley, on account of the extent of drainage, its peculiar formation, and the impervious character of the soil, is extremely well adapted to the multiplication of reservoirs. I would therefore remark, that in case any contingency should render it necessary to resort to other sources than those specified as adequate to the supply wanted, additional reservoirs may be constructed immediately above the one in contemplation at Farewell's mill-pond.

The natural flow of water from Lime, Beaver, Mud, and Fish lakes, as before stated, is 814.44 cubic feet per minute. Their capacity will be increased by raising

dams and embankments 667.70 cubic feet per minute for 140 days, (in the dry season,) equal in all to 1,482.14 cubic feet in a minute. Three artificial reservoirs, each of the same capacity of the one in contemplation at Farewell's pond, would afford 1,476.60 cubic feet per minute, and should the commissioners think it best to resort to this plan instead of using the waters of the lakes, such reservoirs can be constructed above the one proposed on Ischua creek, at an expense not very much exceeding the estimated cost of bringing the same amount of water from the lakes above mentioned.

For estimates in detail of all the reservoirs and feeders connected with the summit level, see statement 1.

From the point where the Genesee river is received into the canal to Mount Morris, is a distance of 37 miles and 35 chains. Caneadea and West Koy creeks are also taken in by means of dams and short feeders, the creeks being previously crossed by the canal in aqueducts.

Corn creek, yielding 174 cubic feet per minute, could be introduced if absolutely necessary; but as the supply of water will be abundant, I have not thought it proper to incur the expense that would be necessary for that object. The whole amount of water obtained from these several sources is 9,123 cubic feet per minute. Locks of larger lift occur from the above point to Rochester than on that portion of the route supplied from the summit, and will consequently require a proportional increase of lockage water; to provide for this, and for combinations at Round Flat and Mount Morris, I have allowed 1,147½ cubic feet per minute. The quantity required as far as Mount Morris, will be 4,891½ cubic feet per minute, leaving an amount of water over and above the demand, of 4,231½ cubic feet per minute.

Although the quantity of water necessarily wasted is very great, where so many locks occur together, as in the vicinity of Mount Morris, yet it cannot be questioned that so large a surplus as that above mentioned will be fully adequate to the supply of any contingencies arising from that cause.

Some damage will be sustained by the saw-mills upon the Caneadea and West Koy creeks in consequence of the water being taken from them in the dry season, and its passage through the race being partially obstructed at all times. No injury will be sustained by the mills at Mixville, situated at the West Koy Falls, the water being taken in below them and not setting back far enough to flood their wheels. At the point where the Genesee river is taken in, I propose to construct a guard-lock, for the purpose of receiving the lumber, produce, &c. &c., of the country around its head waters. This lock will be about two miles north of the village of Butts town, where are several saw-mills and a sash factory, and from which, as also from many other places on the river, considerable quantities of lumber may be expected to pass annually through the canal. No other guard-locks, except those at Mount Morris, will be necessary, unless the Genesee river should be taken in as a feeder at some other point, which the following statements of the quantity of water furnished and required on both sides of the river, between Mount Morris and Rochester, will show to be unnecessary. Upon the east side, the streams which will be received into the canal are outlets of the Conesus, Hemlock, and other lakes, mentioned in a previous part of this report, which afford, together with that al-

ready in possession, 12,434 cubic feet per minute; the distance supplied from these sources being in all a fraction less than 76 miles, showing a surplus beyond the required amount of 3,732½ cubic feet per minute.

The stream on the west side, proposed as a feeder, is Allen's creek, 12½ miles south of Rochester. The total length of canal to be supplied on this route is 74,88½ miles. The quantity of water at command is 12,509 cubic feet per minute; the quantity required is 10,531, showing an excess of the amount furnished over that required, of 1,978 cubic feet per minute. Allen's creek is crossed by an aqueduct with a lock of 7 feet lift connected with it, and the water is taken from the creek upon the lower lock. Notwithstanding the precaution of bringing in the water upon a level, which is depressed as much as is consistent with the safety of the work, it will be impossible to avoid injuring the hydraulic privileges at Scottsville. The water in the proposed feeder dam will rise about 4 feet above the present level of their tail races, reducing the head and fall to 14½ feet, which will give rise to a claim for damages, if the canal should be constructed upon this side of the river. The hydraulic works consist of 2 flouring mills with 7 run of stones, 1 saw-mill, 1 turning lathe, and 1 stove-mill.

Many circumstances combine to render it advantageous to take out a feeder from the Genesee river at Mount Morris, especially if the canal should be located upon the west side; among which, the necessity of drawing the whole supply of water for the canal, below Mount Morris, through the locks in that vicinity, is not the least important. Should the route upon the east side of the river be adopted, the same difficulty in relation to supplying the lower section of the canal would exist, and though there would be no absolute necessity of taking in a feeder, yet it would place the work out of danger of any disagreeable consequences which might result from neglect in passing through the necessary supply of water.

I have mentioned in a preceding part of this report, that in case of taking in the Genesee river at Mount Morris, it will be necessary for the State to take the control of the water now used there for hydraulic purposes. Upon the east side of the river damages would ensue in taking in the outlet of the Honeyoye lake, to the mills built thereon; for on account of the great height which it is necessary to build the canal to keep out of reach of the floods, the water to supply it will seriously curtail the head and fall of these mills by being dammed up against the wheels.*

In the foregoing observations nothing has been said, nor have any calculations been made, upon the supply of water which will be furnished from the Canaseraga creek by means of the Dansville side cut. Upon this head I deem it sufficient to remark, that the 15 miles from Dansville to Mount Morris will require 2,057 cubic feet per minute, to supply which, the Canaseraga furnishes, below the confluence of mill creek, 2,458 cubic feet, leaving a surplus of 401 cubic feet per minute. The estimates for the necessary structures to supply the canal with water, are estimated on the summit, with the exception of those for the locks, which are to be found in the estimates for the locks.

sections upon which they

RECAPITULATION.

First Statement.

Aggregate cost from Olean to Mount Morris, as per statement K, . . .	\$1,197,159 98
Mount Morris to Rochester, via east side of the river, . . .	406,607 67
Feeders and reservoirs not included in the estimates for sections, as per statement I, . . .	59,888 03
Dansville side cut, . . .	156,604 25
	\$1,802,259 98
Add for contingencies and superintendence, 10 per cent., . . .	180,225 99
Total, . . .	\$1,982,485 92

Second Statement.

Aggregate cost from Olean to Mount Morris, including feeders and reservoirs, . . .	\$1,257,048 01
Mount Morris to Rochester, via west side of river, . . .	305,087 85
Dansville side cut, . . .	156,604 25
	\$1,718,740 11
Add for contingencies, &c. 10 per cent., . . .	171,874 01
Total with hammered stone locks, . . .	\$1,890,614 12

Third Statement.

Should composite locks be substituted in all cases except where combinations occur, deduct \$150 per foot lift on the amount of lockage, (704½ ft.) plus 10 per cent., . . .	116,242 00
Total with part composite locks, . . .	\$1,774,372 12

[For the Statement relative to the "Routes of Communication to the Ohio Valley," proposed and in use, from the Atlantic Cities, see No. 12 of the Railroad Journal, where it was erroneously stated as being extracted from Mr. Johnson's Report, instead of Mr. Mills'.]

From the best information I could obtain on the subject, boats of light burthen can ascend and descend the Allegheny river for about three months in the year; and from calculations made whilst at Olean, predicated upon statements made by respectable gentlemen entitled to credit, and well acquainted with the matter, property may be transported down the river to Pittsburgh for 25 cents per 100 lbs., and up to Olean \$1.20 per 100 lbs. The average time which would probably be required to make a trip from Olean to New-York, would be about 9½ days, and to return, about 10 days.

I am informed that when the Ohio river is in navigable order, the price of descending freight from Pittsburgh to Portsmouth, which, a journey of 100 miles, in consequence of

the Ohio and Erie canal to New-York, passes to and from Philadelphia by means of the Pennsylvania canal road. Light goods can then be transported for 69 cents less.

can exist of the superior advantages of this route for goods going west, so long as the City of New-York is preferred by those making purchases for the western market.

To exhibit the opinion entertained of this improvement by persons interested in other avenues to the Ohio river, I subjoin an extract from the Appendix to report No. 414, of Congressional Documents, collected by the Hon. Chas. Fenton Mercer, M. C.:

"The excess in length of the present northern (Erie canal,) over the proposed southern (Chesapeake and Ohio,) route from New-York to Pittsburgh, cannot be reduced to less than 175 miles; a distance which exceeds any possible reduction of the former that can be hereafter effected, by connecting the Genesee and Alleghany rivers, a work in itself of great public utility, since it would not only cut off more than 100 miles of the distance between New-York and the head of the Ohio river, by the northern route, but save two transshipments, and the hazard of the lake navigation, as well in peace as in war; and so far greatly contribute to the value of the Erie canal, in a national as well as local view."

To be continued.]

Saratoga and Washington Railroad.—A charter for this Railroad, extending from Saratoga Springs to Wheeling, was procured at the last session of the Legislature, with a capital stock of six hundred thousand dollars. The books of subscription were opened in this city a few days since for the stock of this road, and the whole amount of the capital was promptly subscribed. We are informed that it is the intention of the Company to commence the construction of the road without delay. When this contemplated railroad shall be completed, it will form—in connection with the steamboat lines on the St. Lawrence river and Lake Champlain, and with the railroad now nearly finished between St. Johns and Laprarie—an uninterrupted communication by steam between New-York and this city and the great commercial emporiums of Canada, Quebec and Montreal. The advantages which this road will possess over every avenue to the South from Canada, must unquestionably secure to it almost entirely the increasing travel of the north, and must make the investment a very profitable one to the stockholders.—[Troy Whig.]

Aurora and Buffalo Railroad.—We learn from the Whig of yesterday, that at a meeting of the Board of Directors of this Company held on the 30th ult. Mr. William B. Gilbert, was appointed Engineer of the Road, who immediately enters upon his duties. A portion of the Road has been already located, on which operations are to commence forthwith.

The preceding paragraph is taken from the Buffalo Daily Commercial Advertiser. It indicates prosperity and enterprise amongst the inhabitants of that flourishing inland city; and it shows also the immense importance of internal improvements, to the State,—as it may, without fear of contradiction, be asserted, that, but for the construction of the Canal, there would not, in years yet to come, have been a city as Buffalo. "Daily Commercial

the line of the canal have derived beyond our ability to estimate, works already made by the ask, are the residents giving others equal advantage receive the every that general

[From the forthcoming number of the Mechanics' Magazine and Register of Inventions and Improvements.]

SCIENCE OF PROJECTILES.—This is the name for that branch of mechanical philosophy which treats of the motion of bodies projected from the surface of this earth, and influenced by the action of terrestrial gravity.

Any body projected from the mouth of a cannon must describe a conic section, having the centre of the earth in one focus, and it will describe round that focus areas proportional to the times. And it might easily be demonstrated, that if a velocity of projection were to exceed 36,700 feet in a second, the body, (if not resisted by the air,) would describe a hyperbola; if it were just 36,700, it would describe a parabola; and if less than this, it would describe an ellipsis. If projected directly upwards, in the first case, it would never return, but proceed forever, its velocity continually diminishing, but never becoming less than an assignable portion of the excess of the initial velocity above 36,700 feet in a second; in the second case, it would never return, its velocity would diminish without being extinguished; in the third case, it would proceed till its velocity was reduced to an assignable portion of the difference between 36,700 and its initial velocity, and would then return, regaining its velocity by the same degrees, and in the same places, as it lost it. These are necessary consequences of a gravitating force directed to the centre of the earth, and inversely proportional to the square of the distance. But, in the greatest projections that we are able to make, the gravitations are so nearly equal, and in directions so nearly parallel, that it would be ridiculous affectation to pay any regard to the deviations from equality and parallelism. A bullet rising a mile above the surface of the earth loses only $\frac{1}{1000}$ of its weight, and a horizontal range of four miles makes only four minutes of deviation from parallelism.

Let us therefore assume gravitation as equal and parallel. The errors arising from this assumption are quite insensible in all the uses which can be made of this theory.

The theory itself will ever be regarded with some veneration and affection by the learned. It formed the first fruits of mathematical philosophy. Galileo was the first who applied mathematical knowledge to the motions of free bodies, and this was the subject on which he exercised his fine genius.

Gravity must be considered by us as a constant or uniform accelerating or retarding force, according as it produces the descent, or retards the ascent, of a body. A constant or invariable accelerating force is one which produces a uniform acceleration; that is, which in equal times produces equal increments of velocity, and therefore produces increments of velocity proportional to the times in which they are produced. Forces are of themselves imperceptible, and are seen only in their effects, and they have no measure but the effect or what measures

the effect; and every thing which we can discover with regard to those measures, we must affirm with regard to the things of which we assume them as the measures. Therefore, the motion of a falling body, or of a body projected directly downwards, is uniformly accelerated, and that of a body projected directly upwards is uniformly retarded: that is, the acquired velocities are as the times in which they are acquired by falling, and the extinguished velocities are as the times in which they are extinguished.

Cor. 1. If bodies simply fall, not being projected downwards by any external force, the times of the falls are proportional to the final velocities; and the times of ascents, which terminate by the action of gravity alone, are proportional to the initial velocities.

2. The spaces described by a heavy body falling from rest, are as the squares of the acquired velocities; and the differences of these spaces are as the differences of the squares of the acquired velocities; and, on the other hand, the heights to which bodies projected upwards will rise, before their motions will be extinguished, are as the squares of the initial velocities.

3. The spaces described by falling bodies are proportional to the squares of the times from the beginning of the fall; and the spaces described by bodies projected directly upwards, are as the squares of the times of the ascents.

4. The space described by a body falling from rest is one half of the space which the body would have uniformly described in the same time with the velocity acquired by the fall; and the height to which a body will rise, in opposition to the action of gravity, is one half of the space which it would uniformly describe in the same time with the initial velocity.

In like manner the difference of the spaces which a falling or rising body describes in any equal successive parts of its fall or rise is one half of the space which it would uniformly describe in the same time with the difference of the initial and final velocities.

This proposition will be more conveniently expressed for our purpose thus:

A body moving uniformly during the time of any fall with the velocity acquired thereby will in that time describe a space double of that fall; and a body projected directly upwards will rise to a height which is one half of the space which it would, uniformly continued, describe in the time of its ascent with the initial velocity of projection.

5. It is a matter of observation and experience, that a heavy body falls rather more than sixteen feet in a second of time, and therefore acquires the velocity of thirty-two feet per second. This cannot be ascertained directly with the precision that is necessary. A second is too small a portion of time to be exactly measured without some mechanical contrivance; but it is done with the greatest accuracy by comparing the motion of a falling body with that of a pendulum.

falling through half the length of the pendulum as the circumference of a circle is to its diameter. The length of a pendulum can be ascertained with great precision, and it can be lengthened or shortened till it makes a given number of vibrations in a day.

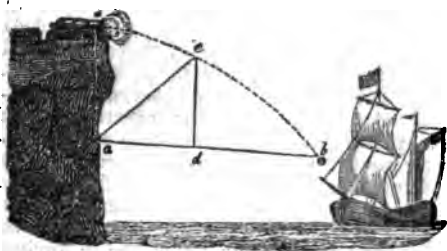
Atwood's machine, which has already been described under that article, furnishes us with a very beautiful mode of illustrating the velocity which a falling body acquires in a given time. And here we may digress for an instant to point out the advantages which our modern schools of science and public lecture rooms possess over those in the "olden time." Newton is said to have had his attention directed to the subject of gravitation by the fall of an apple, and if he had desired to illustrate the subject familiarly, he must still have pursued the same course with his pupils. Instead, however, of an apple or stone descending from the roof of the lecture room, with the velocity of the wind, we now see a large brass weight, that the eye can easily follow, passing over a graduated scale, and exactly measuring the velocity it has acquired in every part of its path.

As all other forces are ascertained by the accelerations which they produce, they are conveniently measured by comparing their accelerations with the acceleration of gravity. This, therefore, has been assumed by all the later writers on mechanical philosophy, as the unit by which every other force is measured.

This has made philosophers so anxious to determine with precision the fall of heavy bodies, in order to have an exact value of the accelerating power of terrestrial gravity. Now, we must here observe, that this measure may be taken in two ways: we may take the space through which the heavy body falls in a second; or, we may take the velocity which it acquires in consequence of gravity having acted on it during a second. The last is the proper measure. The action of gravity has changed the state of the body—and this is effected by giving it a determination to motion downward; this both points out the kind and the degree or intensity of the force of gravity. The space described in a second by falling is not an invariable measure; for in the successive seconds, the body falls through 16, 48, 80, 112, &c. feet, but the changes of the body's state in each second is the same. At the beginning it had no determination to move with any appreciable velocity; at the end of the first second it had a determination by which it would have gone on for ever (had no subsequent force acted on it) at the rate of thirty-two feet per second. At the end of the second second it had a determination by which it would have moved for ever at the rate of sixty-four feet per second. At the end of the third second it had a determination by which it would have moved for ever at the rate of ninety-six feet per second, &c. &c. Thus, the difference is a determination to the rate of thirty-two feet per second. This is therefore constant, and the indication and proper mea-

sure of the constant or invariable force of gravity.

It would be foreign to our present purpose to enter into any very elaborate illustration of the path of a projectile as applied to the science of gunnery, and it may be enough to furnish our readers with a familiar view of the general effects of gravitation as applied to the subject.



In the above diagram *a d b* represent the horizontal path of a ball supposed to be projected from the point *a*. Now, in this case we suppose the existence of no gravitating force; but, as there is a continual tendency in all bodies to approach towards the earth's surface, we must place the cannon at *e* if we wish the ball to arrive at *b*. This is a necessary result of the law which draws all bodies towards the earth's centre. Instead of placing the piece at the elevation shown in the diagram, the gunner elevates the point of his piece, and by giving it an ascending range ensures his object with equal certainty. Thus he would direct his piece from *a* in the direction of *c*, and although it would not take precisely the path *a c*, yet it would go for a certain distance nearly in a straight line, and then change its path till it arrived at *b*, a little beyond which it would strike the ship. The British sailors, from long experience and much practice, rather than from a high degree of science, have obtained considerable precision in the range of their guns.

In the practice of cannonading it is necessary to come as near as possible to the object aimed at, as the hurry of service allows no time for geometrical methods of pointing the piece after each discharge. The gunner either points the cannon directly to the object, when within 200 or 300 yards of it, in which case he is said to shoot point blank; or, if at a greater distance, he estimates to the best of his judgment the deflection corresponding to his distance, and points the cannon accordingly. Or lastly, when the intention is not to batter, but to rake along a line occupied by the enemy, the cannon is elevated at a considerable angle, and the shot discharged with a small force, so that it drops into the enemy's post, and bounds along the line. In all these services the gunner is directed by his practice.

The principal use of the parabolic theory is to direct the bombardier in throwing shells. With these it is proposed to break down or set fire to buildings, to break through the vaulted roofs of magazines, or to intimidate and kill troops by bursting among them. These objects are always under cover of the enemy's works,

and cannot be touched by a direct shot. The bombs are therefore thrown upwards, so as to pass over the defences and produce their effect.

These shells are frequently many hundred pounds in weight. The mortars from which they are discharged must, therefore, be very strong, that they may resist the explosion of gunpowder which is necessary for throwing such a mass of matter to a distance. Very little change can be made in their elevation, and therefore their ranges are regulated by the velocities given to the shell. These again are produced by the quantities of powder in the charge; and experience (confirming the best theoretical opinions that we can form of the subject) has taught us that the ranges are nearly proportional to the quantities of powder employed, only not increasing quite so fast. This method is much easier than by differences of elevation; for we can select the elevation which gives the greatest range on the given plane, and then we are certain that we are employing the smallest quantity of powder with which the service can be performed: and we have another advantage, that the deviations which unavoidable causes produce in the real directions of the bomb will then produce the smallest possible deviation from the intended range.

The only other circumstance in which we are interested is the time of the flight. A knowledge of this is necessary for the bombardier, that he may cut the fuses of his shells to such length as that they may burst at the very instant of their hitting the mark.

In making experimental observations on the path of a projectile, a jet of water or mercury gives us the finest example, because we have the whole parabola exhibited to view in the simultaneous places of the succeeding particles. Yet even in these experiments a deviation can be observed. When the jet is made on a horizontal plane, and the curve carefully traced on a perpendicular plane held close by it, it is found that the distance between the highest point of the curve and the mark is less than the distance between it and the spout, and that the descending branch of the curve takes a more perpendicular direction than the ascending branch. And this difference is more remarkable as the jet is made with greater velocity, and reaches to a greater distance. This is evidently produced by the resistance of the air, which diminishes the velocity, without affecting the gravity of the projectile. It is still more sensible in the motion of bombs. These can be traced through the air by the light of their fusee; and we see that their highest point is always much nearer to the mark than to the mortar on a horizontal plane.

The greatest horizontal range on this plane should be when the elevation is 45 degrees. It is always found to be much lower.

The ranges on this plane should be as the sines of twice the elevation. A ball discharged at the elevation of $19^{\circ}5'$,

ranged 448 yards; at the elevation of $9^{\circ}45'$, 330 yards. It should have ranged by theory 241 yards.

The range at an elevation of 45° should be twice the impetus. And it has been found by experiment that a musket ball, discharged with the usual allotment of powder, has the velocity of 1700 feet in a second. This requires a fall of 45,156 feet, and the range should be 90,312, or $17\frac{1}{2}$ miles; whereas it does not much exceed half a mile. A twenty-four pound ball, discharged with sixteen pounds of powder, should range about 16 miles; whereas it is generally short of three miles. As the motion of projectiles is performed in the atmosphere, it follows that the air is displaced or put in motion. Whatever motion it acquires must be taken from the bullet. The motion communicated to the air must be in the proportion of the quantity of air put in motion, and of the velocity communicated to it. If, therefore, the displaced air be always *similarly displaced*, whatever be the velocity of the bullet, the motion communicated to it, and lost by the bullet, must be proportional to the square of the velocity of the bullet and to the density of the air jointly. Therefore, the diminution of its motion must be greater when the motion itself is greater, and in the very great velocity of shot and shells it must be prodigious. It appears from repeated experiments, that a globe of four inches and a half in diameter, moving with the velocity of twenty-five feet in a second, sustained a resistance of 315 grains, nearly three-quarters of an ounce. Suppose this ball to move 800 feet in a second, that is, thirty-two times faster, its resistance would be 32×32 times three-quarters of an ounce, or 768 oz., or 48 lbs. This is four times the weight of a ball of cast iron of this diameter; and if the initial velocity had been 1600 feet per second, the resistance would have been at least sixteen times the weight of the ball. It is indeed much greater than this.

This resistance, operating constantly and uniformly on the ball, must take away four times as much from its velocity as its gravity would do in the same time. We know that in one second gravity would reduce the velocity 800 to 768, if the ball were projected straight upwards. This resistance of the air would therefore reduce it in one second to 672, if it operated uniformly; but as the velocity diminishes continually by the resistance, and the resistance diminishes along with the velocity, the real diminution will be somewhat less than 128 feet. We shall, however, see afterwards, that in one second its velocity will be reduced from 800 to 687. From this simple instance, we see that the resistance of the air must occasion great deviation from parabolic motion. In order to judge accurately of its effect, we must consider it as a retarding force, in the same way as we consider gravity.

If we consider this resistance as a retarding force, we can compare it with any other such force by means of the retardation which it produces in similar

circumstances. We may compare it with gravity by comparing the diminution of velocity which its uniform action produces in a given time with the diminution produced in the same time by gravity. But we have no opportunity of doing this directly; for when the resistance of the air diminishes the velocity of a body, it diminishes it gradually, which occasions a gradual diminution of its own intensity. This is not the case with gravity, which has the same action on a body in motion or at rest, so that we cannot observe the uniform action of the air's resistance as a retarding force. We must therefore substitute some other way of making the comparison. We can state them both as dead pressures. A ball may be fitted to the rod of a spring steelyard, and exposed to the impulse of the wind. This will compress the steelyard to the mark 3, for instance. Perhaps the weight of the ball will compress it to the mark 6. We know that half this weight would compress it to 3. We account this equal to the pressure of the air, because they balance the same elasticity of the spring. And in this way we can estimate the resistance by weights whose pressures are equal to its pressure, and we can thus compare it with other resistances, weights, or any other pressures. In fact, we are measuring them all by the elasticity of the spring. This elasticity in its different positions is supposed to have the proportions of the weights which keep it in these positions. Thus we reason from the nature of gravity, no longer considered as a dead pressure, but as a retarding force; and we apply our conclusions to resistances which exhibit the same pressures, but which we cannot make to act uniformly.

The most elaborate mathematical calculations lead us to the following important results.

1. Balls of equal density, projected with the same elevation, and with velocities which are as the square roots of their diameters, will describe similar curves. This is evident, because in this case the resistance will be in the ratio of their quantities of motion. Therefore, all the homologous lines of the motion will be in the proportion of the diameters.

2. If the initial velocities of balls projected with the same elevation are in the inverse sub-duplicate ratio of the whole resistances, the ranges, and all the homologous lines of their track, will be inversely as those resistances.

These theorems are of considerable use, for by means of a proper series of experiments on one ball projected with different elevations and velocities, tables may be constructed which will ascertain the motion of an infinity of others.

We shall conclude this article by giving two or three tables, computed from the principles established above, and which serve to bring into one point of view the principal circumstances of the motion in a resisting medium. In a series of experiments made at Woolwich, which were continued for several days, it only do the experiments of one day

differ among themselves, but the mean of all the experiments of one day differs from the mean of all the experiments of another no less than one fourth of the whole. The experiments in which the greatest regularity may be expected, are those made with great elevations. When the elevation is small, the range is more affected by a change of velocity, and still more by any deviation from the supposed or intended direction of the shot.

I.	II.	III.
2	92	420
4	121	428
9	159	456
18	200	470
32	272	479

The first table shows the distance in yards to which a ball projected with the velocity of 1600 will go, while its velocity is reduced one tenth, and the distance at which it drops sixteen feet from the line of its direction. This table is calculated by the resistance observed in Mr. Robins' experiments. The first column is the weight of the ball in pounds. The second column remains the same whatever be the initial velocity, but the third column depends on the velocity. It is here given for the velocity which is very usual in military service, and its use is to assist us in directing the gun to the mark. If the mark at which a ball of twenty-four pounds is directed is 474 yards distant, the axis of the piece must be pointed sixteen feet higher than the mark. These deflections from the line of direction are nearly as the squares of the distances.

I.	II.	III.	IV.	V.
200	416	349	106	360
400	1664	1121	338	1150
600	3740	1812	606	1859
800	6649	2373	866	2435
1000	10390	2845	1138	2919
1200	14961	3259	1378	3343
1400	20364	3640	1606	3734
1600	26597	3950	1814	4050
1800	33663	4235	1992	4345
2000	41559	4494	2168	4610
2200	50286	4720	2348	4842
2400	59846	4917	2460	5044
2600		5106	2630	5238
2800		5293	2762	5430
3000		5455	2862	5596
3200				5732

The next table contains the ranges in yards of a twenty-four pound shot, projected at an elevation of 45°, with the different velocities in feet per second expressed in the first column. The second column contains the distances to which the ball would go in vacuo in a horizontal plane; and the third contains the distances to which it will go through the air. The fourth column is added to show the height at which it rises in the air; and the fifth shows the ranges corrected for the diminution of the air's density as the bullet ascends, and may therefore be called the *corrected range*.—[Partington.]

[From the London Mechanics' Magazine.]

LIVERPOOL AND MANCHESTER RAILWAY.—We have great pleasure in laying before our readers a complete copy of the Report made by the Directors of this Railway to their constituents at their last half-yearly meeting (the sixth), on the 22d of January last, when, as stated in our last, a dividend of £4 10s. per share (for the half year) was declared. It furnishes another most complete answer to the calumnies of Mr. Cort and his patrons; showing that, after paying all expenses ("interest" on loans included) during the past half-year, there remained a net balance of profit of £40,346 6s. 7d. The Directors, it will be observed, have resolved to discontinue the practice which they have hitherto followed, "of publishing minute particulars of the traffic, with detailed subdivisions and classifications of the disbursements." The practice was a good one, and we are sorry that it has been departed from. The hit at the "Navigation Companies," for not furnishing "their quota to the general stock" of statistical information on the subject of inland transports, is very fair; but the more these bodies are to blame in this respect, the more it would have been to the honor of the Liverpool and Manchester Railway Directors to persevere in the patriotic and enlightened course they at first adopted, of laying the fullest possible information on every branch of their proceedings before the public.—[Ed. L. M. M.]

Liverpool and Manchester Railway—Sixth Half-Yearly Meeting.

REPORT.

Liverpool, January 21, 1835.

The Directors are happy to inform the Proprietors that the business of the Company in the last half-year appears to have been gradually on the increase compared with that of the corresponding six months in former years. The following is a statement of the receipts in the different departments, and of the disbursements, exhibited under the usual heads for the same period:—

HALF YEAR ENDING 31ST DECEMBER, 1834.

Receipts.

Coaching Department,	£260,292 7 4
Merchandise do.	41,197 18 6
Coal do.	3,406 16 4

£104,899 2 2

Expenses.

Bad Debt Account,	£292 2 6
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Coach Disbursement Account, viz.: guards and porters' wages, £1,205 3s. 3d.; parcel carts, horsekeep and drivers' wages, £365 10s. 2d.; materials for repairing, £1,131 16s. 11d.; men's wages repairing, £1,505 7s. 5d.; gas, oil, tallow, cordage, &c., £155 11s. 3d.; duty on passengers, £3,284 12s.; stationery and petty expenses, £308 19s. 1d.; taxes, insurance, &c., on offices and stations, £171 16s. 1d.	8,128 16 2
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Carrying Disbursement Account, viz.: agents' and clerks' salaries, 1,804l. 12s. 9d.; porters' and brakemen's wages, 5,028l. 14s. 8d.; gas, oil, tallow, cordage, &c., 208l. 3s. 5d.; repairs to jiggers, trucks, stations, &c., 581l. 4s. 9d.; stationery and petty expenses, £487 15s. 9d.; taxes, insurance, &c. on offices and stations, 451l. 8s. 8d.	8,568 0 0
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Coal Disbursement Account,	290 1 8
Cartage (Liverpool) do.	59 16 8
Do. (Manchester) do.	3,247 2 3
Charge for Direction do.	301 7 0
Compensation (Coaching) do.	43 1 11
Compensation (Carrying) do.	222 19 8

Coach-office Establishment do., viz.: agents' and clerks' salaries, 601l. 15s.; rent and taxes, 74l. 10s.	676 5 0
Engineering Department Account,	352 10 0
Interest do.	6,725 14 5
Locomotive Power do., viz.:	

coke and carting, 3,654l. 7s. 5d.; wages to coke fillers and watering engines, 349l. 15s. 10d.; gas, oil, tallow, hemp, &c., 932l. 8s. 10d.; copper, brass, iron, timber, &c., for repairs, 3,295l. 19s. 9d.; men's wages repairing, 4,892l. 3s. 2d.; enginemen and firemen's wages, 815l. 12s. 7d.; out-door repairs to engines, 1,390l. 3s. 1d.; three new engines, 2,890l. 13s.; new boiler and shed at water station, 233l. 8s. 11d.	18,364	12	7
Law Disbursement Account,	100	0	0
Maintenance of Way do., viz.: wages and small materials, 4,163l. 0s. 10d.; stone blocks, sleepers, &c., 1,082l. 10s. 4d.; new rails, chairs, points, crossings, &c., 2,500l. 11s. 3d.; ballast and leading, 217l. 6s. 5d.	7,963	8	10
Office Establishment Account, viz.: salaries, 767l.; rent and taxes, 70l. 10s.; stationery, &c., 49l. 11s. 1d.	887	1	1
Police Account,	1,033	4	4
Petty Disbursement Account,	40	0	0
Rent do.	233	15	0
Repairs to Walls and Fences do.,	712	9	9
Stationary Engine Disbursement Account, viz.: coal, 303l. 16s. 3d.; engineman and firemen's wages, 102l. 6s.; materials and repairing, 634l. 9s. 9d.; gas, oil, tallow, &c., 531l. 15s. 5d.; deepening engine wells, 44l. 2s. 6d.	567	9	11
Tunnel Disbursement Account, viz.: brakemen's wages, 226l. 3s.; gas and repairs, 91l. 19s. 8d.; new sheaves, oil, cordage, &c., 90l. 14s. 4d.	408	17	0
Tax and Rate Account,	2,729	17	6
Wagon Disbursement do., smiths' and joiners' wages, 1,307l. 11s. 10d.; steel, iron, timber, &c., 1,322l. 10s. 10d.; cordage, grease, paint, oil, &c., 149l. 19s. 8d.	2,680	2	4
	64,552	15	7
Nett profit for six months,	40,346	6	7

Statement of Receipts and Expenditure on Capital Account, from the commencement of the undertaking to 31st December, 1834.

TREASURER, Dr.	£	s.	d.
To amount of Joint Capital in Shares and Loans,	1,151,185	0	0
Ditto of Dividends not paid,	1,426	17	5
Ditto of Reserved Fund and Interest,	3,930	13	6
Surplus in hand after payment of the 9th Dividend in August, 1834,	164	11	0
Nett Profits of the Concern for the half year ending 31st December, 1834,	40,346	6	7
	£1,197,053	8	6
TREASURER, Cr.	£	s.	d.
By amount of Expenditure on the Construction of the Way and the Works, including the Tunnel Excavations, &c., now in progress,	1,156,563	18	3
Ditto in the hands of Moss & Co., Bankers,	23,790	14	6
Ditto in the hands of the Treasurer,	117	4	8
Ditto Arrears of Calls,	18	8	6
Ditto Balance of Book Debts due to the Company,	16,563	2	7
	£1,197,053	8	6

On the subject of the accustomed half-yearly reports, the Directors beg leave to recommend to the proprietors a departure from the plan hitherto pursued, of publishing minute particulars of the traffic, with detailed subdivisions and classifications of the disbursements; and in doing so, they will state briefly some of the reasons which have led them to this recommendation.

The Liverpool and Manchester Railway being the first great undertaking of the kind, the Directors, on the opening of the line, were aware that according to the measure of its success would be the probability of similar enterprises, founded on this first experiment; every step, therefore, in their proceedings, whether with reference to extent of traffic, mechanical improvements, or financial results, was interesting, as

well to the public as to the proprietors; and under that conviction the Directors published, half yearly, those minute details of the concern, which have found their way into every portion of the globe. It was obvious, also, that had their example in this respect been followed by the conductors of the great Water Conveyances, so far at least as regards the extent and gradual increase of their aggregate traffic, whether comprising raw materials, moving from the seaport into the interior, or manufactured commodities brought from the country to the port for shipment, valuable statistical information might have been obtained.

During four years the Directors have pursued the plan of unreserved publicity; their difficulties and their mistakes; but notwithstanding these—their success in the great features of their undertaking, have been made familiar to the public. The subject is now understood in all its parts, and so well satisfied are the public and the legislature with the general result, that the construction of railways in great lines from north to south of the kingdom, has become a distinguishing mark of the present age. The object of publicity has thus been gained. It has been determined by the country and the government that railways shall proceed; and the extent to which they will hereafter be carried will depend on the success, not of the Liverpool and Manchester line, but of those great works which are now in progress. The Directors are of opinion, therefore, that the time has come when they may fairly be allowed to consult the interest and convenience of the Railway Company, regarded as a great mercantile concern, whose proceedings may henceforward be considered as matters of business, in which the proprietors alone are concerned. It is obvious that no statistical information can be expected from the publication of their accounts, as none of the Navigation Companies, the great rivals and competitors of the Railway, will furnish their quota to the general stock. Such existing railways also as have up to the present period been completed, have forborne to furnish any detailed statements of account; and the Directors are not aware that the conductors of the great north and south lines, now in course of execution, intend to deviate from the general rule; neither, perhaps, should it be considered matter of surprise, that the managers of other concerns, regarding the conduct of their several undertakings, exclusively in the way of business, and with a view to the commercial interests of their respective proprietors, should decline exposing gratuitously the extent and character of their operations, and the exact increase or decrease of their traffic, with its corresponding profit or loss, to the examination of rival or opposing establishments.

On the subject of locomotive power, the Directors have again to observe, that they consider the travelling engines to be in a state of gradual but marked improvement. The superintending mechanics of the Company, by lengthened experience, unremitting attention, and constant examination of the working of the various engines, have endeavored to add some improvement to each machine as it has passed successively through their hands. And the Directors feel no hesitation in stating, that the trips of the locomotive engines, for the last six months, have been performed with a speed and regularity superior to what has been accomplished in any former period. The disbursements in this department for the last six months are heavy, but they include

the cost of three new and powerful engines, and the entire re-construction with new materials of a fourth, with the exception only of the cylindrical boiler. Whilst alterations were continually making, and improvements suggested, the Directors were unwilling to have on hand a large stock of imperfect machines: they are now of opinion, however, and they have begun to act on that opinion, that with their present experience it will be advantageous to increase their supply of locomotive engines, and so provide for all needful repairs being effected with less of night work; and with that completeness which is impossible when engines are, of necessity, hurried out of the repairing shops, in order that the ordinary traffic of the line may not be stopped. Engineers and scientific men from different parts of the world are not unfrequent visitors at the Company's workshops, which are at all times accessible for the benefit of the public—whether for the purpose of scientific research, or of practical information.

The excavation of the new tunnel from Wavertree-lane to Lime-street is opened throughout its whole length, and will soon be ready for laying down the blocks and rails.

The Directors, in former reports, have alluded to the course which they had considered it expedient to adopt of substituting heavier and stronger rails in place of those which from time to time had been bent or broken, owing to the service to which they were subjected, from the speed and weight of the engines, being far more severe than was originally contemplated. From experience of the decided superiority of those parts of the way which have already been laid with the stronger rails, the Directors feel the propriety of proceeding to relay with heavier and stronger rails such portions of the line as have from time to time to be taken up for the purpose of substituting stone blocks for the original wooden sleepers; and they doubt not, in so doing, they shall obtain the concurrence of the proprietors.

By the foregoing statement of accounts it appears that there is a nett disposable profit for the half-year of . . . 40,346l. 6s. 7d. Which added to the surplus from the last half-year 164 11 0

Amounts to 40,510l. 17s. 7d. Out of this sum the Directors recommend that a dividend be now made to the proprietors of £4 10s. per £100 share, amounting to £35,859. That £3,000 be appropriated to the relaying of the way with stronger rails; and that the remaining sum of £1,651 17s. 7d. be carried as a general balance to the next half-year's account.

CHARLES LAWRENCE, Chairman.

Steamboat Navigation on Lake Ontario.—The Steamboat Oswego commenced the season of Steamboat navigation on the morning of the 5th. She left our harbor in beautiful style bound for the Genesee river, Toronto, (U. C.) and Niagara. She has taken the lead upon the lake and gives strong proof of her ability to maintain it. The firmness, nautical skill and experience of her commander, Capt. Homans, entitle him to claim from the public the highest degree of confidence. [Oswego Palladium.]

The books of the Sea Insurance Company are to be opened to-morrow, and the two succeeding days at the Union Bank. We understand their charter, in addition to Marine Insurance, gives extensive privilege for insurance on our inland navigation and transportation routes, which has been much needed, and offers very favorable prospects for investment. M.

NEW-YORK AMERICAN.

APRIL 11—17, 1835.

LITERARY NOTICES.

THE CRAYON MISCELLANY—A TOUR ON THE PRARIES. BY THE AUTHOR OF THE SKETCH BOOK, 1 VOL.: Philadelphia, Carey, Lea & Blanchard. We have perused this eagerly anticipated volume with unalloyed delight. We received it only last evening and sat down at first merely to take a taste of it; to turn over a few pages and see how the author had treated his object, and then to reserve the book for quiet and leisurely enjoyment afterward. In this mood we re-read the introduction, (which has already found its way into the papers, and which is decidedly among the most felicitous pieces of Mr. Irving's writings, exquisite in style, and noble in sentiment) we next looked a little further in advance, in order to discover the immediate scenes, the author had before him—and then learning the precise quarter in which he was bound, we could not lay down the book without ascertaining who were to be his companions. We made the acquaintance of each almost before we were aware of it and became interested in the part which each was to take in the wild expedition before him.—We were anxious to see them all well mounted and fairly started on their journey.—We could not help following them to their general rendezvous. They crossed the border—and still we lingered near to witness their first interview with the rangers. They began their march.—The bugle rang out on the soft air of a still Indian summer morning.—The mounted riflemen filed off slowly beneath the boughs of the rich autumnal forest.—The hunters and trappers spurred more eagerly along the flanks, and shot off in the adjacent prairies. We watched the gleam of their rifles as their forms were gradually lessened and lost over the rolling plain, and the shouts of *Tonish* echoed back by his half-breed companions as the last pack horse disappeared in a ravine, came distinctly upon our ears. We looked around over the grassy domain, diversified with its scattered groves and forests and glassy pools, reflecting their painted foliage: we moved a little to catch an other glance of the last straggler that remained to give life to the landscape, and before he had joined the column, we found ourselves galloping by his side, and in full career over the Grand Prairie. Nor could we then tear ourselves from the party until their wayworn and jaded horses, after many a buffalo hunt and wild foray were stabled once more at Cantonment Gibson, and their riders had dispersed to their distant homes. In a word we never laid down the book until we had read it completely through. He who feels the slightest interest in the kind of life here described, will find no where so captivating, and yet thoroughly faithful a picture of its realities as is presented in Mr. Irving's work. He who has once tasted it, will burn at every page to be once more upon the prairies. There is no story in the book—no single tissue of strange adventure—no train of declamatory common places and theatrical sentiment. It is simply a picture of life—a picture drawn with the most easy and unaffected hand—but laid in colors, rich, warm and enduring—for the style of the writer like the Claude-like atmosphere of our Indian summer, embalms every object in mellow yet glorious repose.

[A number of beautiful passages meant to accompany this notice, shall appear hereafter.]

ADVICE TO A BROTHER:

MISSIONARY REMAINS. New York: Taylor & Gould, Brick Church Chapel.—These two works of religious instruction, are very handsomely printed 18mo. The first is written by a Missionary, and the second, which commemorates the lives of those of his departed brethren, is a brief, but not inelegant eulogy, by the Rev. Dr. Spring.

THE BOOK OF SCIENCE, Part I—Mechanic: Philadelphia: Cary, Lea & Blanchard.—This little work is a familiar introduction to the principles

of natural philosophy, adapted to the comprehension of young people; and as an elementary treatise, we should think it would prove valuable. It appears to be prepared with care and simplicity, and it is well illustrated with all the necessary diagrams and figures.

VALEMIUS, A ROMAN STORY, 2 vols. Harper's.—We are happy to meet with a republication of this excellent work of Lockhart. The time which has elapsed since its first appearance, has confirmed the favor of its reception, and established Valemius as one of the standard novels of the day. The beauty of the style, the interest of the story, and the affecting scenes it describes, during the early struggles of Christianity, under the Roman emperors, recommend this work to every reader of taste and feeling.

ELEMENTS OF ALGEBRA—TRANSLATED FROM THE FRENCH OF M. BOURDON. REVISED AND ADAPTED TO THE COURSES OF MATHEMATICAL INSTRUCTION IN THE UNITED STATES; BY CHARLES DAVIES, PROFESSOR OF MATHEMATICS IN THE MILITARY ACADEMY. WILEY & LONG; NEW YORK.—This work has been already mentioned in these columns; but as it is likely to exert considerable influence upon the progress of mathematical science in this country, it deserves something more than a passing notice.

In the mathematical and physical sciences, France has for a long time held undisputed pre-eminence, and is at this moment enjoying in every department of life, the fruits which have rewarded the labors of her men of genius. Laying aside the unwieldy weapons and cumbersome armor of the ancient methods, she has substituted for them the more refined, the less pompous and intimidating to vulgar eyes, but the infinitely more efficient system of the modern analysis.—Whilst this has been perfecting itself, and producing the most brilliant and stupendous effects in France, England has been content to plod on in the good old way, and not until quite recently has her pride allowed her to acknowledge the superiority, and to follow in the steps of her rival. To say however, that France has done every thing for the mathematics and England nothing, would be absurd. The latter pursuing a different path, has also, gathered choice fruits though of a different kin. The great distinction between the two nations, where they have occupied common ground, is, that the one has been too exclusively theoretical, the other too purely practical. The advice of Laplace—"Give the preference, in teaching to general methods, endeavor to present them in the most simple manner and you will see at the same time, that they are almost always most easy."—(*Journal des Sciences de l'Ecole Normale*.) expresses the method which the French mathematical writers have adopted. In observing this however, they have too much neglected illustrative examples, by which the student might acquire practical skill in the application of theory. The English writers on the other hand, abundantly exhibit the *modus operandi*, but omit the demonstration of the principles upon which it depends; whereby one of the chief benefits of mathematical study, namely, the exercise of the reasoning faculties, is lost.

The above remarks if just, show the importance of that feature in the plan of the work which has called forth this article mentioned in the following paragraph of its preface. "It has been the intention to unite in this work, the scientific discussions of the French, with the practical methods of the English school; that theory and practice, science and art may mutually aid and illustrate each other."

The Algebra of La Croix, a treatise of the highest merit, was the one formerly most used in France. It was translated into English, some years since by Professor Farrar of Harvard College, and has had an extensive circulation in this country.

Bourdon's Algebra, soon after its publication,

was adopted by the University of Paris, and has superseded that of La Croix, at most of the Mathematical schools in the kingdom. Its excellence lies, not alone in the matter which it contains, but also in the admirable order, and clearness, with which it is presented. It was translated in part by Professor De Morgan, of the London University, and is in use at the University of Cambridge. A translation was made by Lieut. Ross of the Military Academy, West Point for the use of the Cadets, in the year 1831. In the hands of the present Editor, it has undergone great alterations. An occasional diffuseness rendering it tedious and obscure has been corrected, a few demonstrations have been replaced by better ones, and some unimportant matter has been omitted, and other more valuable, including a great variety of examples, judiciously selected, from the best English practical works, has been introduced. Even the arrangement of the matter upon each page, indicates the hand of one who has observed the importance of not neglecting the most trifling helps which can facilitate the progress of the student.

The work is in all respects, what might be expected from the distinguished gentleman, who has been for many years at the head of the department to which it belongs, in the best Mathematical School in the country.

FIRST LESSONS IN POLITICAL ECONOMY, by Jas. McVickar, D. D., Professor of Political Economy, Columbia College, New York. Boston: Hilliard, Gray & Co.—We cannot better promote the dissemination of this excellent little elementary work, than by giving Professor McVickar's views of his subject, as laid down in his preface. His name alone is a sufficient guarantee how these views will be carried out:

The first principles of Political Economy are truths which a child may understand, and which children should therefore be taught. In the last century they were among the speculations of the learned; they have now become the heritage of the nursery; and the only difficulty in teaching them in after life arises from a suspicion excited by their very simplicity. They are so obvious, that men are apt to think, if true, they would not have them, for the first time to learn them. That this stumbling block may be removed from the path of the next generation, we must now incorporate these truths into the studies of children, in order that they may become, as it were, "part and parcel of their minds." From such a course, we have reason to believe, would flow many and great advantages. Men in high and responsible stations would then no longer be found engaged in learning principles when they should be occupied in applying them, nor in discussing theories when they should be directing practice; for certainly to see statesmen, as we now do, disputing about the laws of currency when called upon to regulate it, is an absurdity as great as to see engineers upon the field of battle commencing their dispute as to the principles of the law of projectiles. In either case it is a discussion foreign to their business, and originating in a culpable ignorance of what they should before have learned. To question the principles of science is always the part of ignorance. The true difficulty in Political Economy, and it no doubt is a great one, lies in the modification which peculiar circumstances produce upon the results of general laws. This is the true field of practical inquiry—not principles—they are fixed and uniform. In economical as in all other sciences, theories have power to mislead only so long as the principles of science continued unsettled. So soon as men cease to dispute about the ground upon which they set out, then, and not before, do they take up questions in the plain light of fact and experience.

With a view to do his share toward forwarding this good work, which, as academic teacher of the science, he feels himself by duty called upon to do, the Author proposes to prepare a series of text books on these subjects, in a manner suited to the varied ages and capacity of those for whose instruction they are intended, being

1. First Lessons in Political Economy, for primary and common schools.

2. Outlines of Political Economy, for higher schools and academies.

3. Lectures on Political Economy, for the use of elder students in colleges.

Such a scheme as this, though it had been long before his mind, and materials for it partly prepared, might yet, he is well aware, have slumbered on much longer, had not a recent work of Whately, entitled "Easy Lessons on Money Matters," recalled to his mind, together with a conviction of the expediency of no longer delaying what is evidently in our country so greatly needed; for if universal suffrage make every man a legislator, universal education must fit him for the task. To employ his power wisely and well, he must at any rate not be ignorant in those matters in which legislation is concerned.

For Number 1. in the series, a republication of Whately was first thought of, with questions annexed; but this idea was soon abandoned, from the inapplicability of the work to the circumstances and needs of our country. The Author has therefore proceeded to give his own views, and in his own way, in reference to the wants of his fellow citizens; retaining, however, the first lesson, or that on "Money," as given by Whately, in order that an humble imitator of his method may not seem to claim a merit of originality to which he is not entitled.

FOREIGN INTELLIGENCE.

LATEST FROM ENGLAND.—By the packet ship Europe, Captain Marshall, arrived last evening, we have London papers of the 17th, and Liverpool of the 18th, inclusive. They contain little of interest except that the ministry continued, and apparently, firm in their seats. The only items of interest will be found under head of Foreign News. The Cotton market is improving.

SPAIN.

We have received by express Madrid papers of the 7th inst. and private letters from that capital of the 8th. The health of Martinez de la Rosa is spoken of as becoming daily more feeble, but the new Minister at War (General Valdez) was displaying the utmost energy and activity in despatching reinforcements to General Mina. The 5th Regiment of the Line had left Madrid for the north on the 7th, and on the next day was followed by the provincial regiments of Ronda and Seville. These three regiments were to be joined at Fuencarral, a village a few leagues to the north of Madrid, by the Albuera and Valencia volunteers, and with them were to be formed into a separate division, to be placed under the command of General Cordova, who was to replace General Carratala, the latter having been appointed Captain General of Murcia and Valencia. It was expected that early in the spring the numerical force under Mina would be raised to 60,000 men.

PORTUGAL.

The private letters from Lisbon, by the mail of yesterday morning, add little to our news from thence, but the annexed extract from one of them is interesting, as showing what an alteration for the better has been produced in that capital by the recent changes in the Government:

"LISBON, MARCH 4.—For those who saw Lisbon three months ago, and who see it at the present day, our city has completely changed its aspect.—No one is any longer insulted in the streets on account of his former political opinions. It seems as if the Pedroites had at length come to an agreement, not perhaps completely to forget the past, but to adopt the appearance of recollecting it as little as possible. Our carnival has been more brilliant than for many years before, and it was a great pleasure to see both men and women cordially meeting in the same drawing room, one half of whom had much to pardon to the other half.—Our Government has returned, without any kind of confusion, to the Constitutional line, from which it ought never to have diverged. There are no longer in the Council any but responsible Ministers. The Duke of Palmello, who was President, holding a portfolio, is now Minister of Foreign Affairs. The Prince applies himself to public affairs as much as he can and ought, and it is remarked with esteem for his character, that two of the Ministers, who both spoke and even voted

against his marriage with the Queen, not only remain in the administration, but are treated by him with as much kindness as the rest. The Prince is very active. He visits all our public establishments in turn, and examines them with care, so as to be able to assist hereafter in remedying what is defective in them. The opposition in the Chambers has certainly not renounced its principles, and ought not to do so, but relying on the Prince's declaration in his speech to the Peers, it becomes every day more calm and moderate. The Minister of the Interior is gaining popularity in his new office. A little time hence, and I trust not the slightest trace will remain of our divisions and misfortunes. The Queen and her husband are accessible to all, indulge in no luxury or ostentation, and live together in a harmony which promises both them and us many happy days."

The supplement to the Literary Advertiser for 1834 contains lists of the new books and principal engravings published in London during the past year, with their sizes and prices. The number of books is about 1,270, exclusive of new editions, pamphlets or periodicals, being upwards of 100 more than in 1833. The number of engravings is 73 (including 31 portraits, 15 of which are engraved in the line manner, 49 in mezzotint, &c.

The London Morning Chronicle, of the 9th ultimo, says—"The poets Thomas Moore, William Wordsworth, and Robert Southey, are all at present in London, and each of them preparing to publish a new work."

A recent London Gazette contains the appointment of Sir Howard Douglas (not Sir Robert Wilson) to be Lord High Commissioner of the Ionian Islands.

The new scheme of church reform in England, will fix the income of the Archbishop of Canterbury at 10,000*l.*, and that of the Archbishop of York at 8,000*l.*, while the salaries of the other bishops are to be equalized at 5,000*l.* a year. Of course these arrangements must be prospective. A plan distinguished for its ingenuity, has been submitted to the commissioners with a view of procuring the immediate abolition of pluralities. We are not at liberty to state the details. —[London Courier.]

LONDON AND PARISIAN FASHIONS.—Beginning of March.—Ball dresses are generally ornamented with bouquets of flowers, placed one side of the *jupon*, and extending from the waist to the feet. Wreaths are sometimes used instead of detached bouquets. A dress lately made by a distinguished Parisian milliner was composed of white crape, and ornamented up one side with five bouquets of flowers of different hues: one bouquet was of pink roses, another of blue hyacinths, and a third of clematis, &c. In short, a whole *parterre* seemed to have been laid under contribution for the adornment of this beautiful dress. The *coiffure* worn with it was a repetition of the trimming of the robe, and consisted of a crown formed of all the flowers introduced in the bouquets.

Another much admired ball dress was of pink gauze over a slip of pink *poul-de-soi*. Three bouquets of white flowers were placed at the height of the knee, and fastened three pink satin ribbons which ascended diagonally to the waist, and were gathered under the bow of the *ceinture* on one side. On each shoulder a bunch of white flowers, widening on the sleeves, and confining its folds. Head-dress, two white flowers on each temple, fastened into paintings of hair à la *Clotilde*. In the centre of the forehead a cameo, suspended by a fine gold chain.

Turbans of the form styled à la *Suive* are much worn, and are extremely becoming to an oval and regular countenance. The *bandelette* which passes under the chin has a very pretty effect.

With dresses of velvet or rich silk and satin, mantillas of *dentelle de soi* are more generally adapted than those of blonde or *point d'Angleterre*.

The following dresses have been worn at some of the most fashionable parties of the season.

1. An open robe of pink *tulle*, fastened back on either side by bunches of pink hyacinths. The robe worn over a pink satin petticoat.

2. A robe of citron-colored *tulle*, tastefully trimmed with ribbons and bouquets of daisies.

3. Robe of sea-green *tulle*, open in front; a satin petticoat of the same color. This dress was worn with a beautiful *parure* of pearls.

4. A robe of lilac crape, trimmed with bunches of white lilac.

A new kind of satin has been introduced for promenade dress. It is very thick and richly figured, in patterns similar to those of the printed muslins. Green and puce are favorite colors; the pattern being a shade darker than that of the ground.

In carriage costume we have observed many bonnets of straw or citron-colored satin, ornamented with flowers or feathers of the same hue.

Velvet is the favorite material for promenade hats and bonnets. Blue, black and green are the colors most generally worn. A single feather placed on one side is the favorite ornament.

Aprons are now made of printed satin; the middle plain and of some light color, and edged round with a rich border, which is repeated on the pockets and the *ceinture*.

SUMMARY.

The President of the United States has recognized George Henrich Seimon as Consul of Bavaria for the port of New York; D. Manuel Valdez as Vice Consul of Portugal, for the port of Baltimore, and the State of Maryland; and Joao Vaughan has been appointed Vice Consul of Portugal, for the Port of Philadelphia, the other Ports of Pennsylvania, and the West Jersey.—[Nat. Intel.]

EASY CHAIR.—Mr. B. F. Hays of Massachusetts, has left at this office for inspection an easy chair, designed for the convenience of invalids. It is so constructed as to be used as a chair on rollers, or on rockers, and also as a cradle—or bed—and may be changed from one to the other, with great ease by the person using it, without rising.

It is a very ingenious, convenient and cheap article—and may be examined by all who desire to see it. M.

EXPEDITION.—The steamboat President, Capt. E. S. Bunker, arrived this morning in 14 hours and 9 minutes from Providence, being the shortest passage known considering the state of the tides.

From schools of the character of the one noticed in the following extract from the Albany Daily Advertiser, much good must certainly result. They will enable many a young man of talents to "work his passage" to eminence, who would, but for them, never dream—any more than did the honest planters of North Carolina—of the value of the mines beneath the surface of their native soil.

They should be cherished by every true lover of his country. M.

Manual Labor School.—We are happy to learn from the Columbia Republican that an institution, upon the plan of the Alabama school, will go into operation in Columbia County, in the early part of next month, with a good prospect of complete success. Ample funds; we believe, have been provided, so as to place the institution beyond the risk of embarrassment, the patronage and favor of a large number of gentlemen of influence, and religious societies has been secured, and the institution is placed under the directions of Rev. D. M. Smith, as Principal, a gentleman eminently qualified, by experience and education, to direct the *machinery* of so important a "department of benevolent operation."

A farm of 200 acres pleasant situation on the bank of the River, few miles above this city, has been purchased, and suitable buildings will be in readiness at the commencement of the 2d term; in the mean while, the farm house, sufficiently large to accommodate more than 50 scholars, will be occupied. The new buildings are to contain 64 rooms for students, a school room of large dimensions, and habitations for the teachers.

It is estimated that the expense for board and tuition at this school will not exceed \$75 per year, an amount which an industrious young man, by his labor for necessary recreation, say 3 hours per day, either at mechanical or agricultural labor, can earn.

Uncurrent Money.—The subject of adopting measures to require the Safety Fund Banks of the State to keep their bills at par in the city of New York, has been brought before the Legislature, and we cannot but think that a measure so evidently beneficial to the people will eventually be adopted. It is a notorious fact that the inconvenience and loss from uncurrent money are to business men very great; and as banks receive from the State Legislative sanction to issue notes as the representation of money, it is perfectly right and proper, and but even handed justice, that these notes be worth the face of them within the limits of the State, and that measures be adopted to require the banks issuing them to make them so.—[Troy Daily Whig.]

Much more benefit would result from the adoption of this measure, than from the prohibition of small notes.

Yesterday, at the Town Meeting, a communication from James Wadsworth, Esq. was read, stating that his late brother, Gen. Wm. Wadsworth, left by will, the sum of *one thousand dollars*, to be loaned on real estate, the interest of which sum is to be expended in educating the children of indigent parents in the town of Genesee. The Trustees of the several School Districts were informed that a quantity of School Books were left at the Clerk's Office, to be by them distributed as they should think proper.—[Livingston Register.]

[From the Jonesborough (Ten.) Republican and Jour.]

DREADFUL TORNADO.—One of the most violent hurricanes ever witnessed in this State was experienced in the lower part of Murray county on the night of the 21st ult. Eight persons were killed and fifteen or twenty others, severely injured some of whom were not expected to recover, much damage has been done. Houses, fences, trees, and indeed every thing which opposed the progress of the winds has been swept away. Some idea may be formed of the force of the gale from the circumstance that a piece of poplar plank perfectly square and blunt at the end was found driven by the force of the wind, into the body of a lynn tree at an angle of about forty five degrees to the depth of 3-4 inches. It is said that the tornado visited the neighborhood of Clarksville on the same night with equal violence and accounts have been received of two deaths and two persons mortally wounded as is supposed. The foregoing particulars are taken from Columbia Observer, and we are apprehensive that the next accounts from the scenes of devastation will be of a most deplorable character.

Accounts from Florence Alabama represent that much injury was also sustained in the vicinity of that place though no lives lost.

Ice was made on Tuesday night in this city, and the surface of the ground frozen. Fortunately the fruit trees are not sufficiently forward to be injured by the frost, except possibly apricots, which are just beginning to blossom.—[Journ. of Commerce.]

The China and Fig trees in Georgia and South Carolina, have been generally killed by the severe weather of the past winter.

Among the passengers in the ship *Francis De-pau*, for Havre, which sailed on Saturday, was Professor Farnum, of Washington College, Virginia. Professor Farnum, we understand, is expected to purchase philosophical apparatus for that institution.

Arrival of Dr. Jarvis.—We are happy to announce that the Rev. Samuel F. Jarvis, D. D., has returned from his protracted residence abroad, and is at present in this city. The long absence of Dr. Jarvis has been for years a standing topic of regret. We are not apprized of his intentions, but we will not doubt that he purposes henceforward to pursue his labors for the Church in his native land, and in the midst of those friends who know and appreciate his distinguished learning and sterling worth.—[Churchman.]

Bible for the Blind.—At a meeting of the Blind School, Liverpool, on Friday week, Mr. William Brown presented to the institution a very handsome bound copy of a part of the gospel of St. Mark, printed in embossed letters, so as to be read by blind persons by the touch. It had been transmitted from the Blind Institution of Pennsylvania, by Mr. Richards, late Mayor of Philadelphia.—[Liverpool Advertiser.]

From the Buffalo Daily Advertiser we learn that a fine schooner, called the *Agnes Barton*, was launched from Carrick & Bidwell's Ship Yard, in that city, on Saturday. She is of a 110 tons burden, and owned by James L. Barton, Esq. This looks business like, and we hope to have frequent opportunities to record similar occurrences.

LATER FROM ENGLAND.—The ship *Ontario*, Capt. Sebor, arrived at this port last evening from London. She brings London papers to Saturday evening, March 21st, and Portsmouth to the 23d.

We are indebted to the morning papers for the latest dates.

The Portsmouth Telegraph of the 23d contains the following:—

"Sunday Morning, March 22.

The Bristol mail brings us intelligence that an American packet had arrived at Cork, with the news that *America has declared War against France.*"

The London Gazette announces that Lord Cowley has been appointed British Ambassador Extraordinary and Plenipotentiary at the Court of France.

It was reported that Sir Robert Cordon had been appointed ambassador to Russia.

Viscount Canterbury, his Majesty's Commissioner to Canada, to settle the disputes that have arisen there, was expected to embark for that colony about the 30th of April in a ship of war.

The Report of the Commissioners appointed to inquire into the state of the Established Church, was laid on the table of each House of Parliament on the 18th. It proposes a new arrangement of Dioceses, and adjustment of the incomes of the Bishops as nearly as may be, to their several stations and duties.

Sir Edward Sugden has suddenly and unexpectedly relinquished the Chancellorship of Ireland. Sir Charles Wetherell is among those spoken of as his successor.

An Action took place in Spain, March 12th, between Mina and Zumalacarraguy, in which the Carlites were defeated at all points. The latter, however, had retreated to a commanding position between Pampeluna and St Sebastian.

The advices from Lisbon were to March 10th, at which time every thing was quiet.

A great fire occurred in the Chinese district of Macao on the 5th of November. It broke out in some boats moored near the river, which were destroyed, together with about four hundred well built houses.

THE NEW YORK AND ERIE RAILROAD.—For the information of persons disposed to subscribe on Wednesday, 15th, to the stock of this Company, we publish the following concise statement, from an authentic source, of the particulars of this great enterprise, destined, as we firmly believe, to become not less profitable than honourable to those of our citizens who may now concentrate their efforts and energies to carry the work vigorously forward.

[For the New York American.]

The attention of the public is earnestly invited to the following propositions:—

1. The construction of the New York and Erie Railroad will be practicable at a moderate expense.
2. It will become profitable to the stockholders as soon as 115 miles of single track shall be completed.
3. Every part of the road may be advantageously used for the transportation of persons and property.
4. The road, when completed, will open new and extensive channels of commerce to the city of New York, and will greatly add to its population and wealth.

1. The road is practicable. It is 483 miles in length, and for more than 400 miles pursues the courses of streams. Railroads which go *with* the valleys of streams are cheap—those which cross them *transversely* are dear. The Mohawk and Hudson road, which does not follow

the streams, cost more than \$40,000 per mile. The Utica and Schenectady road, which follows the valley of the Mohawk, has been actually put under contract at less than 12,000 dollars per mile. That part of the Baltimore and Ohio road, between Baltimore and Ellicott's Mills, which crosses the valleys transversely, has cost upwards of 40,000 dollars per mile; and that part west of Ellicott's, which follows the valley of the Patapsco, has cost less than 15,000 dollars per mile.

The graduation of the Utica and Schenectady road, ready for the superstructure, is \$5728 per mile. That of the New York and Erie road, \$5626.

The cost of a single track of superstructure will vary according to the plan and materials, more or less imperishable, which may be selected. It will not be less than \$3000 nor more than \$5,500 per mile. That of the Camden and Amboy road between Bordentown and Camden was about \$4,700, that of the Utica and Schenectady, is \$4,950 per mile.

Assuming the most durable plan, the superstructure of the single track of the New York and Erie road will not exceed per mile, \$5,500 And the graduation 5,626

11,126

The land required for the road bed, will, throughout at least nine tenths of the line, be gratuitously ceded to the Company.

Add for engineering and contingencies (per mile,) 1,374

12,500

Or for the whole 483 miles, \$5,637,500

II. The road will be *profitable* to the stockholders, and that too, as soon as one section of 115 miles shall be completed,—after which its profits will rapidly increase, as that section shall be extended. From a point on the Delaware and Hudson canal, about 45 miles from tide water, the road can be completed to the great and fertile valley of the Susquehanna, (entering it at Bettsburgh,) a distance of 115 miles, for less than \$1,500,000. The population in the southern counties distant more than 70 miles west from the Hudson River, and whose products and supplies must be transported on the road, amounted to 338,846, by the census of 1830,—and had increased in the previous ten years at the rate of 55 per cent. [That of the whole of the canal counties, equally distant from the Hudson, and extending north to the northern boundaries of Jefferson County, was only 644,688, and had increased in ten years only 42 per cent.] Of this population of 338,846, at least 150,000 will commence using the road as soon as it reaches Bettsburgh.

From Bettsburgh the road can be extended west to Owego, 55 miles, at an expense of less than 700,000 dollars, and will there become connected through the Owego and Ithaca road, (now completed,) with the populous and fertile counties around and west of the Cayuga and Seneca Lakes.

It is found that the transportation on the Baltimore road has very rapidly increased since the line has been extended westward.

III. There are no grades of ascent on the road which will prevent its advantageous use for the transportation of persons or property.—Its grades are far less severe than those on the Baltimore road. Between Baltimore and Frederick there are the following rates of ascent:—One of 76 feet; one of 87; one of 176; and one of 253 feet to the mile; and yet the road is constantly used for the transportation of flour, live stock, provisions, granite, &c. many of which articles are actually taken out of the boats on the Chesapeake & Ohio Canal, at Harpers' Ferry, and carried in cars over the Railroad to Baltimore!

The severest grade on the New York & Erie Railroad (excepting the one inclined plane near Lake Erie) is only 100 feet to the mile—less than one half as steep as the branch of the Mohawk Railroad leading from the car-house at Albany up the street south of the Capitol. Locomotive engines on an improved plan have ascended with trains of passengers up of 176 feet to the mile on the Baltimore road. Auxiliary engines, or an additional of animal power.

er, can be cheaply employed, if found necessary, on the one ascent of 100 feet to the mile on the Erie road, and will not produce as much delay or expense as is experienced on the two inclined planes between Albany and Schenectady—or on the two inclined planes between Philadelphia and Columbia—or on the ten inclined planes on the Pennsylvania road over the Alleghany mountain, now covered with the merchandise of Philadelphia, moving to the far West.

On the New-York and Erie Railroad, besides this one ascent of 100 feet to the mile, there are two others of 70 feet,—one of 65 feet, and one of 61 feet—occurring at only five points on the whole line. The whole delay occasioned, either to passengers or the public mails at these five points, will not exceed two hours in the passage from New-York to Lake Erie.

The rate of speed on more than nine-tenths of the road will be at least fifteen miles to the hour. Of the 483 miles, the grades of ascent on 329 miles are less than 20 feet to the mile: 416 miles are less than 40 ft.: and only 23 miles exceed 60 feet to the mile.

On the Philadelphia and Columbia road there is one grade of 45 feet to the mile (beside the two inclined planes) laid down too over a quicksand constantly passed with locomotive engines. One of the grades on the Camden and Amboy road is more than 45 feet to the mile—and a part of the Liverpool and Manchester road exceeds that rate.

The country traversed by the road is salubrious, fertile and rapidly increasing in wealth. The valley of the Susquehanna occupied by the road, is upwards of 150 miles broad from east to west—and lies generally at an elevation of less than 1000 feet above tide water,—and less than 400 feet above the average level of the county of Ontario. The Pennsylvania Railroad over the Alleghany mountains, is upwards of 2300 feet above tide.

There are three great branches which will connect the main line with the canal counties—one from Bettsburgh to Utica, about 73 miles; one from Owego 29 miles to Ithaca and Cayuga Lake; and one from Danville to Rochester, about 60 miles—whereby more than one half of the canal counties will be accommodated during the winter by railroads leading directly to this city.

The road being thus shown to be feasible at a moderate cost, and capable of advantageous use at all seasons of the year, it is claimed that,

IV. It will yield immense advantages, not only to the public, but also to the stockholders who may construct it.

The public will be benefitted by its business; the stockholders by its revenue. The amount of its revenue will depend on the amount of its business. Its business will be created by the necessities of the population, who may use it, to transport their products and supplies to and from tide water.

The geographical districts, which it will accommodate, by furnishing to them a channel of transportation more cheap, regular, and desirable, than by any other avenue of trade or transport, consist of,

1. The southern or "railroad counties" of this State, including so much of the adjacent counties, as lies within 40 miles of the line of the route:—

2. The northern and central portion of Pennsylvania, adjacent to the Susquehanna, and capable of being reached by means of that stream, earlier than by the canals of that State:—

3. The southern, or Ohio division of the far West, watered by the Ohio river and its upper branch the Alleghany:—

4. The northern or lake division of the far West, lying around the upper Lakes.

The mere statement of these enormous masses of territory, which are thus to be rendered commercially tributary to the city of New-York, suffices of itself to demonstrate the magnitude, importance, and value of the proposed enterprise.—The whole state of New-York, west of a line 70 miles distant from the Hudson river, embracing an area of less than 24,000 square miles, contained, by the last census, only 983,534 inhabitants, and yet it paid in tolls to the Erie Canal during the last year upwards of a million of dollars.—[The whole amount of tolls paid for merchandize

going to, and coming from the States west of New-York, was less than 150,000 dollars.] What then will adequately measure the amount of revenue to be derived from the Erie railroad, which independently of its superior facilities for carrying passengers and the mail—of its unrivalled advantage of being available during the five months of the year in which the Erie Canal is closed,—will furnish the means of transport for

1. The Railroad counties, now containing 388,846 of the population of 983,534, thus paying the million of tolls to the State:—

2. The upper part of the Susquehanna valley and northern counties of Pennsylvania now numbering more than 100,000 inhabitants, and are rapidly increasing:—

3. The whole of the Ohio and Alleghany valleys embracing an area of 196,000 square miles, and already containing more than two millions of inhabitants:—

4. The vast and populous communities growing up around the great Western Lakes.

The immense commercial importance of the direct connexion to be effected by means of the proposed road and the Alleghany river, between the city of New-York and the Valley of the Mississippi, is but yet imperfectly realized or understood. Let it then be distinctly known to our merchants, that the moment the line of the Erie Railroad reaches the Alleghany river their merchandize can be delivered on its banks from their warehouses in this city, *within thirty-six hours!* that it can thence descend down the safe, though rapid, current of that stream, in less than two days to the wharves at Pittsburgh—that this navigation is always available precisely at the period when it is most needed, to wit, in the months of March and April, and that the river with small expense, can be rendered navigable throughout the whole summer and autumn. The enormous importance then of accomplishing this connexion, with the utmost practicable despatch, must then be evident. It is the only mode in which New-York can neutralize the gigantic efforts making by Philadelphia to deprive her of the commerce of the west—but when completed, will most effectually accomplish that object. Pittsburgh will thenceforward cease to be the western emporium of Pennsylvania, and with her long line of sister cities and communities along the valley of the Ohio, will become attached, as a commercial dependency, to this metropolis.

V. It can hardly be necessary to add, that the construction of this road, producing such mighty commercial results, and pouring into this mart of the Western world such gigantic streams of commercial wealth, must augment the population and riches of this metropolis to an almost incalculable extent. Since the Erie Canal was commenced, our population has increased from 120 to nearly 300 thousand;—our real estate from 5% to 123 millions;—our paved streets then terminating at Grand street, now reach more than half the distance to Harlem Bridge.

Can we then set any reasonable limits to the wealth, extent and grandeur of our city, when it shall quadruple its present commerce?—when its merchants shall sell merchandize worth 500 instead of 120 millions annually?—when the island of New-York shall be covered throughout its whole surface, with warehouses and dwellings, and temples of religion, of science and the arts? when the mighty chain of railroads already commenced and rapidly spreading over the vast valleys of the West, and all converging towards Lake Erie, shall bring the whole countless population of those grand communities, within three days travel of the Atlantic sea board?

A NEW YORKER.

TRADE WITH THE WEST.—In as much as the Editor of the Albany Argus thinks that the "Philadelphians cannot be too grateful" to this paper for its "remarkable exhibition of liberality in shewing the advantages Pennsylvania possesses over New-York, in early navigation," by "actually quoting from interior newspapers," a statement of facts, it may not be improper for us to continue occasionally, such statements as will enable our own citizens to know and appreciate the loss sustained by them—not only in this city, which loses the

sale of large amount of goods, but also in the country through which they would, under other circumstances be transported—by the actual and undeniable possession by Pennsylvania of those superior advantages for early transportation; and to the continuance of which superiority, in the hands of Pennsylvania, the Albany Argus, and its coadjutors with the honorable member from Utica, who, it is said, had so much compassion on the capitalists of this city as to visit many of them personally, to guard them against the danger of loss by subscribing to the stock of the New-York and Erie Railroad—have contributed so much, that it is now, only to be wrested from her by the united and determined efforts of the merchants and capitalists of this city—who must, and will, be so confident come forward and show the opponents of this measure, who are so from interested motives, that cupidity and selfishness cannot defeat it.

The following extract, from the Pittsburgh Gazette, shows in bold relief the importance and necessity of prompt and decided measures; and who so much, as the citizens of New-York, are interested? Who to be so much benefited?—Will they rest easy and see the trade, which they have been accustomed to enjoy diverted to another city, simply because her forwarding houses will not forward goods purchased here, until those purchased there, are first all forwarded?—Or will they come forward and aid in constructing a work which will place them at least, upon equal terms? And by which the goods sold by them may be forwarded, when ready, without being subject to the veto power of any other city?—We shall see:

COLLECTOR'S OFFICE,
Allegheny, W. D. Pa. Canal, April 4, 1835. }
Amount received in the week
ending April 3, 1835, 694 59

51 boats cleared at this office, having tonnage, 1,058,873 lbs.
Tonnage received from the East, 1,264,232 lbs.

Total tonnage of the week ending April 3, 1835, 2,323,105 lbs.

On what day of April will the Collector of Buffalo be able to make a similar statement?

Not that the people of Buffalo, or on the line of the canal have any object or interest in this delay. It is caused by natural obstacles; and, therefore, other means should be adopted; on the most approved mode, and the shortest and best route; and it is surprising that intelligent business men, who are liberal on other subjects, should be so short-sighted in relation to a work of this magnitude, after the experience which they have had of the incalculable benefits of such works.

Railroad from Portland to Quebec.—We observe by the Maine papers that Gov Dunlap has received from Lord Almyer, the Governor-General of British America, at Quebec, a letter, stating his readiness to co-operate with the authorities of Maine in the survey of the proposed route of a railroad from the Atlantic seaboard of Maine to Quebec. The Quebec people are stated to feel considerable interest in the measure, as it is natural to expect they would, for they are to look to this route as the most convenient and speedy outlet and inlet during a portion of the year.

The report of the Maine Legislature, upon the subject, made at its late session, had received the attention and met the approbation of the Quebec and Montreal people; and Lord Almyer, in compliance with public opinion, was ready to furnish a corps of Engineers, at the expense of the Government, to assist in procuring an accurate survey of the route and an estimate of the expense.—[Bost. Cour.]

MISCELLANY.

Our Revolutionary Navy.—There is another branch of our annals which has been strangely neglected, and which is neither deficient in interest nor in material. We allude to our naval history. Every body has heard of Paul Jones and of Truxton; and every body knows by heart the achievements of Hull, Perry, Porter, McDonough, and Bainbridge; but the early and desperate conflicts of our revolutionary navy are, for the most part, forgotten, and by many were never heard of. Mr. Clarke, in his *Naval History*, and Goldsborough, in his *Naval Chronicle*, have alluded to these occurrences; but they have done so quite too summarily, though their works are valuable and accurate in recording the history of a later period. The gallant and bloody boat fights of Brewster, Hubbel, and Hawley, along the shores of Long Island Sound, where they encountered the Tories and British, are nowhere recorded, except in the memories of those who remain, and who participated in them. Among the feats recorded by Goldsborough, is that of a party of less than forty men, at Machias in Maine, who, when they heard of the commencement of hostilities at Lexington, took possession of a lumber sloop, and, armed with thirteen pitchforks, a few sabres, ten or twelve axes, and some pieces of salt pork, sailed in pursuit of a British armed schooner, (carrying four six-pounders, twenty swivels, two wall-pieces, with the proportionate armament of cutlasses, firearms, &c.) laid her alongside and, after a short and desperate engagement, carried her by boarding. With the guns and ammunition procured by this capture, they armed other vessels, and took many prizes. Several little fleets were fitted out from Boston and its vicinity, and cruised with success, and repeatedly succeeded against very superior forces. The achievements of Hopkins, Mugford, Biddle, Williams, Waters, and Whipple, are unsurpassed for their cool intrepidity and good judgment. Mr. Clarke relates the following instance, which exhibits very forcibly the daring character, and adroit manoeuvres, of our naval warriors of that day:

"In June 1779, an expedition of United States vessels was fitted out and sailed from Boston.—It consisted of the *Providence*, thirty-two guns, Commodore Whipple; the *Queen of France*, twenty-eight guns, Captain J. P. Rathburne, and the sloop of war *Ranger*, Captain Simpson. About the middle of July, near the banks of Newfoundland, as the squadron lay in a fog, signal guns were heard, and at intervals the sound of ships' bells striking the hours. From this they supposed themselves to be near a fleet. About eleven o'clock the fog began to clear off, when the crew of the *Queen of France*, to their great surprise, found themselves nearly alongside a large merchant ship, and soon after they perceived themselves to be in a fleet of one hundred and fifty sail, under the convoy of a seventy-four, and several frigates and sloops of war. The *Queen of France* immediately bore down to the large ship and hailed her. She answered that the fleet was from Jamaica, bound to London. The English ship then hailed the American, and was answered, his majesty's ship *Arethusa*, from Halifax, on a cruise. The American then inquired if they had seen any rebel privateers. The English replied that several had been driven out of the fleet. The American, Captain Rathburne, then requested the captain of the English vessel to come on board, which he did; when, to his great astonishment, he found himself a prisoner. Captain Rathburne then sent one of his own boats, and the English captain's boat, both well manned, to the ship, of which they took quiet possession, without exciting the least alarm in the fleet, notwithstanding many of the vessels were nearly within hail of the one captured. Rathburne then went alongside another large ship, and captured her in the same manner. Soon after the capture of the second ship, Commodore Whipple came alongside, and ordered Captain Rathburne to edge away out of the fleet as soon as possible, as he was persuaded they would be discovered and overpowered. Captain Rathburne then pointed out the two large ships he had captured, and requested permission to remain. The Commodore at first disapproved of this project; but was at length prevailed upon by Captain Rathburne to

stay in the fleet all day, and capture as many vessels as they could, in the same cautious manner. As soon as it was dark they left the fleet, after having captured eleven vessels, without giving alarm. The squadron arrived safe at Boston with eight of their prizes—three of them having been retaken by the English."

No men are more enthusiastic in attachment to their profession than the officers of our navy, and to none could the honorable task of recording its history and achievements be more properly confided. It is a work requiring careful accuracy and patient research, and we should have no difficulty in naming more than one of our naval friends who would add to these requisites, finished scholarship, and not unpractised pens.—[*American Monthly*.]

The Wits of Queen Anne's Reign.—The band of wits, who have rendered so illustrious the reign of Anne—Addison, Steele, Gay, Prior, Swift, Arbuthnot, Bolingbroke, Pope, and their associates, had, in 1735, been wasted and thinned by Time, whose step is alike unerring, and whose scythe is equally unsparing in every age. Gay died when his celebrated comedy began to remunerate him for his previous misfortunes.—Steele—the careless, yet magnanimous Sir Richard—was no more. Atterbury—"the mitred Rochester"—had expired in unmerited exile.—The gentle spirit of Addison, who had taught his contemporaries how to live, had also (in the beautiful language of his eulogist) "taught them how to die." Arbuthnot—the witty, the humorous, the learned and generous Arbuthnot—was sinking under the disease, that rendered "Euthanasia," as he said, the only wish his friends should prefer for him. Bolingbroke had passed through the extremes of his eventful life. Parliamentary influence—oratorical fame—official power—the imminent scaffold and compulsory exile were over, leaving him thenceforth to affect philosophy, and nourish personal and political malignity, and assail religion. The stern intellect of Swift, preserved as yet, its masculine force; but savage misanthropy had become its absorbing sentiment, and prevent shadows announced the approach of the dark disease, which ultimately rendered this scorner of mankind, himself "a driveller and a shew."

Pope, however, remained in the meridian of his life—in the blaze of his fame—in the full exercise of his power. Having impaled the whole host of the dunces, with the shafts of his satire, he was now moralizing his song, and giving to the world his *Essay on Man*.

The lapse of a century, constitutes us, perhaps, the posterity to whose judgment these writers so often appealed; and if the respective present popularity of these authors, be the true test of their merits, their relative station has been indeed much altered by time. Steele has dropped entirely out of public view. Prior has grown obscure in the distance. Since the taste of our day has endured the revival of highwaymen's exploits, and tolerated the brutal slang of the bride-well, and the bagnio, there seems no reason why the *Beggar's Opera* of Gay, should have gone into comparative obscurity, while Paul Clifford, and Rockwood, without a tinge of its wit, or an atom of its verisimilitude, find numerous admirers.—Captain Machoath has no mawkish sentiment, nor improbable refinement, nor impossible manners; and his careless profligacy, and sparkling wit, with "his pistol that never misses fire, and his mare that never slips a shoulder," might render him a classical rogue. We fear our favorite Arbuthnot is not read as he ought to be. His "History of John Bull" has been imitated and travestied so often, that we forget the happy conception of the allegory, and the merit of its execution; and Martinus Scriblerus has not so many disciples as he ought to have.

There is a beautiful halo around the name of Addison. We think of him as a being of gentle manners, and attractive morality, and graceful piety; but his reputation for genius is not what it was, a hundred years ago. His *Cato* is preserved from utter oblivion, only by our school-boys, who declaim the stoic's dying speech.—Two little hymns are all that is popular of his poetry. The infinite expansion of periodical literature, in the last twenty years has thrown the *Spectators* into the shade. But Sir Roger de

Coverly will be immortal. The representative of a class of men, who have passed away, and of a mode of life which will never exist again; the delineation of refined simplicity—of gentle chivalry—of amiable, and not unnatural eccentricity—he will be admired, when the portraits of Kneller shall have mouldered, and for ever preserve the name of his delineator from oblivion.

On the remaining triumvirate of hardier nature, and loftier genius,—Pope, Bolingbroke, and Swift—the effect of time has also been unequal. He, to whom the others deferred—the titled author—has fared the worst. His political writings have sunk into annihilation. On reading his "Patriot King," and "Thoughts on Exile," we ask with wonder, what could so acute a critic as Chesterfield find in their rapid and pointless verbiage, to recommend as models to his son? More subtle skeptics, and bolder infidels, have crowded his philosophical writings into the obscurity of the most cob-webbed shelves of our libraries.—And when another century shall have revolved, the "all-accomplished St. John" will perhaps only be known by the verse in which Pope affected to ask for himself, no other future recognition than as the dependant upon his "Guide, Philosopher, and Friend." But why has Swift, whose burning sarcasm, and poignant wit, and piercing argument, and vigorous style, have no superior in the whole circle of English literature, also subsided from his eminence of fame? His "Tale of a Tub," is not read. His "Conduct of the Allies," which upheld a ministry, is forgotten. His "Drapier's Letters," which made him the O'Connell of the day, are buried in obscurity. "Where be your gibes now? your gambols? your songs? your flashes of merriment?"—The answer perhaps is, that human feeling has avenged the outrages upon itself; and he, who could find in his fellows, nothing to love or admire, is for that reason, with all his genius, deprived of the love and admiration of his kind. It is by the writings of Alexander Pope, that the lighter literature of England, in the beginning of the past century, chiefly exercises influence on the present. His writings have stood the test of time. The monument of his fame is "a solid fabric, end will support the laurels that adorn it." The controversialist, who would point a period, resorts to his satires. The philosopher, who would clothe an apothegm, borrows from his essay.—And—what perhaps is the highest praise of all—his lines, his sparkling phrases, have passed into the current language of the day, and become household terms.—[*American Monthly*.]

Increase of Law Books.—About 1717, Dean Swift, in one of his pamphlets, remarks "the great increase of law-books," and asked, "what would become of lawyers, if their libraries kept on increasing for a century, at such a rate?"—Law books have kept on increasing, in more than a geometrical ratio, and of their increase there is no end. The Dean's question was a sensible one, and seemed to admit of no answer. Neither did his question as to what posterity would do with the national debt of England, which then amounted to fifty millions sterling. But the course of human events is more incredible than fiction, and inscrutable to human philosophy.

When Swift's inquiry was made, Blackstone had not written and Mansfield had not decreed.—Since then, the Parliament of England has been pouring forth laws, regularly as the course of the seasons, and copiously as the autumnal harvests. These are in the lawyers' library.—Since then, the Court of Chancery, which, grim as Cerberus, met the hapless adventurer in the caverns of the law, has, like that gentleman, (as Mrs. Malaprop called him) been divided into three heads—videlicet, the Rolls—the Vice-Chancery—the High Court of Chancery, and from each have been gathered volumes;—and these are in our lawyers' library!—The king's Bench—the Common Pleas—the Exchequer—the Doctors' Commons—the Admiralty—have, for a hundred years, been shedding edicts, numerous as the Sibyl's leaves, and equally lucid—but, alas! not scattered like hers, but bound in calf-skin books—and these are in our lawyers' library!—But this is not all. On this side of the Atlantic, four-and-twenty legislatures, all in a row, are annually, like so many grist-mills, grinding forth laws; and one or two, three, or four judicial tri-

benefits to each State are, every year, publishing their decisions, to be bound in yellow leather for the lawyers' library.

Patient reader! we are not through yet. The Bar partakes the mania of the Bench. *Scriptum docti, indoctique.* Essays and treatises, and criticisms, and strictures, and arguments, have been every year extorted from the wearied press, in numbers that would frighten Magliabechi himself; yet must every lawyer have these in his library!

We postpone to some other time, all remarks on the wisdom and benefit of the legal system; our object being merely to show in this respect, the contrast of the present and the past century; but what would the Dean of St. Patrick say to the prodigies, to which we have feebly alluded? He would probably acknowledge that the imagination which conceived the idea of Brobdingnag, was inadequate to comprehend the magnitude of the legal science; or, more probably, he would add a chapter to his Voyage to Laputa, and place our law-makers, and law-expounders, by the side of those useful philosophers who discovered and practised the wondrous art of extracting sunbeams from cucumbers.—[American Monthly.]

SUBMARINE VOLCANOS—are those which break out from the bottom of the sea, and which, losing their lava higher and higher, sometimes gradually, and at others instantly, raise islands, where before nothing obstructed the billows of the ocean. They are preceded by violent agitations of the water, and the discharge of gas, smoke, and vapors; these are often on fire, and roll and sweep in fearful sheets of flame over the waters. Stones are cast up—the crater often peers above the surface, and either remains after the eruption has subsided, or sinks again into the abyss. The volcanic islands, generally, are supposed to have been raised from the bed of the ocean in this way. A soil ultimately accumulates upon them, and the decomposition of the lava itself, gradually furnishes sufficient for vegetation. A great number of islands have been cast up in this manner, within comparatively a few years. Most of them have again sunk, though some remain. Dr. Webster, to whose work we have before referred, gives a full account of that which rose near St. Michael, in the Azores; and one which appeared in the Mediterranean in 1831, is described in a very interesting manner by Dr. DeKay, in his work recently published.

Such has been, doubtless, the origin of many of the islands of the Atlantic and Pacific. In the Grecian Archipelago, very many of the islands bear strong marks of volcanic action. The same is true of the Canaries, Teneriffe, the Cape de Verdes, the Lipari islands, the Azores, Ascension island, St. Helena, the Isles of France, and Bourbon, the Aleutian islands south of Bhering's straits, the Kurile, the Philippines, or Sandwich, and other immense ranges occupying the Pacific and Indian oceans. In the West Indies, Trinidad, Granada, St. Vincent, St. Lucia, Martinique, Dominica, Gaudaloupe, Montserrat, Nevis, St. Eustatia, and many others, all give unquestionable evidence of their ancient volcanic character and origin.

Captain Basil Hall, who is perhaps better authority on the subject of volcanoes than of republics, states the Loo-Choo islands, in the China Sea, to be volcanic in their origin; and that he saw one peak just rising above the water, which had every appearance of an extinguished crater.

The Volcanoes of Mexico.—In Mexico, a chain of volcanoes traverses the country from east to west, being at right angles with the great range of mountains which runs through it; that of Tuxtla, near Vera Cruz, had an eruption in 1793, and the ashes were carried upwards of one hundred and seventy miles. West of this lies Orizaba, seventeen thousand three hundred feet high, and Popocatepetl, seventeen thousand six hundred feet high—being the greatest elevation in Mexico. It has been in action for three hundred years, but has emitted nothing more than smoke and ashes. On the west of the city of Mexico lie the volcanoes of Jorullo and Colima, and a vast extent of the plains beyond give evident indication of volcanic fire beneath their surface. Humboldt, in speaking of these plains, says that "in the month of June, 1759, a subterranean noise was heard. Hollow sounds, of the most alarming nature, were accompanied by frequent earthquakes, which succeeded each other from fifty

to sixty days, to the great consternation of the inhabitants; for about a month all was again quiet, when on the night of the 28th September, the horrible subterranean noise recommenced. The affrighted Indians fled to the mountains of Aguaraca; a tract of ground, from three to four square miles in extent rose up in the shape of a bladder. The bounds of this convulsion are still distinguishable from the fractured strata."

Those who witnessed this great catastrophe from the top of Aguaraca, assert that the flames burst forth over a surface of more than half a square league; that fragments of burning rocks were thrown to a prodigious height, and that through a thick cloud of ashes, illuminated by volcanic fire, the softened surface of the earth was seen to swell up like an agitated sea. The rivers of Orizaba and San Pedro, precipitated themselves into the burning chasms; the flames were rendered more violent by the decomposition of the water, and were visible at an immense distance. The whole surface is now covered with thousands of small cones, from six to ten feet in height, called by the Indians *cones*, from which heated vapors ascend to the height of from twenty-two to thirty-two feet.—[American Monthly Magazine.]

Patriotic Liberality.—We have great pleasure in communicating the fact, that Lieut. Burnes, the intrepid and enterprising traveller, has just presented to the trustees of the British Museum the whole of the coins collected by him in the course of his travels into Bokhara. They consist of upwards of two hundred Bactrian, Indo-Grecian, Indo-Scythic, Hindoo, and Muhammedan coins. In short, the collection is unique. An especial vote of thanks from the trustees has been given to our gallant countryman for his splendid donation.

Epidemia.—This pestilence, so fatal to cattle, has ravaged Moravia and many parts of the Austrian empire with extraordinary mortality. In many places whole herds have perished. Would not the investigation of its cause be a subject worthy of the best attention of our various scientific institutions—medical, botanical, entomological?

[From the American Monthly Magazine.]

TO—
I left thee—nor did seem to grieve—
I breathed no sad nor wild farewell;
But ah! more deep, more keen, believe,
The grief I rock'd not how to tell.
The cold in studied phrase may whine
Of parting pang, or rapture's thrill;
But heart as fond, as true as mine,
When deepest moved, then most is still.
And why should language vainly seek
To paint the woe it never reveals?
The heart—the heart can never speak—
The tongue but mocks the grief it feels.
Oh then, untold, thou wilt not deem
Unfelt the pang such partings bring—
Most swift the tide when calm the stream,
And saddest birds but rarely sing. M. L.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory. Troy, N. Y. sept-18-1y

RAILWAY IRON.

85 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 300 do. 1 1/2 do. 14 to 15 feet, counter sunk 40 do. 1 1/2 do. do. holes, ends cut at an angle 800 do. 2 do. do. of 45 degrees, with splicing plates and nails to suit. 800 do. 2 1/2 do. do.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 23, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7meow

STEPHENSON.

Builder of a superior style of Passenger Cars for Railroads,
No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J35 11

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty six nails, and about forty ten nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1833. A29 11 RM&F

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 61

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—also a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repair, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Supt of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad.
Germantown, and Norristown Railroads

**PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
APRIL 17, 1835.**

	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	118 1/2	118
Paterson.....	50	107	107
Saratoga.....	—	108	108
Harlem.....	—	93	89
Boston and Providence....	100	118	118
New-Jersey Railroad and Transportation Line...	100	—	—
Camden and Amboy.....	100	—	—
Providence and Stonington..	100	100 1/2	100 1/2
Boston and Worcester.....	—	108	108
Philadelphia and Trenton...	100	102	102
Utica and Schenectady....	100	108	108
Jamaica.....	—	106	106

Schuylkill Canal.—During the week ending April the 7th, 1834, the amount of toll received on this valuable work was \$2,191 68.—During the present season the Canal opened on the 17th of March, and the receipts of the toll for the week ending the 3d inst. amount to \$9,722 04, or more than four times as much as during the same period of the preceding year.—[Philadelphia Commercial Herald.]

Union Canal.—This important link in our great chain of internal improvements, opened for the season on the 19th ult. and is now in excellent navigable order. The best evidence that we can furnish of the prosperity of this work, is to state that during the week ending the 31st inst., the amount of toll received was \$4,526 65.—[Philadelphia Commercial Herald.]

Arrival from Pittsburg.—Yesterday the Canal Boat, Sarah Tiers, belonging to the Pittsburg Transportation Line, arrived at their Warehouse, Chestnut street wharf, Schuylkill, freighted with a full cargo from Pittsburg; being the first arrival this season by the Canals and Railroad.—[Philadelphia paper.]

There is a very spirited competition between the Railroad and the new line of stages established by Stockton and Stokes on the Turnpike Road between this city and Baltimore. We now get the Baltimore newspapers several hours earlier by the stages than we have heretofore received them by the cars. The Railroad Company have brought one of their "big tea-kettles," over the Ridge, and intend, we understand, to employ steam on the whole road between Frederick and Baltimore.—[Frederick, M. D. Examiner.]

[From the National Intelligencer.]

TO THE EDITORS.—Gentlemen: I am sure that it will be very acceptable intelligence to many of your readers to know that the Engineer reports the completion of the Chesapeake and Ohio Canal to a point eight miles above Williamsport, (being 110 miles from this city,) so far as to open it for trade.

Sixty boats, loaded with Flour, Coal, &c., had descended the Lock below Williamsport, and forty more were about to pass that point on the 9th inst. So that, if no accident should occur to the new work below that point, we may in a day or two hope to see some of this produce of the Alleghany Mountain at our doors.

Washington, April 11.

RICHMOND AND POTOMAC RAIL ROAD.—The Whig of yesterday states, on the authority of one of the directors of this work, "that notwithstanding the severe and protracted winter, the work is progressing well. The earth work is getting in a considerable state of forwardness, and the bridges and culverts, some of which are already begun, will soon be in an active state of progression. In most places, good quarries of suitable stone have been found very near the places where they were wanted. Nearly all the timber for the superstructure has been cut while the sap is yet down, and much of it has been prepared and put along the line where it will be used. Without some unforeseen hindrance, the Locomotive will probably be on 25 or 30 miles of the road by the 1st of Dec. next.—Compiler.

The Railroad.—All is complete to the Nottoway, except the laying down of the iron rails, which is progressing at the rate of a mile a day, and the road will be ready for the passage of cars to that river by the first of May, when 42 miles

will have been finished. The bridge across the Nottoway is nearly completed.—[Norfolk Herald.]

James and Kenawha Improvement.—The Second Auditor gives notice that 32,132 shares of the stock of this company have been subscribed for, by individuals and body corporate and politic, other than the commonwealth, and that the President and Directors of the James River Company will proceed on the 1st day of May next, to ascertain the amount of valid subscriptions—that is the subscriptions, upon which a payment of one dollar, per share, has been paid, pursuant to the act of 20th February last.—[Arena.]

Something New.—The Pittsburgh Gazette notices, under the above head, a machine lately invented and put in operation in the Northern Liberties of that city, for preparing stone for M'Adamized roads. That paper says, the machine is simple and substantial in its structure, and very expeditious and powerful in its operation. It adds on the authority of Mr. Davis, the inventor, that two men and two boys could do as much work with the aid of this machine, as ten men working in the usual manner. It may be worked either by steam or horse power. The Gazette observes in conclusion. We think that Turnpike or M'Adamized road companies in the country would find great advantage in the use of this machine.

**RAILROAD JOURNAL AND ADVOCATE OF
INTERNAL IMPROVEMENTS.**

This work is published once a week, in quarto form of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP,

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2.

**MECHANICS' MAGAZINE, AND REGISTER OF
INVENTIONS AND IMPROVEMENTS.**

This work has completed 4 volumes, or two years. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 334 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

* All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Volumes 6 and 7, or 1 and 2, new series, \$3 per volume.

**QUARTERLY JOURNAL OF AGRICULTURE,
MECHANICS, AND MANUFACTURES.**

This work is composed of the choicest articles of

the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
35 Wall street, New-York.

GOLD REGION OF THE UNITED STATES.

Now in press and will be published in a few days the first of a series of numbers, giving a minute and particular description of the entire Gold Region of the United States.

Each number will be accompanied by a Map, on which will be laid down, and numbered, with owner's name, in the order of discovery, of every Gold Mine within the district of which the number treats, so that any person can ascertain the location, owner's name, and condition, as late as January 1, 1835, of every Gold Mine, or place where gold has been discovered in the United States.

The first number, which will be issued by the 20th of April, will give the Gold region of North Carolina: together with a very interesting Essay, upon the Gold region of the United States, from the transactions of the Geological Society of Pennsylvania, by James Dixon, Esq., F. G. S. of London, C. M. G. S. of Pennsylvania, &c. &c.—With other interesting and important information in relation to the supply and consumption of Gold.

The information and maps are by a scientific gentleman, who has visited personally what he describes.

No. 2, including the States of Virginia and Maryland, will be published by the first, or during the month of, June.

No. 3, giving Pennsylvania, New Jersey and New York, by the first of August. And the succeeding numbers, 4 and 5, which will probably complete the series, by the first of January next.

The terms will be \$1 per number, or \$5 for the Series.—Subscriptions addressed to D. K. MINOR, or to the publishers, T. & O. WOOD.

No. 7 Wall street.

* * Gentlemen who may have particulars, or details, of present condition of mines in North Carolina, will oblige me by communicating the same, that the work may be as complete as possible. D. K. MINOR.

MILL DAM FOUNDRY FOR SALE,

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. Blacksmith's Shop, 50 feet by 90, fitted with cranes for heavy work.

No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 180 feet by 40, containing two water-wheels, equal to 40 horse power; Machine Shop, fitted with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior horse Steam Engine, which could be dispensed with, and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas. Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotives and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Gears, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

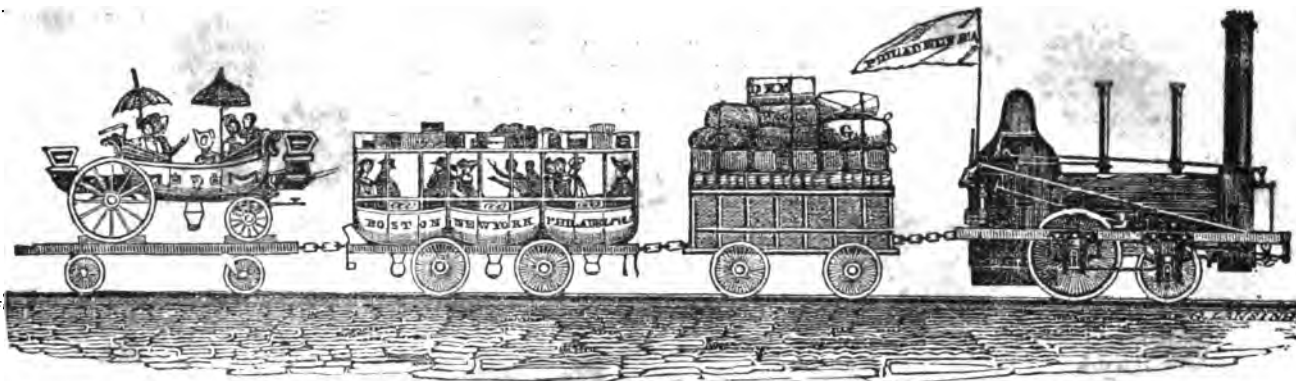
No. 6. A building, 65 feet by 30, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 900 feet long by 36, containing counting room, several store-rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great-chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 18 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOS. J. ECKLEY, Treasr. &c., Boston, or to
ROBERT BALSTON, Jr., Philadelphia.
Boston, Dec. 20, 1834.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, APRIL 25, 1835.

[VOLUME IV.—No. 16.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, APRIL 25, 1835.

CANAL NAVIGATION.—As speed in travelling has become, to business men, at least, a matter of much importance,—and as an increased rate of travelling is so desirable on our canals, and may so easily, as we are satisfied, be attained,—we shall give at length in the Journal, a work on “Canal Navigation—the resistance of water to boats upon canals, and other bodies of water; being the results of experiments made by John MacNeil, Esq. M. R. J. A., Member of the Institution of Civil Engineers, London.”

This work gives plans and descriptions of the iron boats which have been, and are now, in use on canals in Great Britain—especially on the Androsian, or Paisley Canal, on which the ordinary speed has been, for nearly two years, from nine to ten miles an hour, without injury to the canal banks, although 12 to 14 passages were made per day.

The wonderful performances on this canal, and the contradiction of previous received theories, as regards the resistance of fluids at high velocities, will be productive of immense benefits to this country, where canals are so much in use.

Baron Thierry of Panama has addressed a memoir to the President of the republic of New Grenada on the subject of connecting the Atlantic and the Pacific. The Baron prefers a canal to the contemplated railroad, and pledges himself to complete one within two years.

Railroad Locks.

To the Editor of the Am. Railroad Journal:

SIR,—The frequent impracticability of excavating mountainous tracts, and the danger, expense, and inconvenience of inclined planes and stationary steam engines, have compelled engineers to pursue the valleys of streams in locating routes for railroads. That method, while it greatly extends the distance, cannot in all cases obviate the necessity for planes; and though it may diminish their number, is objectionable on principles of expedience and economy. It is questionable, whether the public would not rather encounter some hazard from an elevating power, than be subject to the expense and delay incident to travelling and transportation over the increased distance of a meandering course, however willing they might be to sacrifice either time or expense, to secure safety and the abolition of inclined planes and stationary steam power. One, and the principal object, of inclined planes on railroads intended for passengers and forwarding articles of commerce, is diminution of distance, and if that can be accomplished by locks, with more security and less expense, the loss of time in ascending elevations will be of little consequence.

It is not contended that locks equal the speed of inclined planes and stationary steam power in ascending, but it will be shown that long routes can be performed in less time, with locks to overcome heights, than by winding round their base and pursuing the valleys, and at much less expense. The importance of this view, in the economy of locks, depends on the formation of the country through which a railroad is laid, as the difference in the distance of a route over the acclivities and one shunning them will be governed by the number and magnitude of the elevations.

In case the increased distance of a “serpentine course is very considerable” compared with the extent of the whole line, and the excess of time to perform the route by locks inconsiderable, the benefit community would derive from constructing the New-York and Erie Railroad with locks, is too obvious to require much comment. By referring to the survey of that road some idea may be formed of the economy of locks. Allowing only 40 miles increased distance for the “serpentine course, to obtain easy grades of acclivity,” and that a very expensive plane must be constructed,

the diminution of that distance (equal to one ninth of the length of the Erie Canal) in travelling from New-York to Lake Erie, would be an immense saving to the public, without reference to transportation.

The advantages of locks on railroads are not confined to the public; the stockholders, as individuals, derive two important benefits from their use. Stationary steam engines are dispensed with, and the locomotive ascends with the train. It is the heavy annual expense of stationary steam power and appendages on inclined planes, and the great inconvenience of detaching the locomotive from the waggons in ascending, that renders distance so preferable to railroad companies, when distance will obviate the necessity of planes. W. G.

Black river Canal.—The committee of the Senate have made a long report upon the subject of this Canal.

“The report acknowledges the importance of the project, but, owing to the exhausted state of the Treasury, and the various improvements already authorized, the committee express the opinion that the bill authorizing the construction of this Canal, ought not to pass.”

Mad River and Lake Erie Railroad.—The Urbana Record, of the 4th inst., says that the directors of this work met at that place, on the 1st inst., for the purpose of devising means for its commencement.

They resolved to commence the work at its northern extremity, on or about the 1st of June, and to prosecute it vigorously until completed.

The northern termination is at Portland, or Sandusky city, on Sandusky bay.

The Indianapolis Journal, of the 3d inst. states that the Canal Commissioners have determined (no unforeseen providence preventing) to complete thirty-two miles of the Wabash and Erie Canal, from Port Wayne to Huntington, by the 1st of June.

These improvements all tend to increase the amount of commerce which will shortly pass over Lake Erie, and to enhance the importance of a connection with that inland sea.—[Pittsburgh Gazette.]

Canals in Illinois.—A bill has passed both branches of the Legislature of this State, for the construction of a canal from the Illinois river to Lake Michigan. The improvements, when completed, will be 115 miles in length, and will open a direct communication between the Lake and New Orleans, and the river St. Lawrence and Gulf of Mexico. The estimated cost of this work is \$3,000,000.—[National Intelligencer.]

Report of Frederick C. Mills, Engineer, to
the Honorable the Canal Commissioners of
the State of New-York.

(Continued from number 15.)

PROBABLE REVENUE.

In regard to the probable amount of revenue that may be derived from the Rochester and Olean canal, I would remark, that the opportunity afforded and the time allowed me since I learned the wishes of the Commissioners upon that subject, have been too limited to enable me to furnish them with as full and perfect an estimate as I could wish. The importance of this matter would seem to demand the institution of the closest inquiry into the resources and want of a district embracing the amount of population that would naturally be dependent upon the canal, with a detail of facts relating to the imports and exports, and the capacity of the country for tending her improvements in agriculture, and in all the various branches of art and manufacture, and also the probable amount of freight which would make use of this channel in passing to and from the Ohio river. To perform all this in a satisfactory manner, would require more time and attention than I have been able to devote to it; but that you may be aided in forming an approximate estimate, I will briefly present for your consideration the following facts collected from personal observation, and from residents on different parts of the route, as the most correct view I am able to give of the subject.

An account was taken of the quantity of timber rafted down the Allegany river during one year, including the towns bordering on the Schuylkill, Oil, and Olean creeks, and that portion of country lying upon the head waters of the Allegany river, both in this State and in the State of Pennsylvania. The amount was found to be 100,000,000 feet. The towns upon the Genesee river, above the confluence of Black creek, are generally well timbered, and but a very small portion has found its way to market, for want of a channel thereto. This whole district abounds with sites for saw-mills, which it is supposed would be occupied so soon as an avenue to market for their products should be opened. Besides the above, it is supposed by some gentlemen residing in that section, that one hundred million feet of lumber would be manufactured annually on the completion of the canal. Others consider this amount much too large, and upon comparing the opinions of different persons consulted on the subject, I am led to believe that 22 millions of feet will, in all probability, be manufactured in the region, embracing the district of country from the head waters of the Genesee river to Mount Morris. Within a short distance of Dansville are now 55 saw mills, from which, and from the different towns between Dansville and Scottsville, 8 millions more may be calculated upon. For safety, let us assume that the total amount of lumber annually manufactured would be 117½ millions of feet. The average cost of rafting lumber down the Allegany river to market is \$3½ per 1,000 feet, and it brings when in market, from \$5½ to \$14 per 1,000 feet, which, if we allow \$9½ to be the average, would leave, (after deducting the expense of rafting,) \$6 per 1,000 feet for the manufacturer. The retail price at the mills is about \$5½.

Of the lumber cut in Oswego county, which lies 195 miles from Albany, by the Erie and Oswego canals, more than three fourths is sent to market, and is rated as follows, viz:

	per 1000 feet.
1st quality,	\$30
2d do.	20
3d do. or merchantable,	15
4th do. or culls,	10

At the rate of toll during the last year, the price of transportation from Fulton, on the Oswego canal, to Albany, (a distance of 195 miles,) was \$4½ per 1,000 feet; from the head of Seneca lake, a distance of 265 miles, \$6½; and from Rochester, a distance of 270 miles, \$6½. Hence the average cost of transportation of sawed lumber, by the Rochester and Olean, and Erie canals, will not exceed \$9 per 1,000 feet. From the statement of rates in Oswego county, it is apparent that one third of the lumber cut on and in the vicinity of the Rochester and Olean canal, might be advantageously transported thereon to the Erie canal, and thence to Albany; but as a portion of the lumber estimated must come from Pennsylvania, and from the borders of the Allegany river for some distance below Olean, and as the opening of this channel will, in all probability, create a competition between the eastern market and that upon the Allegany river, and the Ohio, it is reasonable to conclude, that not more than one fifth of the whole amount will pass by this channel to the Erie canal, equal to 19,500,000 feet b. m., which, averaging a distance of 70 miles through the R. and O. canal, will amount, at 8 mills per 1,000 feet per mile, to \$10,920.

Although the counties of Cattaraugus and Allegany possess a considerable share of arable and fertile land, yet but little exertion has been made to raise greater crops of grain than are sufficient for home consumption; but little revenue could therefore be expected from this branch of trade, under present circumstances; but the inhabitants of these counties are generally of opinion that the opening of the canal would give a great impetus to this branch of agriculture, and that it would form a sure and gradually increasing source of trade, which would probably make up the deficiency in the revenue, which would take place when the timber becomes more scarce. Some pains have been taken to ascertain the precise amount of wheat raised in Livingston county by residents there, who have furnished me with the information which they have collected. They state that one million of bushels are annually raised there, of which it may be presumed a large proportion would pass through the canal. Two or three of the extreme eastern towns of Livingston county send their produce directly to the Erie canal; but the deficiency, will be supplied by the towns of Perry, Covington, and others in Genesee county; and it is believed the annual amount may be safely estimated at 650,000* bushels, averaging 35 miles of distance, upon the canal, which at the present rate of toll, would amount to \$6,142.50. Of the probable amount of other agricultural produce which would find a vent through this channel, no data could be obtained from which any certain inferences might be drawn. I am, however, assured that much larger quantities of produce than sufficient for home consumption, such as butter, cheese, lard, pork, tallow, &c. &c. can and would be produced so soon as a communication is opened to a market for its disposal. In addition to these, pot and

pearl ashes would pass by this route from the counties of Steuben, Allegany, and Cattaraugus, which would be supplied in return, as well as a tract of country bordering the Allegany river, with lime, gypsum, and salt.

There is in this district some timber which would be useful in ship building, for masts, spars, ship plank, &c. &c. which would probably seek a market at New-York by this channel. Iron ore also is said to exist in the vicinity of Olean, in considerable quantities. Coal mines are worked in Pennsylvania, 40 miles from Olean. The coal procured there is bituminous, and of good quality. It is now used at Olean, in the northern part of Allegany county, and elsewhere, at the furnaces.

The revenue, therefore, which may be derived from the canal, would be as follows:

19,500,000 feet of sawed lumber,	10920 00
159,000 feet sq. timber, masts, &c.	1575 00
3,800 M. shingles,	532 00
750 tons hoop-poles, laths, staves, heading, &c.	180 00
15,000 tons wheat, (500,000 bushels,)	4725 00
8,800 tons ashes, beef, pork, glass, beer, domestic spirits, butter, cheese, flour, wool, and other agricultural productions,	4752 00
6,000 tons merchandize,	5400 00
4,600 tons salt,	1269 60
4,120 tons gypsum,	1030 00
900 tons brick, clay, lime, sand, iron ore, &c.	225 00
On boats, passengers, coal, and miscellaneous articles,	6000 00
2,000 tons additional salt, in consequence of the facilities afforded by the canal and for the Allegany valley,	1610 00
1,500 tons additional gypsum, as above,	675 00
1,200 tons additional hoop-poles, staves, heading, lath, &c. as above,	1584 00
800 tons, additional merchandize, as above,	4752 00
12,000,000 feet sawed lumber, (on Erie canal,)	25920 00
150,000 feet square timber, masts, &c. (on Erie canal,)	6075 00
2,000 M. shingles,	1080 00

Total, \$73904 60

(Of this amount would be collected on the Rochester and Olean canal, \$59125 60.)

The Cayuga and Seneca canal is 22 miles long, and for the past six years the tolls averaged \$13,791.64 per annum, equal to \$626.89 per mile. The Chemung canal is 40 miles long, and produced last year, (1834,) \$8,378.05, equal to \$84.45 per mile. The Seneca lake is 40 miles in length, separates these two canals, and taking them and the lake in connection, and supposing them to form one continuous line of canal, (102 miles,) upon which toll is charged, it would bear some comparison to the contemplated Rochester and Olean canal, and by averaging the above amounts, we have \$355.67 toll per mile, for the whole distance, including the lake, equal for 102 miles to \$36,278.34. Allowing the same rate of toll per mile to the Rochester and Olean canal, the amount would be \$43,391 74.

For the fall of 1833 and the year 1834,

* A portion of this is estimated as flour.

the tolls of the Crooked lake canal amount to \$1,674.24. Some of the property on which this toll was collected would not have found its way to the Seneca lake had not this canal been constructed. Hence, the amount thus added, should be deducted from the tolls allowed to the Cayuga and Seneca canal, which would approximate more nearly to the estimated revenue for the Rochester and Olean canal.

From a statement furnished by the collector at Geneva, it appears that in 1834 7,513,566 feet of sawed lumber cleared from his office, and from a statement furnished by Mr. Newell, that 9,374,564 feet cleared from the Chemung canal during the same season; the collector at Geneva states that about one third of this latter was included in his account; consequently, by deducting that amount, and supposing that the remainder passed through the Cayuga and Seneca and Erie canals, we should have a total amount of 13,823,275 feet.

The number of cubic feet of timber passing the same office, upon the same supposition would be 427,492 feet.

From the above statement it may be seen that the cubic feet of timber obtained from this district, bears a much greater proportion to the sawed lumber than that estimated for the Rochester and Olean Canal; which difference was made under the belief that their superior hydraulic privileges, and their distance from market, will induce them to send a greater proportion of sawed stuff.

Supposing that the canal could be constructed for . . . \$1,990,614.12

The interest at 4½ per cent. per annum, would be . . . 85,077 53

Ordinary expenses for repairs of the whole distance, 122½ miles, estimated at \$220 per mile, including lock-tenders, . . . 26,895 00

Renewal in course of 10 years:

Wood work, &c. of 42 road bridges, at \$229, \$9,618.00; do. of 211 road and farm bridges, at \$139, \$29,329; do. of 4 aqueducts, \$8,164.44; do. of 44 waste-weirs, at \$105, \$4,620; total, \$51,731 44—equal per annum to . . . 5,173 14

Superintendents and collectors of tolls, and 5 tenders of reservoirs, . . . 6,900 00

\$135,305 77

Exceeding the estimated amt of tolls, exclusive of the products from, and the merchandise to the Ohio valley, by . . . \$57,001 17

Statement of the Cost of Repairs on the following State Canals, together with Superintendence and Lock Tending.

Erie and Champlain canals, from January 1st, 1826, to September 30, 1834, 9 years, per annum per mile, . . . \$608 28

Oswego canal, from 1828 to 1834, 7 years, per annum per mile, . . . 297 51

Cayuga and Seneca canal, from 1829 to 1834, 6 years, per annum per mile, . . . 301 08

If we take the Cayuga and Seneca canal for the purpose of comparison, it will be necessary to add thereto the extra number of lock tenders consequent on the greater amount of lockage on the Rochester and Olean canal in proportion to the distance, equal to \$55.41 per annum per mile, which added to the above annual cost of the Cayuga and Seneca canal, is equal to \$336.49.

Supposing that the canal could be constructed for . . . \$1,890,614 12

The interest at 4½ per cent. would be . . . 85,077 63

Ordinary expenses for the repair of the work, including extra lock tenders, at \$336.49, . . . 41,135 90

Collectors, including office expenses, salaries, clerk hire, &c. and 5 reservoir tenders, at \$160 each, . . . 4,800 00

\$131,013 53

The average cost of repairs on the canals above mentioned, is \$402.29, and adopting this as the cost upon the Rochester and Olean canal + the extra lock tenders, as before stated, equal in all to \$437.70 per annum per mile, we have—

Interest on cost as above, . . . \$95,077 63

Ordinary expenses at \$437.70 per mile, . . . 53,508 82

Collectors, as above . . . 4,900 00

\$143,586 45

Estimating the repairs on the Rochester and Olean canal to be the same as the average upon the Erie and Champlain canal, (equal per annum per mile to \$608.28,) in proportion to the cost, they would amount to \$395, including lock tenders and superintendents, which, for 122½ miles, would amount to . . . \$48,298 75

Add to this collectors' fees, including office expenses, clerk hire, &c. . . 4,000 00

Interest on cost . . . \$85,077 63

Total cost per annum, . . . \$137,366 38

Should the merchandize from the city of New-York to the valley of the Ohio river take this route, we may estimate the amount at not less than 25 millions of pounds, the tolls on which would amount to \$24,400, making the annual revenue of the canal for the first six years after its construction, amount to \$102,704.60. On account of the imperfect nature of the data from which this conclusion is drawn, this can only be said to be an approximate estimate, though I am inclined to the opinion that it would not be found to exceed the true amount which the canal would yield.

The receipts upon the Erie canal during the last year amounted to \$1,179,745, and 94 lockages per day were made during the season of navigation.

Assuming the number of boats which may pass upon the Rochester and Olean canal to be one-eighth of the number upon the Erie canal, that is, about six boats daily each way, at the same ratio, the amount of tolls will be \$42,250, which approximates very nearly to the first estimate of the amount that would be collected on said canal.

A comparison may be drawn between the section of country which would probably be affected by the Rochester and Olean canal, and other sections where the amount actually furnished by and supplied to a certain number of inhabitants, may be ascertained with some degree of accuracy. This is the case with the district of country within the State of New-York bordering upon Lake Champlain; it is also well timbered, and, though the soil is inferior, in some respects resembles the southern part of the country through which the Rochester and Olean canal passes, which circumstances have led to its selection for the purpose of comparison.

From the statement marked G, appended to the report of the Commissioners, dated

January 25, 1832, it appears that the following amount of property passed Whitehall to and from the portion of New-York alluded to, during the year 1831.

Cleared south at Whitehall.

Ashes, barrels,	406
Beef and pork, barrels,	388
Coal, bushels,	3,096
Grain, "	3,233
Domestic spirits, gallons,	33,130
Glass, boxes,	2,818
Butter and cheese, lbs.	135,551
Copperas,	0
Furs and peltry, lbs.	5,522
Furniture, lbs.	196,722
Hoop-poles, "	1,242,640
Iron and nails, "	3,312,291
Iron ore, "	583,452
Iron castings, "	14,928
Leached ashes, "	340,260
Merchandize, "	428,600
Pig iron, "	82,548
Rags, "	24,398
Stone, "	341,137
Sand, "	152,160
Staves and heading, "	248,400
Sundries, "	57,726
Wool, "	86,522

Cleared north from Whitehall.

Ashes, barrels,	0
Beer, "	93
Beef and pork, "	1,175
Flour, "	6,158
Western salt, bushels,	47,094
Foreign salt, "	1,542
Agriculture, &c. "	250,065
Brick, clay, lime and sand,	194,245
Buffalo robes and deer skins,	1,973
Coal, pounds,	262,888
Cotton, "	46,417
Furniture, "	92,497
Horses, "	6,600
Hides, "	303,957
Iron ore, "	0
Merchandize, "	7,401,737
Plaster, N. S. "	67,050
" western, "	203,803
Pig iron, "	45,920
Stone, "	186,536
Scrap iron & broken castings, lbs.	1,980
Tallow, lbs.	5,174
Lumber, sawed feet, .	49,008,450
Timber, cubic feet, .	310,589
Shingles, M., .	3,228
Wood, cords, .	2,377

The above articles were forwarded to and by the inhabitants of Whitehall, Hampton, half of Fort Ann, half of Granville, Dresden, and Putnam, in Washington county, . . . 8,820

Bolton, Hague, Warrensburgh, Chester, and Johnsburg, in Warren county,	5,747
Essex county,	19,287
Clinton county,	19,344
Franklin county,	11,322

Total, . . . 64,510

From the towns of Caledonia, Avon, York, Genesee, Leicester, Mount Morris, Groveland, Conesus, Sparta, Springwater, and a portion of Livonia, in Livingston county, . . . 24,790

From China, Weathersfield, Gainsville, Castile, Perry, Warsaw, Orangeville, Middleburgh, Covington, and Leroy, in Genesee county, by . . . 23,594

From the county of Allegany, by . . . 26,276

From Dansville, three-fourths of Howard, three-fourths of Conhocton and Hornellsville, in Steuben county, by . . . 8,847

From Freedom, Yorkshire, Ashford, Farmersville, Machias, Elicotville, Little Valley, Randolph, Napoli, Great Valley, Franklinville, Lyndon, Hinsdale and Olean, in Cattaraugus county, by	12,302
From Carroll, Ellington, Gerry, and Busti, in Chautauque county, by	5,084
	98,893
Pro-rata increase since last census, deduced from the increase of the five preceding years;	\$0,476
Total,	129,371

Being a fraction more than double the number supplied by means of the Champlain canal.

The whole length of the main canal, Dansville side cut and navigable feeders is 122½ miles, and in the following statement it is assumed that each article passes an average distance of 60 miles upon the canal, the number of inhabitants supplied, and the quantity furnished by and to them being deduced from the foregoing statements:

Property going north,		
Ashes, barrels,	812	\$87 69
Beef and pork, "	776	59 86
Charcoal, bushels,	6,192	33 44
Grain, "	6,466	87 29
Domestic spirits, gallons,	66,260	161 01
Glass, boxes,	5,636	42 60
Butter & cheese, pounds,	271,102	73 19
Furs and peltry, "	11,044	9 27
Furniture, "	393,444	106 22
Hoop poles & laths, "	2,485,280	372 79
Iron and nails, "	6,624,582	1,788 64
Iron ore, "	1,166,904	175 03
Iron castings, "	29,856	8 95
Leached ashes, "	608,520	102 07
Merchandise, "	857,200	462 88
Pig iron, "	165,096	44 57
Rags, "	48,596	13 12
Stone, "	682,274	102 34
Sand, "	304,320	45 64
Staves & heading, "	496,800	208 65
Sundries, "	115,452	31 67
Wool, "	173,044	46 72
Coal, "	525,776	141 96
	\$4,205 60	

Property going south.		
Beer, barrels,	196	\$12 55
Beef and pork, "	2,355	181 67
Flour, "	12,316	718 26
Western salt, bushels,	94,188	727 88
Foreign do "	3,084	310 86
Agriculture, &c., pounds,	500,130	270 07
Brick, clay, lime & sand, "	388,490	58 27
Buffalo robes & deer skins, "	3,856	1 61
Cotton, "	92,834	25 06
Furniture, "	184,994	55 49
Horses, "	13,200	6 54
Hides, "	407,914	110 13
Iron ore, "	292,000	43 80
Merchandise, "	14,803,474	7,993 87
Plaster, N. S., "	131,100	72 41
do western, "	407,606	61 14
Pig iron, "	91,840	24 79
Stone, "	373,072	55 96
Iron scraps and br'kn castings, "	3,920	1 05
Tallow, "	10,346	5 59
	\$10,756 99	
	4,205 60	

Total, \$14,942 59.

The district of country included in this

comparison, does not comprise any part of Pennsylvania; but it is highly probable that the inhabitants of that section of the State in the vicinity of the work, will draw their supplies from it; and as the whole of this region is far superior in the quality of the soil to that upon Lake Champlain, it affords a fair presumption that the estimate for agricultural products and supplies to the inhabitants near the Rochester and Olean canal is not overrated. As the quantity of lumber which might be expected to pass through the canal would not be dependent upon the number of inhabitants in the district, I have not included that article in the foregoing table. Indeed, it is difficult to ascertain with any degree of accuracy, when so many circumstances are to be taken into account, to what extent this branch of trade may be carried. Although the timber is equal in quality and more abundant than in the neighborhood of the Champlain canal, yet the increased distance from market, and the consequent expense of transportation, together with the competition created by a rival market upon the Allegany river, will probably reduce the amount below that which passed through the Champlain canal in 1831.

As before mentioned, lumber is transported on the Oswego and Erie canals from Fulton, to market at Albany, 195 miles, for \$4 50 per M. As the probable distance which the lumber of this district must traverse, is about double that of the former, the price of transportation may be set down at \$9.

The timber upon Lake Champlain, which averages a distance of 129 miles from market, at the same rate, costs \$2 97½; but the expense of a trans-shipment at Whitehall, together with the delays and dangers of lake navigation, place the advantages of this region more nearly upon a par with those of the Oswego district.

Upon a comparison of the expense of transportation from all these different points, it is evident, that should an avenue to market for the timber upon the Allegany river and around the southern extremity of the Rochester and Olean canal be opened, only that portion of the timber rated as 1st and 2d, about one-fifth of the whole quantity annually manufactured, (19,500,000 feet,) would be able to withstand the powerful competition of other districts more advantageously located. Assuming one-half the amount which passed upon the Champlain canal as the quantity which would pass the Rochester and Olean canal, and supposing it to average 75 miles in distance thereon, we should have the following results, viz:

24,504,225 ft. b. m. sa'd lumber,	\$14,702 53
155,294 cubic ft. timber,	1,747 05
1,614 M. shingles,	242 10
1,498 cords wood,	1,782 00
	\$18,473 68

There passed Utica, from all the lumber region west of that place, the following amount of square timber, masts, spars, &c., during the years 1830-31-32 and 33, viz:

In 1830,	262,453 cubic feet.
1831,	691,225 "
1832,	651,092 "
1833,	1,783,255 "

Averaging per year, 896,989 cubic feet.

This timber was principally brought from the vicinity of the Oswego canal, the Cayuga and Seneca lakes, and the Erie canal between Utica and Buffalo; and during the last two years, a portion was brought through the Chemung and Crooked lake

canals, making a total distance by lakes and canals, of 457 miles, averaging about 227 miles from market. The timber upon the Rochester and Olean canal will average about 345 miles from the same market. The quantity forwarded must depend upon the expense of transportation and the quality, which latter circumstance is much in its favor. If the distance from market were equal in both cases, the lumber proportionate to the length of this canal would be 351,621 cubic feet.

I find from a statement furnished by the collector at Geneva, that the property sent from that place through the Cayuga and Seneca canal, and supposed by the Commissioners to be furnished by 47,510 persons inhabiting the district adjacent to the Seneca lake, "comprising part of Ontario, Seneca, Tompkins, Tioga, Steuben, and the entire county of Yates," in the year 1829, is as follows, viz:

Of wheat, coarse grain, flour, pork, whiskey, ashes, butter, lard, peaches, apples, wool, beans, glass, furniture, sundries, hoop-poles, &c. &c., tons,	9,164
Lumber, feet,	1,222,536
Shingles, M.,	6,881

There was received during the same year, and for the same and some additional territory,

Of merchandize, tons,	2,490½
Furniture, "	104
Non-enumerated articles, tons,	205
Salt, tons,	1,203
Gypsum, tons,	1,097½

Total, 5,100

Allowing the population which will be accommodated by the construction of the Rochester and Olean canal, and the Dansville side cut, to furnish to those canals as much business according to their numbers, as those included in the preceding statements, we have the following, viz:

Of wheat, grain, &c.	24,900	\$13,445
For the supply of the same—		
Merchandise,	7,500	7,384
Furniture,	300	180
Non-enumerated,	600	648
Salt,	3,500	966
Gypsum,	3,100	930
		\$24,054

The route of the Rochester and Olean canal is about equally divided into two sections, the one resembling the country bordering the Cayuga and Seneca lakes, in the richness and fertility of its soil, the other being more nearly allied to the district bordering Lake Champlain in the quantity and quality of its timber; and in making comparisons between these different sections, it will be seen that the amount of agricultural productions estimated to pass through the canal, falls short of the proportionate amount shown to have passed upon the Cayuga and Seneca canals, and that the amount of lumber calculated upon is much less than that furnished through the Champlain canal, in proportion to the number of inhabitants and the extent of timber region.

In addition it may be well to state, that in 1825, of the 3,492,000 acres lying in Cattaraugus, Allegany, Genesee, Livingston, and Steuben counties, only 476,324 were under cultivation. Although the improvements in the counties of Allegany and Cattaraugus since that period have undoubtedly been great, yet they cannot be compared in extent with those of the more northern counties, where the facilities afforded by

their proximity to the Erie canal, and also by their being able to make use of the Genesee river as a highway, have caused improvements to proceed with great rapidity, and it is beyond doubt, that should similar facilities be extended to the more southern counties for the transportation of the products of their industry, improvements would advance in that section with a pace proportioned to the fertility of the soil, and its adaptation to agricultural purposes. The benefit of these improvements will in part be reaped by the State, in the increased amount of taxable property.

Respectfully submitted.

FRED'K C. MILLS,
Civil Engineer.

Utica, Feb. 17, 1835.

[From the Journal of the Franklin Institute.]

Report on Mr. M. W. Baldwin's Locomotive Engines.

The Committee on Science and the Arts, constituted by the Franklin Institute of the State of Pennsylvania for the promotion of the Mechanic Arts, to whom was referred for examination certain improvements in Locomotive Engines, made by Mr. Matthias W. Baldwin, of the City of Philadelphia, report:

That they have examined several of these engines, which are now being built in Mr. Baldwin's workshop, and find in them numerous improvements, affecting nearly every part of the machine. The first they will notice are in the position and construction of the force pumps, which supply water to the boiler; the guides of the piston rods are made hollow, and the cavities are used for the chambers of the force pumps, thus giving additional strength to the guides, without much increasing their weight, and dispensing entirely with the frame and fixtures of the ordinary force pumps. Each of these pumps is furnished with five valves, three of which are situated between the boiler and the piston, and two between the piston and water tank. The valve nearest the boiler is loosely swivelled to a stem, passing through a steam-tight collar in the top of the valve box, by means of which the valve can be sounded, and, in most cases, freed from obstructions.

The other four valves are contained in one box; this box is secured to the pump by a stirrup, which can be removed by loosening a single screw, so that the valves can be taken out, cleansed, and replaced, in a few minutes. By thus increasing the facility of examining and cleansing the valves, and thereby diminishing the liability of the force pumps to obstruction, the supply of water to the boiler will be rendered much more regular and certain; and the chief causes of those fearful explosions incident to steam engine boilers will be in a great measure removed, as it is confidently believed that these accidents are generally the result of a deficiency in the supply of water.

Another improvement consists in the manner of reversing the motion of the steam valves. This is done in the English engines by means of a treadle, and a series of levers, which move the eccentrics laterally on the propelling axle, after the hooks of the eccentric rods are thrown out of gear with the rock-shafts. In Mr. Baldwin's engines, the arms of the rock-shafts extend on opposite sides of the fulcrum, and each eccentric rod is furnished with two hooks, turned in opposite directions, so that it may be geared to either arm of its rock-shaft; the eccentrics are fixed immovably upon the axle, and the eccentric rods, instead of being carried (as they usually are) to the

front of the engine, are brought to the stage at the hinder part, and there geared to either arm of the rock-shafts, at the option of the engineer. When the hooks of the eccentric rods are geared to the same arms of the rock-shafts as the valve rods are, the motion of the valves corresponds to that of the eccentrics; if they be geared to the opposite arms, the motion of the valves will be reversed; and if they be not geared to either arm, the rock-shafts and steam valves can be worked by the hand levers. The advantages of this arrangement are several; the eccentrics being firmly secured to the axle, are less liable to get loose, and out of repair; it dispenses entirely with the treadle, and its appendages, and also with four rock-shafts, and the complicated hand-gear of the English method.

But the most important benefit is, that the rock-shafts and eccentric hooks are placed immediately under the eye, and within the reach, of the engineer, which is not the case in the ordinary arrangement.

The axle of the driving wheels has also been made the subject of improvement by Mr. Baldwin. Instead of fixing the ends of the axle into the centres of the wheels, as is usually done, he dispenses with one of the arms in each crank, and fixes the wheel upon the wrist of the crank, with its centre adjusted to the centre of the axle. By this change in the form of the axle, the power of the engine is applied directly to the wheel, without the intervention of an arm of the crank, thus diminishing the strain upon the axle, and, consequently, lessening its liability to be broken. By this means, also, Mr. Baldwin has, in some measure, obviated the tendency of the driving wheels to twist upon the axles, and become loose; a very general and troublesome defect of locomotives. Another good effect, resulting from this change, is that the distance between the two cranks is increased about ten inches, which will admit of a corresponding enlargement of the boiler, and of a more advantageous disposition of the weight of the fireplace, by bringing it about fourteen inches nearer the axle. In these engines, the steam pipe is introduced into the boiler through the opening by which it usually communicates between the dome and the cylinders; and the end of the pipe beneath the dome is, supported on a horse, fixed within the boiler, so as to admit of its longitudinal expansion and contraction by changes of temperature; and to avoid inconvenience from the same cause, the stop of the throttle valve is fixed on the steam pipe, instead of the head of the boiler. A twofold benefit is derived from this plan of introducing the steam pipe: first, the pipe may be made without a joint within the boiler; and secondly, a man hole in the boiler may be dispensed with; for the junction between the dome and boiler, as well as all the other steam joints, being accurately fitted by grinding, and formed without any cement, or packing, the dome can easily be taken off and replaced, and its aperture used for occasional access to the inside of the boiler.

In the construction of his driving wheels, Mr. Baldwin uses hubs and spokes of iron, cast in one piece; felloes of hard wood are framed into the ends of the spokes, and the whole is firmly bound together by a stout tire of wrought iron, with a flange on its inner edge; thus, by a judicious combination of iron and wood, he has united the strength and firmness of the former with the elasticity of the latter, so desirable in the tread of the wheel.

Mr. Baldwin has completed several engines, which combine all these improvements;

one of them may be seen in operation on the Philadelphia and Trenton Railroad, and four on the same road to Columbia; all of which, as well as one in use at Charleston, South Carolina, have given entire satisfaction by their performance.

The committee are informed that some of these improvements have been secured to their inventor by patents; and that he richly deserves to reap the benefit of them, will be admitted by any one who is aware of the present extensive use and increasing demand for these costly structures.

By order of the committee.

WM. HAMILTON, Actuary.

February 12th, 1835.

New Method of Working Expansion Valves.

Ovid, N. Y., March 24, 1835.

To the Editor, &c.

Sir,—In No. 8, vol. iv., of Railroad Journal, I observe a new method of working what are commonly called *expansion valves*, by machinery connected with the governor of a steam engine, which deserves credit for its ingenuity, but which appears to me to be quite too complicated to be of any practical utility. On examining the specification of the above, it occurred to me that an expansion valve might be so contrived as to be self-acting; and in carrying out this idea, I concluded that something like the following would operate well, viz.: Let the valve be pretty large, and of the kind called puppet valves—to the spindle of this valve a spring is attached, having a constant tendency to open the valve, which, when open, should be but a little distance from its seat—one or two small holes should be drilled through the valve, or its plate, so as to cause a trifling leakage of steam, and the apparatus is complete. The operation would be as follows: when the engine is standing still, the leakage would cause the steam to press equally on each side of the valve, and the spring would draw it open—when the piston moves, the steam would become somewhat expanded in the cylinder, at about half the length of the stroke—the valve would then be closed by the superior pressure of the steam upon its upper side, and remain closed during the remainder of the stroke—at the end of the stroke there would be a short interval, during which both feeding valves are closed against the steam from the boiler—during this time the leakage would fill the valve-box, and again produce an equilibrium of pressure upon each side of the valve, when it would again open, and again be closed as before. Such a valve would also operate in some measure as a governor.

VIS INERTLE.

PRICES OF RAILROAD STOCKS,

At the New-York Stock and Exchange Board,
APRIL 24, 1835.

	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	198	127 1/2
Paterson.....	50	113 1/2	113
Saratoga.....	—	114 1/2	114
Harlem.....	—	98	98
Boston and Providence.....	100	123	123
New-Jersey Railroad and Transportation Line...	100	123 1/2	123
Camden and Amboy.....	100	—	—
Providence and Stonington.....	100	106	106
Boston and Worcester.....	—	112	111 1/2
Philadelphia and Trenton...	100	106	106
Utica and Schenectady.....	100	121	121
Jamaica.....	—	120	110

Remarks on the Protection of Copper Sheathing upon Ships' Bottoms. By G. G. BOMPAS.

It is a well known fact, that when dissimilar metals are placed in contact in a saline, or acid, solution, such as sea-water, they have an electric action upon each other, becoming on the one part positively, and on the other negatively, electrified; the effect of which is destructive of the positive metal. This has been too little regarded in the sheathing of vessels.*

The various metals and alloys employed in the building and sheathing of a ship almost always stand in this electric relation of positive and negative to each other; and if, as is generally the case, the copper sheathing is the positive metal, it will be destroyed with a rapidity proportionate to the degree in which the electric action is excited.

The sheathing nails in common use are prepared of metals in very various proportions, regard being chiefly had to their color and tenacity; and an examination of several specimens has proved them to be as various in their electric relations with copper, as in their composition. They are generally negative to the copper, and consequently promote its corrosion. Numerous experiments have proved that the galvanic action, induced by the contact of such metals, is necessarily destructive of the positive metal; and they satisfactorily explain the irregular duration, and frequently rapid destruction, of the copper sheathing, which is often erroneously ascribed solely to impurity in the copper. If the sheathing of vessels returned from a voyage be examined, the hollows made by the heads of the nails will generally be found filled with crystals of the salts of copper, and the copper itself is often completely corroded through. In an experiment, where copper obtained from H. M.'s dock-yard was employed, and to avoid all error, each sheet was divided in half, one half being nailed to a board with pure copper nails, and the other with different samples of the nails in actual use at different dock-yards; after ten weeks' immersion in the sea at Portsmouth harbor, one half-sheet had lost two hundred and ninety-three grains more than its fellow, a second had lost thirty-two grains more than its fellow, and a third had lost twenty grains more than its fellow half-sheet: but one with nails prepared on the principles recommended in this paper, had lost thirty-four grains less than its fellow half-sheet. It is fair to presume that, if sheathing nails similar to the samples had been used with the same copper on a ship, the duration

of the sheathing would have been in somewhat the same proportion.

Copper possesses great advantages over the various alloys introduced for sheathing, from its flexibility and toughness, by which it can be applied with facility, and yields to the strain of the vessel, while, by the slow solution of its surface, it very considerably diminishes the foulness from attachment of marine vegetables and animals. The chief objections to it are, its expense—the liability to corrosion, and consequent irregularity and uncertainty of its duration—and its being too soft to be used for nails, without an admixture of such other metals as generally render them negative to, and destructive of, the copper. But it is equally an objection to the other metals and alloys, that they cannot at the same time be sufficiently soft for sheathing, and yet hard enough to drive as nails. These disadvantages may, however, be almost entirely obviated by the plan now proposed.

First, by the use of sheathing nails that shall be compounded of such metals, in such proportions, as are known not to exercise any destructive agency on the sheathing, but, on the contrary, have a tendency to preserve it.

Secondly, by attaching to the sheathing a metal positive to it, which, while itself in the process of being destroyed, shall preserve the sheathing from corrosion. For it is evident that if, when several metals are placed in communication with each other, the most positive will be destroyed, and the others preserved, the application to the sheathing of a more positive metal, or compound, will thus be a protection to it. It is also obvious that the positive metal may easily be so applied, as that its destruction shall in no degree impair the strength of the vessel, or render necessary any general or expensive repairs.

Upon this principle, (the correctness of which he fully established,) Sir Humphry Davy applied masses of zinc, or of iron, of different proportionate surfaces, to the copper to be protected. The result was, that a very strong electric action was excited, and the corrosion and waste of the copper almost entirely prevented. But he found the electric energy so intense, if the protecting metal was in a large proportion, that the copper, by the decomposition of the sea-water, very speedily became covered with an earthy accretion, to which animals and plants adhered; and the sheathing became so foul as materially to impede the ship's progress. On the other hand, if a small proportion of the protecting metal were employed, it was destroyed so rapidly, that the duration of the protection was too short to be of any value. These difficulties induced him to abandon his experiments.

The difficulties which frustrated the attempts of that eminent philosopher have been completely removed by the employment of a compound metal, which differs much less from the copper, in its electric relation, than either iron or zinc. By the use of such a compound, in which the proportions of metals may be varied as

required, a larger protecting mass may be employed, a more diffused and uniform electric action produced over the whole surface of the sheathing, and just that protection afforded which shall preserve it from corrosion, without causing foulness.

The protecting metal should be attached upon the sheathing in a longitudinal belt, or band, a few inches wide, according to the size of the vessel, from stem to stern, about the light water line; and in large vessels, an additional band should be attached to the keel. Being in the direction of the passage of the vessel through the water, it will not impede her sailing; if destroyed, it will not injure the ship; and, when necessary, it can be easily removed, and renewed, without disturbing the sheathing.

After repeated and most satisfactory experiments at Portsmouth, under the inspection of the officers of H. M.'s dock-yard, the Lords Commissioners of the Admiralty were pleased to direct that the sheathing of H. M.'s schooner Fair Rosamond should be protected on this plan, preparatory to her sailing for the coast of Africa, where she is now stationed. She was commissioned in May, 1833, and sailed first to Oporto, and afterwards to Africa. No official report has yet been received; but in November, 1833, her copper is stated, on undoubted authority, to have been clean and bright; and by subsequent accounts, it is proved to have continued so, up to the end of March, 1834.

On the whole, it has been proved that, by the adoption of the sheathing nails and protectors, the duration of the copper will be very much extended, and rendered comparatively certain; that such instances of its rapid destruction, as now so frequently occur, will be entirely prevented; and that, so far from the protectors being the cause of foulness, the sheathing will be preserved much more clean and bright than under ordinary circumstances.

Iron, and other metals, or alloys, exposed to sea-water, or acids, whether as iron cables, sheathing, or any other form, may be preserved from rust, or corrosion, on the same principle.—[London Journal.]

AGRICULTURE, &c.

Cultivation of the Grape Vine. By SENEX. To the Editor of the Quarterly Journal of Agriculture, &c.:

SIR,—Believing the cultivation of the Grape Vine is, at no very distant day, to occupy an important place in American Husbandry, it gives me pleasure to offer their remarks and opinions on the subject. In its present infant state in this country, information is much wanted, and must be very acceptable; it is therefore desirable that those engaged in this interesting pursuit, should, from time to time, mutually communicate their experience. This can be done in no way more conveniently than through your Magazine.

* At this very time, an experiment is making in France, by sheathing one half of a ship's bottom with *cuivre bronze*, a metal negative to copper, and the other half with copper, the metals being in contact. It is easy to foresee that the positive metal, the copper, will lose more by corrosion than the negative metal, and thus give an apparent, but deceptive, advantage to the *cuivre bronze*. In one such an experiment already tried, the results of which have been published, the copper had, in fact, sustained more than what would be its average loss, when not connected with the *cuivre bronze*. In all experiments on new metallic sheathings, there should be no metallic communication between the metal to be tried and any other.

With this view I send you some account of the fate of an experiment made here.

In 1823, a few vines from Long Island were planted in the garden here, and increased by additions from Long Island, New-York, and Albany, in each of the five or six following years. Above sixty plants, under nearly as many different names, were planted, from which twelve varieties were obtained, viz.: five white, five black or violet, and two grey; nine of the kinds ripened their fruit in September, and three never ripened properly. All the above were foreign vines. In 1825, one plant of the Isabella was obtained, which was afterwards increased by cutting. The vines generally came into bearing in the third year from planting; and for two or three years after afforded a considerable supply of fine table grapes. Their success induced me to undertake the establishment of a small vineyard, with the view of obtaining a pure wholesome wine for family use, as from the facts ascertained and made public, regarding foreign wines, the chance of obtaining a pure, unadulterated, and wholesome wine, from abroad, appeared more than doubtful. Accordingly twelve hundred plants, and about half an acre of ground, were prepared for this purpose in 1828, and ready to plant out in 1830. Of these, 1000 were foreign vines, and 200 Isabellas. The mildew, however, had taken place here in 1828 and '29, with very injurious effects, so as to create suspicions as to the propriety of using the foreign vine. These doubts were confirmed by the perusal of Maj. Adam's Memoir, published about that time, and by ocular proof of their general failure in Pennsylvania and other places. The plants of foreign vines were therefore all thrown away, and only the 200 Isabellas planted, to which nearly 200 more were added the following season. Since that time, and especially during the last four unfavorable seasons, the foreign vines have not been worth their places in the garden. I have therefore only reserved a few of the younger and more healthy plants for future experiment.

The soil and situation of this farm, being mostly a strong clay and low lying, is far from favorable to the vine; the only spots any way favorable and convenient, being some slaty ridges of poor quality. One of these, nearly opposite the front of the house, was selected for the experiment, unfortunately having a public road running between it and the house. In 1832 the vines began to bear, and the error of presenting so tempting an object to public view was now made evident, the fruit being all stolen. In 1833 the plants bore so abundantly that several barrels of wine might have been made; but this trouble was saved—no sooner did the grapes begin to change color, than the sovereign people seemed to consider them as common property. Teamsters, and others of more fishable aspect, would stop, and without ceremony go over the fence and hedge, and help themselves, sometimes observing, when interrupted, that it was very shabby to scruple so tri-

fling a freedom. In this way the bushes were completely stripped before they were half ripe. Anticipating that trespasses might occasionally occur, a hedge of honey locust had been planted along two sides of it, having in view to complete it round when the success of the experiment should be ascertained, and the extent determined on. The rapid progress, and already formidable appearance of this hedge, gives me a most favorable opinion of it; and under all the circumstances, I have judged it more advisable to abandon the present spot altogether, and begin a new plantation in a less exposed situation. This was done last spring, 1834. Thus four years are lost, and all the plants, trouble and expense, by the simple circumstance of an injudicious choice of situation.

The robbing of vineyards is a grievance not likely to be of a temporary nature. In those districts of Pennsylvania where vineyards have been successfully established, it is found, as I have been lately informed, indispensably necessary to have men to watch them night and day, from the time the fruit begins to change color until the last of it is gathered, a period of about two months. This forms a very serious obstacle to the cultivation of the vine, especially on a small scale, such as farmers or others might be induced to undertake for their own family use, the trouble and expense being too great.

A hedge of locust would certainly be a very great aid. From the experience of the small piece here which has as yet received no clipping or training whatever, I feel quite confident that a hedge of this kind, with only a little attention of training, would, in six or seven years, present a fence very difficult to go over or through. I can therefore confidently recommend the planting of a hedge of this kind as one of the first things that ought to be done in making out a vineyard. Other precautions may be necessary, such as a vigneron's or laborer's house, placed as conveniently as possible, with a good watch dog.

The only vine used in this experiment was the Isabella, which ripens here perfectly within the month of September; and in this respect it may, perhaps, be difficult to find one more suitable to this northern situation, (Saratoga county.) The Troy grape is one of the same description. The Catawba is a beautiful grape, and equally hardy, but later in maturing its fruit, which here attains the beautiful red color that gives it so fine an appearance on a table, where it is also by some preferred to the Isabella, but does not here attain the dark purple color, and rich flavor, which it acquires in Maryland and Virginia. I have lately obtained several other native varieties, which will be in bearing in two or three years, and which it is probable I may send you some account of, if I live so long. In the mean time, I shall only further add, regarding the Isabella, Troy, and Catawba, that they bear the cold or ordinary winters here with little or no injury, but that all of them are hurt more or less by severe

winters, such as that of 1830.31, and sometimes killed down to the ground, as in that of 1831.32. My situation, however, is far from a favorable one.

I shall close this rather lengthy communication; by noticing a circumstance that appears to have some bearing on the cultivation of the grape vine. I allude to the temperance cause. I am a member of a temperance society, and have signed its pledge against ardent spirits, and no one can more highly estimate its importance, or more sincerely desire its success, than I do. The question of abstinence from wine is at present under discussion, and has many advocates in its favor; and so far as regards foreign wines, if they are in fact so far adulterated by ardent spirits and other ingredients as they are said to be, and if it is true that the wines of the shops are, for the most part, only whiskey and cider in disguise, then it is right to expose the imposition, and reprobate their use; but this is certainly no sufficient reason for denouncing the pure and wholesome juice of the native vine, and thereby discouraging its cultivation. Ardent spirit is in fact the citadel and great stronghold of intemperance. Destroy that, and the battle is won, as I believe. It appears a hopeless undertaking to persuade the whole community to content themselves with water. This is grasping too much, and may hurt the cause, as a law too severe is apt to defeat its object. It is going to an extreme which I think is not necessary to the success of the cause. As to the native vine, my opinion is in entire accordance with that of the correspondents R. T. and Dr. Dwight, of Hamilton College, stated at p. 117 and 228, vol. 7, of New-York Farmer, that the general cultivation of the native grape, and introduction of its pure and wholesome juice in place of the liquid poisons now in use, would greatly promote, and prove a most powerful auxiliary to the cause of temperance, and a blessing to the world.

I am yours, &c., SENEX.

Feb. 2, 1835.

Manifest Virtues of the Elder Tree.—Sir J. E. Smith has remarked that this tree is, as it were, a whole magazine of physic to rustic practitioners. It is said that if sheep that have the rot can get at the bark and young shoots of elder they will soon cure themselves. The wine made from elder berries is too well known by families in the country to need any encomiums; it is the only wine a cottager can procure, and when well made, it is a most excellent and wholesome drink, taken warm before going to bed. It causes gentle perspiration, and is a mild opiate. If a rich syrup be made from ripe elder berries, and a few bitter almonds, when added to brandy, it has all the flavor of the best cherry brandy. The white elder berries, when ripe make wine much resembling grape wine. The buds and the young tender shoots are greatly admired as pickle. The leaves of the elder tree are often put into the subterranean paths of moles, to drive those noxious little animals from the garden. If fruit trees, flowering shrubs, corn or other vegetables, be whipped with the green leaves of the elder branches, it is said insects will not attach themselves to them. An infusion of these leaves in water is good to sprinkle over rose-buds, and other flowers subject to blight, and the devastations of caterpillars.—[Leigh Hunt's London Journal.]

SILK CULTURE.—The following letter, written by Judge Spencer, relates to a subject of great and growing importance to the people of this country.

CULTURE AND MANUFACTURE OF SILK.

ALBANY, APRIL 7TH, 1835.

TO SAMUEL M. HOPKINS, Esq.,
Genoa, Ontario county.

From a long acquaintance, and, as I believe, a reciprocal esteem and friendship, I have thought that I could not better employ a leisure hour, than in addressing you on a topic which I regard as of high importance to our fellow citizens. You will not suspect me of insincerity or flattery, when I assure you that I know no man, whom I believe to have more enlightened views, or a more ardent patriotism than you; hence the propriety of my selecting you as a correspondent on the interesting subject which I proceed to state.

Since 1830 my attention has been drawn to the consideration of the culture of silk in this country and particularly in this State. I am perfectly satisfied that no agricultural pursuit will bear any comparison with the culture of silk, as regards profit. I should not want a better income than the clear profits of an orchard of white mulberry trees, of twenty acres, at ten years old—the clear net profits of such an estate would not fall short of from \$3000 to \$5000 annually; and this profit would go on increasing with the growth of and productiveness of the trees.

You may have seen a communication made by me to the commissioners appointed by the governor, to examine into the economy, government and discipline of the state prisons, which has been published, not however extensively, it contains some matters irrelevant to the culture of silk, and omits some things interesting to those who may embark in the enterprise. You must have observed as a statistic, that our annual import of silk amounts to the value of \$10,000,000, and will increase with our wealth and population—this amount far exceeds the value of all our bread stuffs exported—this consideration ought to excite us to the enquiry, whether such a drain from the resources of the country cannot be prevented, a new source of industry be opened, which shall in a short period supply our own wants, and enable us to become exporters of either raw silk; or silk fabrics.

I consider it as a fact demonstrated, that our soil and climate is genial to the growth of the mulberry tree, and the culture of silk. Trees of this description are already growing and flourishing in various parts of the state, and I presume that the portion of this state from Skeneateles to Lake Erie, is peculiarly adapted to the mulberry, from the fact that the most delicate fruit trees come to great perfection within that region. Since 1780 the silk worm has been reared in Windham county, Connecticut, which is about the latitude of Albany; the culture of silk has been successfully prosecuted in that country, and it has reached to a large amount. The following is an extract from the Daily Advertiser of the 15th instant: "*American Silk.*—Raw silk, we learn from the Burlington Free Press, has been produced this year in Mansfield, Conn., to the amount of over \$60,000. The county of Windham, Conn., produces five tons of silk annually, valued at \$500,000, and if reeled would be worth double that sum." If this be true, and that it is substantially true I fully believe, the question is settled that the soil and climate of this state is genial to the culture of silk—it settles also another question, that it is much the most profitable business that can be undertaken.

We have the testimony of Mr. D'Homergue, a man born at Nismes in France, and brought up from infancy to the reeling and manufacture of silk, and who came to this country on the recommendation of the late James Brown, then Minister in Paris, who asserts in his essays that he was surprised to find the American silk superior in quality and the quantity yielded by the cocoons, to any he ever saw. But, my dear sir, could you have seen specimens of American silk exhibited in this city a few days since, manufactured by Mr. Gay, all doubt would be removed. These specimens were pronounced by the many who saw them, to be equal, if not superior, to any silk which had ever been seen here.

Now, sir, what are the impediments to be overcome, in introducing the culture of silk extensively in this state? And here let me observe that there is no danger of over-doing the business; there will

always be a demand in England for all we can raise beyond supplying our own wants; where, from the humidity of the climate or other causes, the silk worm is not reared.

It is necessary to devote a small space of good and fertile ground, as a nursery in which to sow the seeds. It is computed that one ounce of seed properly sown, after the ground is thoroughly ploughed, or dug and harrowed, or raked and sown, in drills at about three feet apart, will give about five thousand young trees. They require to be kept free from weeds, and injury from cattle. At two years of age they are generally fit for placing in an orchard at the distance of from 7 to 12 feet at right angles—and here the labor of man terminates, all the subsequent culture may be conducted by women and children—they pluck the leaves, and feed and tend the worms until the cocoons are formed; so that you perceive the culture of silk detracts nothing from agriculture. The greatest embarrassment hitherto has been the extracting or reeling the silk from the cocoons. The reels of France and Italy, and indeed of all parts of the world, receive the thread which consists of the fibres of several cocoons according to the requirement of the fabric to be made, in skeins, which must be spooled before it can be twisted. Two of our countrymen, Messrs. Gay and Mosely, have invented a reel which receives the thread on spools, and thus the labor and wastage of the old process is avoided. Mr. Gay assures me that an ingenious woman can be taught in a short time to reel on his reel with great perfection. A great advantage of reeling on to spools consists in its safe any easy carriage any distance without injury. We have, therefore, surmounted the most difficult process in the whole operation.

These gentlemen have also employed the several machines in use in France and England in the manufacture, so that it will require but a comparatively small capital to establish manufactories of silk in this country.

When we consider how admirably adapted to silk are our County Poor-House establishments, how the wants of the poor may be mitigated by inducing them also to enter on the culture, by obtaining leaves of the mulberry from their rich neighbors; how the middle classes of society may improve their condition by entering on the culture of silk; I feel, I confess, a strong desire to be able to persuade people to lose no time in laying the foundation of their culture by immediately setting about it in earnest, and not to let any thing hinder them from sowing the mulberry in the manner indicated this spring.

The *morus alba* or white mulberry I am satisfied is the most proper for making the best silk; the purple mulberry, which is indigenous to some parts of our country, although it will make silk, yet it is not of as good a quality. The *morus multicaulis* or Chinese mulberry, has recently been introduced into this country, but it is apprehended that it will not withstand our vigorous winters; and as the common white mulberry will withstand them, and make excellent silk, I should not recommend the propagation of the Chinese.

I forbear saying any thing on the mode of rearing the worm. I am satisfied that it does not require the care and pains to rear it in this country which the precepts of Count Dandolo would imply. In due time instructions will be given level to every capacity. May I not count on your co-operation in this most important subject.

With sincere respect and esteem,

Yours, A. SPENCER.

LAKE ERIE NAVIGATION.—The Dunkirk Whig, of April 14th, says, that "the Lake as far as can be seen from this place is clear of ice, and there is now no obstruction to a free navigation from this up the Lake. The steamboat William Penn, Captain Dwight, from Cleveland, is expected at this port every hour, to start for Detroit."

We hope soon to hear a similar announcement in relation to the Lake at Buffalo. It will give new life to business in that flourishing city.

There are several Steam Boats running regularly between this and the upper ports. Passengers wishing to go west may obtain passage almost any day. These boats will continue to run regularly from this port until the ice is out at the lower end of the lake.—[Erie, Pennsylvania, Gazette.]

[From the Sacket's Harbor Courier of April 14.]

The Steamboats United States, Oswego and Wm. Avery, have commenced running—the two former between Ogdensburg and Lewiston, and the latter between Ogdensburg and Rochester.—The Oswego, Capt. Homans, made her first appearance in our Harbor on Saturday last; and the United States, Capt. Van Cleave, and the Wm. Avery, Capt. Read, came in and left on Sunday afternoon and evening. They all appear to be in excellent condition, and if we may judge from appearances, we should say that their prospects for a good summer's business, are extremely flattering.

Improvement of the Navigation.—It will be perceived by the following letter, from the Secretary of War, addressed to the Mayor, that our citizens may count upon an early commencement and steady prosecution of the plan for the improvement of the navigation of the Hudson river. This information will be received, we are sure, with gratification by all who are desirous to promote the interests of the city, and to facilitate the transaction of the great business operations of the State, and indeed of other and far western States, which seek through this channel a market for their surplus products.—[Albany Argus.]

WAR DEPARTMENT, APRIL 14th, 1835.

Sir,—Your letter of the 11th inst. has just been received.

Capt. Talcott was some time since directed to superintend the improvement of the Hudson River. Nor is it in the contemplation of this Department to assign to him any other duty, inconsistent with this arrangement.

I understand from Gen. Gratiot, that Capt. Talcott is awaiting the decision of this Department on the question of the mode of disbursing the funds appropriated for this object, before he commences the work. The point is a new one, and has been recently made in consequence of an act passed at the last session of Congress. A course has, however, been adopted which will probably remove the difficulty, and ensure the prosecution of the improvement without delay.

Very respectfully, your most ob't serv't,
LEW. CASS.

E. CORNING, Esq. Mayor of Albany.

Canal Navigation.—The Erie canal from Albany to Buffalo, was filled with water on the 15th of April. A great number of boats have already cleared with heavy freights of merchandise for the west. The tolls paid at this place during the three first days amount to about seven thousand dollars.—Several boats arrived at this place on Saturday from Utica: and the packets have commenced their regular trips from Schenectady to Utica.

A letter from the superintendent of the northern section of the Champlain canal, dated at Sandy Hill on the 17th, states that the water was let into the canal on his section, on the 14th, at night, and on the 15th the levels were as full as were considered safe, "with the great quantity of frost yet remaining in the banks of the canal. There were small breaches immediately after letting in the water in the vicinity of Whitehall, between the guard gate and the head of the upper lock: If we can save the other portion, it will be more than can reasonably be expected.—Watchmen are kept constantly on the line, and will be, until the frost shall have disappeared."

A letter from the collector at Dresden, of the 14th instant, states that the water would be let into the Crooked Lake Canal on the 15th; and it is presumed that the Oswego, the Cayuga and Seneca, and Chemung canals, were all in a navigable condition on the same day.

There is some frost in the canal banks between Albany and Utica, and there has been an apprehension of breaches from this cause: but none have happened. There has been a slide into the canal, about eight miles this side of Schenectady, but not to such an extent as to prevent the passage of boats.—[Argus]

Chesapeake and Ohio Canal.—We have just received the following interesting information from a friend, whose official situation enables him to be well acquainted with every thing connected with the Canal.—[National Intelligencer.] "I have now the pleasure of informing you

that a number of boats, loaded with Flour, Coal &c., have reached the District from Cumberland, having passed through one hundred and eight miles of the Chesapeake and Ohio Canal. It is matter of congratulation that so much of the Canal is open for use, as it is, that the prospect is fair, for its early completion to Cumberland. A great amount of trade is now on its way down the Canal; though it has been detained for some days by one of those occurrences common to the use of a new Canal, and which I anticipated when I last addressed you—I mean a breach in the embankment. This has been repaired and the use of the Canal restored."

Grand Junction Canal.—We congratulate our fellow citizens upon the ascertained certainty of the immediate construction of this important work the union of the Pennsylvania and Ohio Canals, by the Mahoning Valley. The necessary charters having been obtained from the respective legislatures of the two states, the commissioners will open the books to dispose of the balance of the stock, on Monday next, agreeably to their notice in our advertising columns.

Of the importance of this work to Philadelphia and Pennsylvania, nothing need be said to those who know its location. To those of our citizens who are not conversant with the subject, we would just remark, that the great line of Pennsylvania canal terminates within about six miles of the Ohio state line, the Beaver division having been completed the last season.

From thence to the Ohio canal is 79 miles, along the valleys of the Mahoning and Cuyahoga rivers. The Pennsylvania and Ohio canals will thus form the junction of the improvements of the two states on the great western line, and will be the avenue of communication between the Atlantic and the fair fertile west. It is gratifying to add, that repeated explorations by the most distinguished engineers, have shown the route to be most eligible in every respect, and especially that there will be an abundant supply of water from the natural streams.—[U. S. Gaz.]

[From the Pittsburgh Gazette.]

COLLECTOR'S OFFICE,

Allegheny, W. D. Pa. Canal, April 11, 1835.

Whole amount received from 1st November, 1834, to April 4, 1835, as per last weekly statement, \$4,741 55 1-2
Amount received in the week ending April 10, 799 43

Whole amount received to April 11, 1835, \$5,540 98 1-2

Sixty-one boats cleared from this office, having tonnage, 971,874 lbs.
Tonnage received from the East, cleared at other offices, 2,170,150 lbs.

Total tonnage of the week, 3,142,024 lbs.
Extras.—Wood, 21 1-4 cords; Boards, 9,251 ft; Locust Posts, 100.

Our Railroad its progress and prospects.—Stockholders and others interested in this important work, (and who in this community does not feel an interest in it?) will be pleased to learn, that the graduation is now finished from Harper's Ferry to Winchester—that a large proportion of the necessary timber is delivered or prepared for delivery—and that arrangements have been made for procuring the iron and locomotives without further delay. Contracts have been closed and are now in the progress of execution, for laying the rails and finishing the entire work, out and out, by the first of November next—early enough to affect the price of the growing crop. Nothing is wanting to secure this happy result but attention on the part of the stockholders to the calls of the board. The instalments must be paid, or the work must necessarily languish. The stockholders will find new encouragement to diligence and punctuality in this matter of paying up; in the fact, that the stock of the Baltimore and Ohio railroad, which, while that work was unfinished, had fallen to one-third of its nominal value, has now, that the road is done suddenly risen to par—and in the further fact, that the stock of every finished railroad in the United States is above par.—[Winchester Republican.]

The Portland Argus says:

The Hon. John Anderson, of this city, and Peter H. Green, Esq. of Bath, have been appointed by the Governor and Council, Commissioners to visit Quebec, for the purpose of conferring with the authorities there upon the advantages to be derived from a Railroad from this State to that city.

We are happy to learn that gentlemen so well qualified to estimate the probable benefits to be derived from the projected project in contemplation, are appointed to collect the necessary information relative thereto. Mr. Anderson's long and intimate acquaintance with the commercial interests of this State, and his high character for honor and integrity, will recommend him favorably to the British Government in Canada, and will give weight and influence to his suggestions. Mr. Green also is well acquainted with our local concerns; and we doubt it a selection more favorable to the accomplishment of the object in view, could have been made.

Teams versus Steam.—Quite an animated contest has been carried on for several weeks past between those enterprising mail coach proprietors Stockton and Stokes, and the Baltimore and Ohio Railroad Co., in the transportation of passengers between this city and Baltimore, which has caused considerable excitement among our citizens, who watch the arrival of cars and stages with much interest. On one day the stage will arrive full of passengers, at a snapping pace, full thirty minutes before the cars—the next, they come out neck and neck—or rather neck and boiler—on the third the steamer is ahead and dashes on to the depot like a thunder cloud with a streak of lightning attached to it—or a dog with a tin-pot tied to his tail. "Hurrah Stokes!" "Hurrah Steam!" are now screamed-out from many a throat, with as much fervor as ever was the battle cry of Richard Cœur d' Lion. How long this steam and team contest will last we cannot say—for one of the parties seems to delight in hot water, and the other is determined not to break down whilst a wheel is left between this and Wheeling. But little we reck if it is continued as long as the Trojan war, for it is rife with benefits to the editors on the route and enables us to receive the Eastern mail some hours sooner than formerly.

The opposition of Messrs. Stockton and Stokes was caused by what they deem an extravagant demand by the Railroad Company for carrying the mail between Frederick and Baltimore. As to the merits of the case we know nothing; but we learn that the experiment of Messrs. Stockton and Stokes has been thus far liberally patronized and bids fair to continue to be so.—[Frederick, Md., Herald.]

Heavy Penalty.—The Supreme Court of Massachusetts has confirmed a late decision of the Court of Common Pleas, by which a Mr. Currier recovered a verdict against the town of Lowell. The suit was brought against the town to recover damages for an injury sustained by Mr. Currier in consequence of the badness of a road which the town was bound to keep in repair. The jury returned a verdict of \$3,500, which was doubled by the Court, according to the provisions of the statute, thus giving to the plaintiff the very snug and respectable sum of seven thousand dollars. The "Select Men" of Lowell will probably see the necessity, hereafter, of keeping their highways and bridges in better order.—[Courier.]

One part of the London and Greenwich Railroad, which is now advancing towards completion, will go over three thousand arches; and it is intended to make these arches to serve the purposes of cottages, and that they shall be inhabited. This is certainly a novelty, and one of an agreeable character, that carriages full of passengers and goods will go over the tops of human habitations at great speed, with the most perfect security and convenience to all parties. To get clear of all smoke arising out of these residences of men and women, which would be a great annoyance on the Railroad, the apartments or arches will be warmed by gas stoves, which will yield light and heat without impregnating the atmosphere with any noxious impurity.—[London paper.]

India Rubber Boat.—We have had the pleasure of examining this ingenious production, soon after its return from a most fortunate fringing expedition to Martha's Vineyard. The boat was invented, says the Providence Journal, by Mr. Caleb Williams, Jr., of this city; and was manufactured at the India Rubber Factory on Eddy's Point. It is constructed very much upon the plan of Burdett's steamboat, with two inflated cylinders of India rubber cloth, connected upon the top by five or six beams of light portable plank, which supports a deck of boards, which may be procured at almost any place where the boat is to be used. The whole apparatus weighs about 20 pounds. The cylinders may be both inflated in from 5 to 10 minutes, and when the air is discharged may be folded into a valise. The rest of the apparatus may be conveniently carried in the bottom of a wagon or chaise. In addition to the whole, is a seat, upon which the angler may sit and hold his dominion over the finny race. This boat will sustain at least one ton's weight, and of course by enlarging the deck, would accommodate quite a party. The elasticity of the cylinders has been proved to be a protection against their being punctured by snags and rocks. We understand the ingenious contriver has applied for a patent for his invention.

National Importance of the Cotton Manufacture.—

The cotton manufacture arose in this country at a critical period of our history. England had just lost her American colonies; but that loss was more than compensated by this new source of prosperity springing up at home. The genius of our mechanics repaid the errors of our statesmen. In the long and fearful struggle which followed the French revolution, this country was mainly supported by its commerce; and the largest, though the newest branch of that commerce, was furnished by the cotton manufacture. To Arkwright and Watt, England is far more indebted for her triumphs than to Nelson and Wellington. Without the means supplied by her flourishing manufactures and trade, the country could not have borne up under a conflict so prolonged and exhausting. In the article of cottons alone, the exports amounted, between 1793 and 1815, to 250,000,000. From 1816 to 1833 inclusive, the declared value of the cotton exports was 306,167,518. Within the last half century, cottons to the enormous value of 570,000,000, have been sent from this country to foreign markets. It is obvious that a trade of this magnitude must have contributed largely to sustain the revenue, to prevent the national resources from being intolerably oppressed by taxation, and therefore to uphold the power and guard the tranquillity of the state.—*Bain's History of the Cotton Manufacture.*

It is now believed that volcanic action was the instrument of the destruction of Sodom and Gomorrah. The Azores, Madeira, Canary Islands, Capede Verdes, St. Helena, Tristia D'Achuna, and the Isles in the Indian Ocean—particularly Bourbon, give evidence that they were of volcanic origin. Also the large islands of Java, Sumatra, Borneo, &c., with the Philippines, are evidently a continued range of volcanoes. The islands in the West Indies are also of volcanic basis; and South America is subject to earthquakes, which always attend, and generally precede volcanoes.

The Bell Rock Light House.—We learn that this work has been subjected to greater damage during the late gales than ever before since its erection. The spring tides in January rose to 116 feet and drifted over the building, while in ordinary tides 19 feet is the extent of their rise. The heaviest ground swell preceded the heaviest wind two days. Some large rocks called "tossers" were thrown up from the deep by the "yeasty flood," weighing 5 1-2 tons!

During the last year there were born in Paris 29,130 children, namely—14,904 males, and 14,226 females. Of these 19,145 were legitimate; 18,685 of them being born in private houses, and 460 in hospitals or almshouses; 9,985 were illegitimate, 5,473 of whom were born in private houses, and 4,512 in hospitals. Of the natural children, 1,170 were acknowledged by their parents. The deaths amounted to 24,177; namely, 12,004 males, and 12,173 females. Of these 15,340 died in their own houses, and 8,837 in the hospitals. The number of births exceeded that of the deaths by 4,953. The marriages were 8,088. In 1833 there were 27,460 births; 25,026 deaths, and 7,938 marriages.

NEW-YORK AMERICAN.

APRIL 16—24, 1835.

LITERARY NOTICES.

TEMPERANCE ALMANAC.—PACKARD AND VAN BENTHUYSEN, Albany.—This useful publication, which has, and ought to have, a most extensive circulation, is published under the superintendence of the executive committee of the New York State Temperance Society.

It is furnished at \$12.50 per thousand, and contains facts well calculated to make men feel the impotence and necessity of abstinence from strong drink.

By it we perceive that in the jails and poor houses in this state in 1833 there were confined 24,169 persons, of whom 18,312 were certified by the keepers to be intemperate in their habits, only 2,366 temperate, and 3,491 doubtful.

This is a startling fact, though a reflecting mind would have supposed no other result.

The footsteps of the drunkard, however devious elsewhere, are always steady and undeviating in the downward path to poverty, crime, and disgrace.

A.

THE LANGUAGE OF FLOWERS: Carey, Lea & Blanchard, 1835.—This beautiful volume contains a historical account of the symbolical language of the garden, together with the meaning of flowers as at present generally accepted. Here the reader may find the reason why the Marguerite is the emblem of repose, the Thyme of activity, and the Geranium of stupidity. Why honey-suckle represents the bonds of love, and the broken straw the painful rupture of these bonds.

It is full of curious and interesting learning, and its typographical execution, reflects credit on the printing art in Philadelphia.

A.

THE YEMASSEE: A Romance, in 2 vols., by the author of Guy Rivers.—HARPERS.—This is no common book. The design of the story is bold and original, and its execution is graphic and vigorous. The writer has improved amazingly since his last effort, and though there is still room for improvement, yet this work must establish him in an enviable rank among living writers. His chief defect is a too great indulgence in those metaphysical disquisitions which were so often misplaced in the mouths of his characters in Guy Rivers. In the present work these are very properly put forth as the views of the author speaking in his own person, but though often ingenious, and sometimes beautifully written, they do not seem always to grow out of his subject, and they are often so unskillfully introduced as to delay the action of the story, and consequently impair the interest of its finest scenes. Mr. Simms has evidently two distinct complexions to his mind, and we should like to see him try his hand at a novel of the Godwin and Brockden Brown school, if it were only to find a new outlet for those kind of speculations which appear to us out of place in a pure Romance like the Yemassee. It is one thing for a writer to stamp his peculiar mind and character upon his productions, and it is another thing to send all the coin from his intellectual mint with precisely the same impress. It was well enough for our author on his first appearance, to give the public a fair taste of his different powers, but we hope that hereafter he will take different and separate works in which to display his versatility; and whether his next book "turn out a song or a sermon" an exercise of discrimination in this regard will much improve its character.

The Yemassee we think displays as much power, fancy, and original resource as any work

of fiction, by a native writer, that we can call to mind. The author has succeeded admirably in weakening a noble and extinct race of Indians, to life, in the deep forests of the south; and the gallant cavaliers who settled his native Carolina not less than to the plumed chieftains of a hundred years ago, are made to flit with magical reality before the mental gaze of the reader.—There is, indeed, a warm tissue of poetry, pervading the whole work—an atmosphere of fancy, which raises the ideal creatures of the author's brain, somewhat above actual life, but which makes them gain in poetic vitality, all that they may lose in truth. The writer has evidently proposed to himself that master-piece of unmeasured poetry, (the only perfect romance, except Fenelon's *Telemaque*, that ever was written,) *Ivanhoe*,—as his model; and we only wish that he had not introduced a single touch to remind us of the ordinary novel. His attempt has been a bold one; to say that he has been perfectly successful, would be to rank his work with those two great prose epics, as they have been called, and would provoke a comparison most unjust to a writer "yet in the gristle of his youth." But to say that his production is indicative of more than mere literary talent—that it betrays the decided possession of genius—of peculiar and creative powers, will hardly be thought sufficient commendation by those who carefully peruse the Yemassee.

The following quotation is a fair specimen of the material of the work, and the mode in which it is wrought up.

The day had been gratefully warm; and, promising an early summer, there was a profitable show of foliage throughout the forest. The twittering of a thousand various birds, and the occasional warble of that Puck of the American forests, the mocker—the Cooncleatee, or Trick-tongue of the Yemassee—together with the gleesome murmur of the zephyr and brook, gave to the scene an aspect of wooing and seductive repose, that could not fail to win the sense into a most happy unconsciousness. The old oaken grove which Bess Matthew, in compliance with the prayer of her lover, now approached, was delightfully conceived for such an occasion. All things within it seemed to breathe of love. The murmur of the brooklet, the song of the bird, the hum of the zephyr in the tree-top, had each a corresponding burden.

"He does not come—he does not come," she murmured, as she stood contemplating the thick copse spreading before her, and forming the barrier which terminated the beautiful range of oaks which constituted the grove. How beautiful was the green and garniture of that little copse of wood. The leaves were thick, and the grass around lay folded over and over in bunches, with here and there a wild flower, gleaming from its green and making of it a beautiful carpet of the richest and most various texture. A small tree rose from the centre of a clump around which a wild grape gudded luxuriantly; and, with an incoherent sense of what she saw, she lingered before the little cluster, seeming to survey that which she had no thought for at the moment.—Things grew indistinct to her wandering eye—the thought was turned inward—and the musings spirited denying the governing sense to the external agents and conductors, they failed duly to appreciate the forms that rose, and floated, and glided before them. In this way, the leaf detached made no impression upon the sight that was yet bent upon it; she saw not the bird, though it whirled, untroubled by a fear, in wanton circles around her head—and the black-snake, with the rapidity of an arrow, darted over her path without arousing a single terror in the form that otherwise would have shivered but at its appearance. And yet, though thus indistinct were all things around her to the amusing mind of the maiden, her eye was singularly impressed with

one object, peering out at intervals from the little bush beneath it. She saw or thought she saw, at moments, through the bright green of the leaves, a star-like glance, a small bright ray, subtle, sharp, beautiful—an eye of the leaf itself, darting the most searching looks into her own. Now the leaves shook and the vines waved elastically and in beautiful forms before her, but the star-like eye was there, bright and gorgeous, and still glancing up to her own. How beautiful—how strange, did it appear to the maiden. She watched it still with a 'dawning sense, but with a spirit strangely attracted by its beauty—with a feeling in which awe and admiration were equally commingled. She could have bent forward to pluck the gem-like thing from the bosom of the leaf in which it seemed to grow, and from which it gleamed so brilliantly; but once, as she approached, she heard a shrill scream from the tree above her—such a scream as the mock-bird makes, when, angrily, it raises its dusky crest, and flaps its wings furiously against its tender sides. Such a scream seemed like a warning, and though yet unawakened to full consciousness, it repelled her approach. More than once, in her survey of this strange object, had she heard that shrill note, and still had it carried to her ear the same note of warning, and to her mind the same vague consciousness of an evil presence. But the star-like eye was yet upon her own—a small, bright eye, quick like that of a bird, now steady in its place and observant seemingly only of hers, now darting forward with all the clustering-leaves about it, and shooting up towards her, as if wooing her to seize. At another moment, riveted to the vine which lay around it, it would whirl round and round, dazzling bright and beautifully, even as a torch, waving hurriedly by night in the hands at some playful boy;—but, in all this time, the glance was never taken from her own—there it grew, fixed—a very principle of light—and such a light—a subtle, burning, piercing, fascinating light, such as gathers in vapour above the old grave and binds us as we look—shooting, darting directly into her own, dazzling her gaze, defeating its sense of discrimination, and confusing strangely that of perception. She felt dizzy, for, as she looked, a cloud of colours, bright, gay, various colours, floated and hung like so much drapery around the single object that had so secured her attention and spell-bound her feet. Her limbs felt momentarily more and more insecure—her blood grew cold, and she seemed to feel the gradual freeze of vein by vein, throughout her person.—At that moment a rustling was heard in the branches of the tree beside her, and the bird which had repeatedly uttered a single cry, as it were of warning, above her, flew away from his station with a scream more piercing than ever. This movement had the effect, for which it really seemed intended, of bringing back to her a portion of the consciousness she seemed so totally to have been deprived of before. She strove to move from before the beautiful but terrible presence, but for a while she strove in vain. The rich, star-like glance still riveted her own, and the subtle fascination still kept her bound. The mental energies, however, with the moment of their greatest trial, now gathered suddenly to her aid; and, with a desperate effort, but with a feeling still of most annoying uncertainty and dread, she succeeded partially in the attempt, and leaning backwards against the neighbouring tree, feeble, tottering, and depending upon it for that support which her own limbs almost entirely denied her. With her movement, however, came the full development, of the powerful spell and dreadful mystery before her. As her feet receded, though but a single pace to the tree against which she now rested, the audibly articulated ring, like that of a watch when wound up with the verge broken, announced the nature of that splendid yet dangerous presence, in the form of the monstrous rattlesnake, now, but a few feet before her, lying coiled at the bottom of a beautiful shrub, with which, to her dreaming eye, many of its own glorious hues had been associated. She was conscious enough to discriminate and to perceive, but terror had denied her the strength necessary to fly from her dreadful enemy. There still the eye glared beautifully bright and piercing upon her own; and, seemingly in a spirit of sport, he

slowly unwound himself from his coil, then immediately, the next moment, again gathered himself into its muscular masses—the rattle still slightly ringing at intervals, and giving forth that paralyzing sound, which, once heard, is remembered forever. The reptile all this while appeared to be conscious of, and to sport with, while seeking to excite her terrors. Now, with its flat head, distended mouth, and curving neck, would it dart forward its long form towards her,—its fatal teeth, unfolding on either side of its jaws, seeming to threaten her with instantaneous death, while its powerful eye shot forth glances of that fatal power of fascination, malignantly bright, which, by paralyzing with a novel form of terror and of beauty, may readily account for the spell it possesses of binding the feet of the timid, and denying to fear even the privilege of flight.—Then, the next moment, recovering quickly, it would resume its folds, and with arching neck, which now glittered like a bar of brazen copper, and fixed eye, continue, calmly as it were, to contemplate the victim of its secret venom—the pendulous rattle still ringing the death note as if to prepare the conscious mind for the fate which is at hand. Its various folds were now complete—the coil forming a series of knots—the muscles, now and then, rising rigidly into a hill, now corded down by the pressure of another of its folds into a valley. These suddenly unclasp, in the general effort to strike its enemy, give it that degree of impetus which enables it to make its stroke as fatal, at the full extent of its own length, as when, suddenly invaded, its head is simply elevated and the blow given.

The glance of Bess Matthews at this moment upon her enemy, assured her that the sport of the deadly reptile was about to cease. She could not now mistake the fearful expression of its eye. She strove to scream, but her voice died away in her throat. Her lips were sealed—she sought to fly, but her limbs were palsied—she had nothing left of life but its consciousness; and in despair of escape, with a single scream, forced from her by the accumulated agony, she sunk down upon the grass before her enemy—her eyes, however, still open, and still looking upon those which he directed forever upon them. She saw him approach—now advancing, now receding—now swelling in every part with something of anger, while his neck was arched beautifully like that of a wild horse under the curb; until, at length, tired as it were of play, like the cat with its victim, she saw the neck growing larger and becoming completely bronzed when about to strike—the huge jaws unclosing almost directly above her, the long tabulated fang, charged with venom, protruding from the cavernous mouth—and she saw no more! Insensibility came to her aid, and she lay almost lifeless under the very folds of the monster. In that moment the coope parted, and an arrow, piercing him through and through the neck, bore his head forward to the ground, alongside of the maiden, while his spiral extremities, now unfolding in his own agony, were actually, in part, resting upon her person. The arrow came from the fugitive Oconestoga, who had fortunately reached the spot, in season, on his way to the Block House. He rushed from the coope, as the snake fell, and with a stick, fearlessly approached him where he lay writhing upon the grass. Seeing him advance, the courageous reptile made an effort to regain his coil, while shaking the fearful rattle violently at every evolution which he took for that purpose; but the arrow, completely passing through his neck, opposed an unyielding obstacle to the endeavor; and finding it hopeless, and seeing the new enemy about to assault him, with something of the spirit of the white man under like circumstances, he turned recklessly round, and striking his charged fangs, so that they were riveted in the wound they made, into a susceptible part of his own body, he threw himself over upon his back with a single convulsion, and, a moment after, lay dead upon the person of the maiden.

SUMMARY.

Aristocratic Literature.—The Hon. Mrs. Norton has undertaken the editorship of *The Keepsake* for next year, and is assisted, we understand, by several of her aristocratic friends in the arduous duties of preparing this publication for the forthcoming season.

"It is probable," says Humboldt, "that the higher parts of the Kingdom of Quito, and the

neighboring Cordilleras, far from being a group of distinct islands, constitute a single swollen mass, an immense volcanic wall, stretching from south to north, the crest of which exhibits a surface of more than six hundred square leagues.—Cotopaxi, Tungura, and Pichincha, are placed on this immense vault, and are to be considered rather as the different summits of one and the same volcanic mass, than as distinct mountains.—[American Monthly.]

Important.—Mons. Paulin has invented a fire proof apparatus, by which firemen may descend into cellars and other places, where spirits and other inflammable substances are in conflagration; being supplied with air pumped into tubes communicating with the head and mouth. A successful experiment was made, but the fireman experienced some inconvenience from the heat during the 19 minutes he remained amidst the smoke—his pulse when he came out of the cellar beating 130 a minute, but he had successfully extinguished the fire. This seems to be the application of the diving bell principle.

Essence of Milk.—A preparation bearing the name of *lactoline* has just been presented to the Paris Academy of Sciences. Mingled with nine tenths of water it yields new milk of the best sort, and with the proper flavor. Lactoline is procured from pure milk, principally by evaporation without heat; and it is said that the globules, when examined by high microscopic power, are found to have undergone no change. When once formed, it remains unaltered by heat or moisture.—[Medical Gazette]

The National Intelligencer says that the citizens of Mecklenburg county, North Carolina, are making extensive arrangements for celebrating the anniversary of the Declaration of Independence which was adopted by the people of that country, in public assembly, in the town of Charlotte, on the 20th of May, 1775, more than a year prior to the declaration by Congress in July, 1776.

TO THE EDITOR OF THE WHIG:

The questions have been asked me whether any one might lawfully keep an Inn where no spirituous liquors were kept for sale, without a license; also whether the Commissioners of Excise can in their discretion refuse licenses to taverns selling ardent spirits. While revolving these questions in my mind and preparing an answer to them, the following opinions from very high legal authority came opportunely to hand. They will be considered, I apprehend, as settling the question in the most conclusive manner; and as the subject is one of great importance to the public, and particularly to the Commissioners of Excise, I solicit the publication of the following documents in your next paper. By so doing you will greatly subserve the cause of morality and good order, and greatly oblige
A FRIEND.

Utica, April 4.
Legal opinions in relation to the Right to keep a Public Inn without license, and the duty of the Boards of Excise.

I have been desired to state my opinion in writing on two points growing out of the title of our statute regarding "Excise and the Regulation of Taverns and Groceries," 1st vol. Revised Statutes, pages 677—viz:

- 1st. Can a public inn be kept without license?
- 2d. Can the Commissioners of Excise refuse to grant any tavern license whatever, if they think that none is necessary?

After the clear opinion given by his Honor, Chief Justice Savage, on one of these points, it seems not very fitting for a member of the bar to say much in addition to it. I will, therefore, state one or two considerations only, and that briefly.

The business of an innkeeper is to keep a public house for the entertainment of travellers.—It is a public employment at common law; and by the common law, long before any statute existed on the subject, innkeepers had peculiar, well established rights, and were under peculiar liabilities.

As the business of innkeeper did not originate in any statute, so it continues by the State Constitution a part of the common right of the citizen, unless restrained by statute.

There is no provision in any part of our revised statutes, (nor was there in our late statutes,) which at all restrains the right of keeping an inn. Any citizen may set up a public inn if it be not a nuisance. He may receive travellers, charge for entertainment, give any credit he pleases, and detain property as security for his bill. On the other hand, he is under so strict a liability to his guest, that even robbery, fire or rebellion, will not excuse him for the loss of a lodger's effects. There is no prohibition, nor penalty in the law, for any act he may do in the regular way of innkeeping, though he have no license.

But without a license he cannot sell the liquors for which an excise is required by the statute.

The business of retailing spirituous liquors, if carried on in an inn, turns it into a tavern. It is this selling which is so strictly regulated by our law. And if a man has a license for a tavern, he must keep an inn also, because the statute has so ordained. But if he will keep an inn, he may do it without keeping a tavern.

The second question is in substance, whether the Commissioners are obliged to grant at least some licenses.

All the regulations in this title, are regulations of careful, anxious restriction. They all plainly refer to the retailing of spirituous liquors as a great evil which is to be restrained as far as possible. The law does not say, nor imply, that any licenses shall be granted; and it states many limitations and exceptions according to which they shall not be granted. The whole scope of the law is to restrain, regulate and diminish the business.

As one example among others no license can be granted unless absolutely necessary for the actual accommodation of travellers. It must not be granted on the ground of merely some convenience, nor for uncertain accommodation, nor for the accommodation of any at all except travellers.

The neighbors near an inn can not be travellers there, and the law does not allow a tavern for the accommodation of the neighborhood.

As by this restraining law, no license can be granted except it be absolutely necessary, nor except it be so for travellers, and for their actual accommodation,—so the Commissioners can not duly grant the license unless they are satisfied of all the points mentioned in the 6th section, and among them, that a tavern is thus necessary. If there is no place in the town where the Commissioners are satisfied that a tavern is actually, absolutely necessary for travellers, then no license can be granted by such Commissioners in the conscientious discharge of their duty. They must be so satisfied in their own minds before they can grant a license.

As petitions are often circulated to influence the Boards, it may be proper to mention that the duty of judging in these cases is cast upon the commissioners themselves, and they have no right to throw the responsibility upon any other persons whatever. If the commissioners are not satisfied that a tavern is absolutely necessary for the accommodation of travellers, they are in duty bound to refuse the license, without regard to the numbers or influence of those who may request it to be granted.

SAMUEL L. HOPKINS.

GENEVA, 19th March, 1835.

I concur in the opinion, that a public inn may lawfully be kept without license, and that the commissioners of excise may lawfully refuse to grant any tavern license whatever, if they think that none is necessary.

NAT. W. HOWELL.

I am of opinion that under the statute 1st Revised Laws 677, any person may keep a house of entertainment, without a license, provided he abstains from selling strong and spirituous liquors and wines; and that the commissioners of excise may not only lawfully refuse to grant any tavern license if they think none to be necessary; but that they exceed their powers and violate their duties if they grant licenses that are not absolutely necessary for the actual accommodation of travellers.

A. SPENCER.

We concur in the preceding opinions of Judge Spencer.

JOHN SAVAGE.

JACOB SUTHERLAND.

Serious Disaster on the Railroad.—The passengers by the Railroad Line from Philadelphia, did not arrive in New York, yesterday afternoon till 5 o'clock, having been detained on the road by a serious disaster, the particulars of which we have learned from one of the passengers, and are as follows:—

About six miles this side of Bordentown, the baggage car, which is always next to the locomotive, was discovered to be on fire, having caught from the sparks from the furnace. The engine was immediately stopped, and every exertion was made that the circumstances of the case would admit, to arrest the progress of the flames, but, we regret to state, that the greater part of the passengers' baggage was destroyed before the flames could be controlled. Our informant states, that when the fire was first discovered, the flames appeared to issue from the very centre of the baggage; the car was in a few seconds completely enveloped in a sheet of fire, and the wind being very high at the time, it burnt with great fury. The flames also communicated to one of the half-price cars, which was slightly damaged.

Among the passengers who were the greatest sufferers, were Mrs. R.—, of Boston, and Mrs. Austin, of the Theatre. The former lost a large quantity of valuable clothing, worth *fifteen hundred dollars*, but fortunately saved her diamonds and other jewellery. Mrs. Austin also lost all her baggage, including many valuable articles of dress, but saved a box of jewels which was providentially taken from the centre of her trunk.

A German gentleman and his wife who lost all their clothing, were fortunate enough to recover a tin box, which was in one of their trunks, containing documents necessary for the recovery of a large estate in Europe, with which he is proceeding for that purpose.

Mr. Knowles, of Amherst, Mass. had a package in his trunk, containing \$15,000, which was fortunately rescued from the flames, the top of the trunk having been burnt up. We understand the money was put in his charge by one of the Philadelphia Banks, for a New York Bank.

A rough estimate of the loss was made by the passengers, and it was computed to amount to upwards of *five thousand dollars*.

We understand the Agent of the Company acted with great coolness and intrepidity, and did every thing in his power to arrest the progress of the flames.

When the passengers got on board the steamboat, a meeting was called to take the matter into consideration. Joseph P. Grant, Esq. of Baltimore, was appointed Chairman, and J. J. Smith, Jr. of Philadelphia, Secretary. A committee of three was appointed to call upon the Company and represent the nature of the accident, and request remuneration to the sufferers.

Since the above was in type, we learn from another passenger, that the opinion was very prevalent among them that the fire was the result of design, and that it did not originate from sparks from the chimney. He says that the baggage was covered with a thick tarpaulin, and the fire evidently proceeded from the centre of the baggage.

P. S. The mail bag, containing a few letters and papers, was also destroyed. The fragments of forty three letters were received at the New York Post Office last evening, and have been repacked to be returned to Philadelphia this day. One of them contained a check for five hundred dollars.—[Gazette.]

Balloon Ascension.—M. Clayton, who ascended from this place in a balloon, the evening of this day week, has not yet been heard from with any certainty. It was his intention to proceed all night, and reach if practicable some point east of the mountains. The course upon which he departed would conduct him south of Richmond, in Virginia, approaching North Carolina. If he succeeded in keeping up all night, and reaching the Atlantic border in this direction, we may not hear from him in several days. So if he was lost in the night in the wilderness country over which his course lay.—[Cincinnati Gaz.]

Unprecedented Gain.—Five lots of ground were bought in the Sixth Ward of the city of Brooklyn, in 1826, for twenty dollars per lot, and yesterday the same were sold by Messrs. Franklin & Jenkins, at auction, for *ten thousand dollars*.

CHICAGO AMERICAN.—We publish to-day, the prospectus of a newspaper about to be established in the thriving village (city we might almost call it) of Chicago, Illinois.

Mr. Davis, the proprietor, is a young gentleman in whom the citizens of Chicago will find all that is desirable as a man of business and character—and to their kindness and patronage, from a long and intimate acquaintance, we can most cordially recommend him.

PROSPECTUS OF THE CHICAGO AMERICAN.

IN proposing to establish a new paper under the above title, in this great and growing place, the subscriber, in conformity with usage, takes this mode of setting forth the reasons which thereunto move him.

First of all, he thinks there is both a want of, and room for, such a paper as he will endeavor to publish,—a paper which shall be American always, and in all things, and which, moreover, identifying itself with the interests and character of Chicago, and of the vast and fertile region of which it is the heart,—may hope to grow with the growth of this Young Giant of the Far West.

Its politics will be those which the Constitution, as expounded by the men who framed it, inculcates. With party, it will have as little to do as possible; and the little, if it must have a place, shall always be exempt from personality.

As a record of passing events, of current literature, of the march of agriculture, commerce and manufacture, and especially of the progress of internal improvements, in which Chicago has so deep an interest, it will aim always to be accurately and early informed, and thus endeavor to consult alike the tastes and the wants of the community, with which it now, for better and for worse, desires to identify itself.

With this brief explanation of the course he proposes to follow, the subscriber ventures to solicit the aid and patronage of the residents of Chicago, of Illinois generally, of Michigan, and such other districts of country, as may feel interested in a paper to be conducted on the principles here set forth.

The CHICAGO AMERICAN will be printed on a large sheet, and will be published weekly at \$2 50 per annum, if paid in advance, or \$3 at the expiration of six months.

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THOMAS O. DAVIS.

The following paragraphs were taken from the Galena Advertiser of 21st March:—

Proposals for five new papers are already before the public. One at Jacksonville—one at Pekin—one at Quincy—one at Rushville, and one at Chicago. This is certainly an evidence of the advancing prosperity and population of Illinois.

A rich and valuable vein of Lead Ore has been lately discovered on the Merrimac River, in Franklin County, Mo., about 50 miles from St. Louis. "On one tract of land, contiguous to the Merrimac, the earth has been opened in various places for more than three quarters of a mile in length, and in every instance a large vein of rich mineral was found.

BOUNDARY QUESTION.—The Ohio State Journal of the 11th inst. states that "no direct intelligence from the disputed territory has been received here since the Governor left for Perryburg, prior to the 1st instant. We have no fears of any collision taking place with the Michigan authorities; and we presume the Commissioners appointed by our Legislature, to re-survey and mark the line as claimed by Ohio, will meet with no interruption in the discharge of their duties. Michigan, it appears has suspended her military preparations and movements for the present, leaving the adjustment of the immediate dispute in the hands of the President. The following paragraph contains the only additional information we have on the subject:—"

POSTSCRIPT.

News from the Boundary.—A gentleman (Col. Andrews,) who formed one of the Governor's suite, has just returned to town, from whom we learn that all danger of collision with the Michigan authorities is removed. The citizens of the disputed territory, who are unanimous in favor of being attached to Ohio, had held their township elections on the day appointed, and had organized under the laws of this State. No interruption was offered on the part of Michigan, and the Commis-

sioners were proceeding with their survey of the line. The Commissioners appointed by the President were also on the spot, having previously had a conference with the Michigan authorities.

The Detroit Journal and Advertiser of April 10th, says that

We learn that the commissioners appointed by the President to act as mediators between Michigan and Ohio, have had an interview with Gov. Lucas and Mason, and that their mission has been unsuccessful.—Gov. Lucas having refused to defer the survey of the Northern boundary, and declaring that he would not yield one jot or tittle, to the solicitations of the commissioners. Some difficulties having already occurred on the border. We are informed that the sheriff of Monroe and some of his deputies have been arrested in the discharge of their duties, by the authorities of Ohio, and carried to Toledo. A good deal of excitement prevails at Monroe, and a serious conflict is apprehended.

The Season.—The Macon (Ga.) Telegraph, of 9th inst says—"There was a smart frost yesterday morning."

Relics.—Mr. William Shaw, who found the remains of a deceased British officer or soldier near where the U. S. Arsenal now stands, has given us an opportunity to examine them.—They consist, first, of two bones and a tooth, a large half round button of silver or some composition resembling it, and two smaller ones of the same shape and metal, a pinchbeck buckle about the size of a shoe buckle, but to straight for that, and probably intended for a sword belt; a small bullet, much flattened on one side, and two guineas, one of the reign of William and Mary, the other of Queen Anne.—[Pittsburgh Gazette.]

Fine Fish and Fine Fishing.—Harry Slade, Esq. caught with his hook and line on Saturday last, off Buffalo Harbor, a Salmon Trout weighing 27 lbs.; and on the Wednesday previous, Moses Evans, alone, with hook and line, took twenty-four, weighing 230 lbs. Next week, if old Boreas will shift his course, we propose seeing what an Editor can do, but at this moment Lapland is a fool to our Bay.—[Buffalo Journal.]

[From the Portland Advertiser.]

THE MAR CLAIM.—Our readers in this vicinity have lately heard considerable about the Mar Claim, and there is a Mar Stock in the market, in which it is said considerable speculations have been made. The following account of the origin and nature of this claim is given in the Livingston Recorder, and probably comes from a gentleman at that place who has paid some attention to the investigation of the subject:

The Earl of Mar.—This nobleman who commanded the army of the Pretender in the Scottish rebellion of 1719, is said to have left a son and a daughter at Newcastle upon Tyne, when he and the unfortunate Prince made their escape into France. Soon after, the son, quite a boy, came to America, and landed at Portsmouth, N. H., where he lived a short time and finally married in Kittery, in this county. After the British government granted a pardon to the Earl with permission for him to return to his estate at Newcastle, he sent for his son who went to England and had an interview with his father. It was agreed that the son should return to America, and accompany his wife to England, but circumstances of an extraordinary nature detained him for two or three years in this country; at last he was suddenly taken sick and died.

He left six children, who settled in different parts of Maine and New Hampshire, from whom originated nearly all in this part of America who bear the name of Mar. The heirs have lately taken measures to recover the immense property left by the Earl of Mar in England, and have sent an agent to Newcastle upon Tyne for this purpose. The property is said to amount to the enormous sum of sixty or eighty millions of dollars.

[From the Albany Evening Journal of 22d.]

GALE ON LAKE ONTARIO.—Extract of a letter from Sackets Harbor, dated April 18, to a gentleman in this city.

"There has been a severe gale on our Lake. The steam boat United States is up the Lake and

has been due at this port according to her advertisements, three days. The Avery, Captain D. Read, was about twenty miles up the Lake and could not get back to this port. She would not steer, and rolled broad-side in the sea until her anchors brought her up off Pillar Point, in Chaumont Bay, where she rode out the gale, and pitched so as to split her night heads and hause holes, with her chain cable. The Oswego was in the river and was here to-day. The America has not been out yet. The Great Britain is ashore, near York, and will probably be lost."

[From the Charleston Patriot.]

PENSACOLA, MARCH 28.—*Naval*.—The United States sloop of war Vandalia, arrived here from a cruise on Tuesday last. She was at Vera Cruz several days. Order is restored there. The whole of the West India Squadron is now in this harbor.

The following is a list of the officers of the United States sloop of war Falmouth, which arrived last week:

Laurance Rousseau, Master Commandant.
Robert Ritchie, Lieutenant, "
Wm. Pearson, "
James H. Ward, "
Henry K. Thatcher, "
Charles G. Hunter, "
Henry S. Coulter, Surgeon.
Nathaniel Wilson, Purser.
William Lambert, Acting Master.
Benjamin Bunker, Acting Master's Mate.
Albert S. Whitur, Midshipman.
J. W. Bracket, "
Wm. H. Carns, "
Gough W. Grant, "
Napoleon Collins, "
Samuel C. Barney—Boy—Act'g Mid'n.
Samuel Stanley, Act'g Bos'n.
Thomas Robertson, Act'g Gunner.
Samuel V. Hawkins, Sail Maker.
Leroy H. Anderson, Captain's Clerk.
Seyern D. Moulton, Purser's Steward.

U. S. SHIP PEACOCK.—This fine vessel has just been fitted out at our Navy Yard, for a long voyage to the Eastern Seas, and her equipment, conducted under the superintendence of Commodore Ridgely, the able and indefatigable commandant of the station, is quite worthy the high reputation which our ships sustain abroad. She will carry E. Roberts, Esq., the diplomatic agent to whose labors we are indebted for the treaties with the Sultan of Muscat and King of Siam. He bears with him the ratification of those treaties, and goes to complete and establish those relations of amity and commerce for which his enlightened services have already laid the foundation. He will be accompanied by scientific agents, and from their joint observations during the long voyage of the ship, we may expect to derive much information regarding those comparatively unknown countries that will be valuable to commerce and to science.

The following list of the Officers of the Peacock is furnished by the Army and Navy Chronicle:—

Commander—E. P. Kennedy, Esq. Lieutenants—C. K. Stribling, G. N. Hollins, W. Green, C. C. Turner, Murray Mason. Fleet Surgeon—W. S. W. Ryschenberger. Assistant Surgeon—David Harlan. Purser—F. G. McAuley. Acting Master—S. Gordon. Passed Midshipmen—J. Weems, W. Roger Taylor, W. Leigh, B. S. B. Darlington. Midshipmen—J. Cotree, G. W. Chapman, W. S. Drayton, C. Richardson, E. S. Hutter, P. C. Vanwyck, S. B. Lee, B. D. Izard, J. C. Williamson. Boatmen—John Knight. Gunner—Archibald Lewis. Carpenter—Wm. Peterson. Sailmaker—James Ferguson.

MISCELLANY.

Lord Brougham.—We learn from a private source that this eminent nobleman and lawyer has consented to act as Judge of Scots Appeals in the House of Lords. As the office brings no emolument, his Lordship is entitled to the greater praise, and is thus relieved from the mean snail-potions which his enemies are so ready to attach to his character. Lord Brougham has long been anxious that the judicial and political functions of the Woolsack should be separated; and in this accommodating a successful rival, and leaving him to do justice to the Court of Chancery, offers, to our minds, a very strong proof, that he loves labor for its own sake, and, as regards his

retiring pension, is anxious to get rid of an over-sensitive feeling that he is putting the country to charges for nothing.—[Dumfries Cour.]

Law of Arrest for Debt in England.—If the law of arrest continue in this country after the noble effort made by Sir John Campbell, (which, it he firmly and vigorously perseveres to the end, will transmit his name with honor to posterity, with those of the Jenners, Howards, and other illustrious benefactors of their kind,) it would mark England for the most inhuman and debased nation in the civilized world. We have said that the only real blessings on earth are *Health and Liberty*. Let us for a moment, and, for the sake of an illustration, alter the position. Suppose, for instance—and there is as much reason for the one as for the other—suppose that, instead of taking away a debtor's freedom, the creditor should be allowed to take away his physical constitution. We should have this or that vindictive person, employing a surgeon instead of an attorney, or an apothecary in lieu of a bailiff; and he would order him to go every day to his victim, and draw off an ounce of blood, or inflict a wound of two inches, or administer the modicum of a dose of poison; so that within six months the debtor should be put out of pain. We protest that we do not think this would either be so cruel, or so contrary to the merciful dictates of Christianity, as the pangs and miseries inflicted during the long lingering years under the present system of imprisonment for debt.—[London Literary Gazette.]

The new Minister of the Finances in Prussia, the Count Alvensleben, has devoted himself with zeal to the subject of internal improvements, and particularly to the constructions of railroads. A commission has been sent to Paris, to examine the steam carriages of Messrs. Diebz and Aada, with the view of encouraging a similar experiment on the great roads of Prussia.

Rome.—The finances of the Episcopal States are stated to be in the most promising condition, under the administration of the Treasurer General, Mr. Tosti. The revenues of the last year were ample for defraying all the expenses, including a deficit of 700,000 crowns of the preceding year, and there is a surplus in the treasury.

A NEW STATE.—A German paper contains the information that some scattered tribes of Jews, who maintained a sort of independence for a long time, about the southern coasts of Arabia, have been lately visited by Captain Owen. He discovered that an Israelite, of the name of Mahomet Bin Akel, has founded among them a new sovereignty, and raised himself to the rank of Sultan of Morbut and Deschoffer. By means of his wealth, he has purchased a thousand Nubians, whom he has formed into an army, and with this imposing force he has conquered the whole coast from Feutar to Ganew and Hadramond.

Cowper, Johnson and Watts.—The following letter from Cowper to Newton was written in 1781, when the "Task," &c. was published: "I am glad to be undeceived respecting the opinion I had been erroneously led into on the subject of Johnson's criticism on Watts. Nothing can be more judicious, or more characteristic of a distinguishing taste, than his observation upon that writer; though I think him a little mistaken in his notion that divine subjects have never been poetically treated with success. A little more Christian knowledge and experience would perhaps enable him to discover excellent poetry upon spiritual themes in the aforesaid little doctor. I perfectly acquiesce in the propriety of sending Johnson a copy of my productions; and I think it would be well to send it in our joint names, accompanied with a handsome card, such a one as you will know how to fabricate, and such as may predispose him to a favorable perusal of the book, by coaxing him into a good temper; for he is a great bear with all his learning and penetration.

Plagiarism.—A Monsieur Lemare has brought forward before the Academy of Sciences, a stove under the classic cognomen of *aerotherme* or *air heater*, which is evidently no other than our countryman Dr. Not's most ingenious apparatus. The heated air circulates around the fire and may be directed in its course, and regulated in its temperature at pleasure. This is not the first time American genius has been robbed by foreign pretenders.

The publishers of the Journal des Debates Constitutionnel, and several other journals of Paris, have entered a complaint before the tribunal of correctional police, against the publishers of the French Echo, and the Estatette, for habitually republishing, without acknowledgment, political and literary articles, written exclusively for the journals, whose publishers make the complaint. The cause was brought on for a hearing on the last day of February, and was postponed for a month.

The entrance of the young King of Persia into Teheran, in December last, is described as peculiarly magnificent, and marked with all the characteristic ceremonies of oriental splendor. His majesty mounted his splendid charger at the hour fixed by the astrologers—the saddle was embossed with precious stones—the footmen of the court, the bands and the cavalry were in richest costume—camels, oxen, and sheep were sacrificed on the road side as he passed, and bottles, filled with liquors, and adorned with flowers, broken, as is the usage. The ambassadors of England and Russia were in the train, and artillery, and companies with congrave rockets.

Reminiscences.—The following items are taken from a memorandum book kept by one of our oldest citizens, who is now in the vigor of health.—[Merc. Adv.]

1788—July 23d.—Federal procession, in the city of New York, in honor of the adoption of the Constitution.

August 21st.—At 12 o'clock, the foundation stone of Trinity Church was laid, by the Rev. Samuel Provost, Bishop of the Episcopal Church of the State of New York. On the stone is the following inscription:—To the honor of Almighty God, and the advancement of the Christian Religion, the first stone of this building was laid (on the site of the old Church destroyed by fire in 1776) on the 21st day of August, A. D. 1788, in the 13th year of the Independence of the United States of America. The Right Reverend Samuel Provost, D. D., Bishop of New York, being Rector. The Hon. James Duane, Esq., the Hon. John Jay, Esq., Church Wardens.

October 6.—Federal Hall begun, for the accommodation of Congress.

1789—April 30.—George Washington took the oath as first President of the United States.

1790—March 25.—Trinity Church consecrated.

April 17.—Died in Philadelphia, Benjamin Franklin, in the 85th year of his age.

May 21.—Corner stone of Government House laid.

1791.—Great fire in Duke street, New York—Custom House burnt.

1893—January 1.—First Anniversary of the Mechanic Society in the city of New York: Anthony Post was elected President, Daniel Hitchcock, Vice do.

January 22.—Louis 16th beheaded.

August 3.—French fleet arrived at New York.

September.—Great Fever raging in Philadelphia.

September 17.—Intercourse between New York and Philadelphia stopped, on account of fever in Philadelphia.

October 14.—Mrs. Carey's house torn down by a mob.

October 16.—Queen of France beheaded.

1794—March 26.—Embargo laid in America.

May 17.—John Jay sailed on board ship Ohio, Capt. Kemp, as Envoy Extraordinary to the Court of Great Britain.

1795—May 27.—John Jay arrived from England, in ship Severn, Capt. Goodrich.

1796—December 9.—Great fire at the Coffee House.

1797—March 3.—George Washington retired from public service.

March 4.—John Adams, President of the United States.

1798—January 29.—New Theatre opened, with the pieces—"As you like it," and the "Purse."

1799—February 10.—Captain Truxton captured French Frigate L'Insurgente, of 32 guns.

December 14.—George Washington died.

1800—April 10.—Frigate President launched.

April 24.—Frigate New York launched.

Biographical Sketch of Mohammed Ali Pacha of Egypt, Syria and Arabia.

MOHAMMED ALI PACHA was born in the year of the Hegira, 1182, corresponding in the Christian era to the year 1769. It is not unworthy of remark, that this year also, gave birth to Napoleon Buonaparte. Alike distinguished for military genius, the characters of these chieftains, are equally marked by insatiable ambition, and unreposing activity.

Early education, the advantages of science, and a more prominent field of enterprise, have given to the history of one, an éclat and brilliancy of success which are denied to the other. Yet, he who would learn to read and write, at the age of 45, as did Mohammed Ali, and from the humble calling of tobacco vander, rise to the throne of an extensive empire, can be no ordinary man, and may bear some comparison with the Hero of France.

With a disciplined army of 50,000 men, a navy of nine line of battle ships, and a revenue of twenty millions of dollars, he may be supposed to have the means of consolidating his power, of establishing his dynasty, and of maintaining his *de facto* independence. He desires to raise Egypt to the level of European civilization, surpassing that of the august age of El-Mamoun and Haroun el Rashid. The patronage which he gives to arts and science; his encouragement of Europeans of talent; his printing-presses; polytechnic, elementary, and medical schools; his factories and internal improvements, are evidence of enlightened views in civil administration.

The Pacha is commonly called Mehemet Ali, although his name is written Mohammed Ali.—Supreme veneration for the name of his Prophet, forbids a Mussulman to desecrate the name of Mohammed, by colloquial use, and therefore is this distinction made in the pronunciation of the name. He is also called Hadgi Mohammed, or pilgrim, having performed his pilgrimage to Mecca, which is one of the five great duties of the acolytes of Islam. Among the numerous amputated titles, given to him by his courtiers, that of *Hidivi*, or *divine*, is remarkable. Of the Roman Emperors, Augustus was the first whom clambering adulation apotheosized, and associated with divinity.

Mohammed Ali Pacha, was born at Cavalla, a small maritime town of Romelia, in European Turkey. This district is renowned in the east, for its aromatic tobacco, which rivals that of Latakia, among the dreamy smokers of the oriental *chibouque*. Cavalla is distant ninety miles to the east of Salonica, the ancient Thessalonica, where there is now established a Consul of the United States.

Ibrahim Agha, the father of Mohammed Ali, was the chief of police in the town of Cavalla.—At the death of his father, Mohammed Ali, being then quite young, the *Tchorbadgi*, or governor of Cavalla, took him into his service.

An opportunity early presented itself, whilst Mohammed was attached to the family of the *Tchorbadgi*, by which he acquired a character for prudence, ingenuity and bravery. A certain village, within the jurisdiction of Cavalla, had refused to pay its usual contributions. The *Tchorbadgi* was undecided as to the most efficient measures to be adopted on the occasion, and Mohammed Ali promptly offered his services; they were accepted, and a body of armed men was appointed to accompany him. He proceeded to the village, and at the hour of prayer, when announced by the Muezzin from the Minaret, he repaired to the Mosque to perform his devotions. After having recited his prayers, he sent to request four of the principal Turks of the village, to wait on him, under the pretext of important business.—These persons not suspecting any design upon them, repaired to the Mosque. Mohammed Ali immediately commanded his followers to seize and bind these chief villagers, who were conducted to Cavalla, amidst the threats and pursuit of the inhabitants.

This dashing act of bravery and finesse, resulted in the payment of their contributions by the refractory villagers; and the *Tchorbadgi* was so well-pleased with it, that he promoted the youthful Mohammed to the rank of *Belouk Basha*, or captain of a company. He also gave

him in marriage one of his relations, a widow, by whom he had three sons, Ibrahim, Toussoun, and Ismael. This marriage of a widow has given rise to the report, that Ibrahim Pacha, the conqueror of Acre and Syria, is the stepson of Mohammed Ali.

Of these three elder sons, Toussoun and Ismael Pachas, died some years ago. The former conducted a successful expedition against the Wahabies of Arabia.

A most faithful and eloquent history of this formidable sect of Islam, is to be found in the popular novel of Anastasius, by the late Thomas Hope.—Ismael Pacha was commander-in-chief of the expedition against Senaar and Kordofan, where he was assassinated by one of the subjugated chiefs.—A blow inflicted on this chief by the Pacha, was avenged by his assassination. It was this expedition to Senaar, which Mr. George Bethune English, of Boston, accompanied, in a military capacity, and an account of which he subsequently published.

Ibrahim Pacha, the remaining son, is now in Syria, with a numerous army reposing upon the laurels acquired in his late battles with the Grand Vizier, and the Sultan's disciplined troops.

Mohammed Ali, after his marriage, joined to his military profession, the trade of a merchant, and became an extensive dealer in tobacco, the richest product of Romelia. In this trade, he acquired his first notions of commercial monopoly, to which he has since more strictly adhered than comports with sound principles of political economy, or the well being of his Egyptian subjects.

He was soon called to enter upon a wider and more important field of enterprise. Napoleon had invaded Egypt, and the battle of the pyramids had defeated the Mamelukes, opened the gates of Cairo, and secured possession of the country. In 1800, the Sublime Porte, in alliance with Great Britain, and aided by her forces, made preparations to recover Egypt; and among the contingents of troops required by the Porte, was one of three hundred men from the district of Cavalla. They were raised by the *Tchorbadgi*, and placed under the command of Ali Agha, his son, and Mohammed Ali was appointed to the double office of Ali's mentor, and his second in command. Ali Agha soon became dissatisfied with the fatigue of camp, and returned home, leaving his company under the orders of Mohammed Ali. He thus acquired the rank of *Bin Bashee*, in the army of the Grand Vizier.

After the victories of Aboukir, and the camp of Caesar, gained by the British troops, the Grand Vizier commenced offensive operations. Mohammed Ali, in frequent engagements with the French divisions, signalized himself by great personal bravery and by military tact, if not by strategic science.

The limits of this sketch require us to pass over the numerous incidents of the Pacha's eventful career, during which he was alternately applauded and reproved by his superiors, until the important period of his election, as Governor of Egypt, by a deputation of *Scheiks*, on the 14th of March, 1805. The country was at that period, a prey to intestine war, caused by those petty tyrants the Mameluke Beys. He skillfully evaded or resisted their attacks and machinations, and succeeded in obtaining, two months after the election, his confirmation as Pacha of Egypt, by the Sublime Porte.

The policy of the British Government at that epoch favored the civil dissensions created by the Mameluke Beys. It openly declared itself against the Pacha, and the British Ambassador near the Sublime Porte was instructed to demand his recall. This demand was supported by the intrigues of ambitious rivals at Constantinople. The present Seraskier Pacha, Husref, was then, and continues to be, one of the most embittered and untiring enemies of Mohammed Ali, to whom he attributes the revolt of the Albanians at Cairo, and his subsequent expulsion from the command of that capital.

The Sublime Porte yielded to the compound influence of foreign solicitation and domestic intrigue, and Mohammed Ali was ordered by an imperial *firman* to leave Cairo, and repair to Salonica (Thessalonica) to assume the administration of that Pacha. He evaded obedience to the *Padischah's* *firman*, until important services supported by bribes judiciously distributed at Constantinople, induced the Sultan to reappoint him to the Pacha's office of Egypt. He was deemed by the Imperial divan to

be the only man capable of governing that country, in the critical posture of affairs at that period.

French influence gained the ascendancy in the Ottoman councils in 1807, and Great Britain declared war against Sultan Selim and invaded Egypt. Mohammed Ali's troops met the British forces at Rosetta, and defeated them. They were subsequently compelled to evacuate Alexandria, which had capitulated to General Frazer. It was at this period that the British squadron, commanded by Admiral Sir John Duckworth, passed the tremendous batteries of the Dardanelles, and anchored off the city of Constantinople. The passage of the Dardanelles by an armed force, had never before, and has never since, been attempted. It was then that the navy of England could ask, *qua regio la terriis, nostris non plena laboris?* We may not forget, that some years before this signal event, our own Captain Bainbridge passed the Dardanelles, in his frigate the Washington, and displayed for the first time the star spangled banner in the Golden Horn.

The Sublime Porte was sensible of the important services rendered by Mohammed Ali, in the then war with England, and received frequent expressions of his Sultan's satisfaction, in rich and sumptuous presents. He continued to preserve his government against internal foes and foreign machinations. The Mameluke Beys remained in arms against him, and carried on a desultory warfare. Mameluke Elfi Bey was supported by British influence.

On the 1st of March, 1811, Mohammed Ali succeeded in destroying the greater part of these refractory Beys, by a sanguinary and treacherous act, which has no parallel in any annals but those of eastern empires. It would be so judged by the rule of abstract morals, yet political necessity would sanction it in the east. The Pacha had not then studied Machiavelli, which he has in part since read. He had succeeded in conciliating those Beys to a certain degree, and had disarmed their fears and suspicions. About this period, the expedition against the Wahabies, the enemies of Islam, was preparing to leave Cairo. The departure of this expedition was made the occasion of calling together the civil and military authorities, under ceremonies becoming the occasion. The Mameluke Beys were also invited to join the ceremonies and the procession which was to signalize the event. They obeyed the invitation, and were received with every demonstration of friendship, and with distinction suitable to their rank. Here then the Pacha had artfully succeeded in assembling, at the citadel of Cairo, the chief Mamelukes, to the number of four hundred, those early and formidable enemies, both to his personal aggrandizement and to the tranquillity of Egypt.

The citadel of Cairo, within which is the Pacha's palace, and the dilapidated, but once gorgeous serai of Selah-eddin, (Saladin) rests on a projecting shoulder of Mount Mokattam. From its frowning ramparts are seen, to the west, and beyond the Nile, the towering pyramids of Gizeh, and the lesser ones of Sakhara and Dashour; the allegoric sphinx lies couchant before you, as in centuries gone by, and the renowned Memphis is faintly distinguished by the few remains of her ancient glory, now concealed by clustering groves of the graceful palm. Immediately below the ramparts, reposes Cairo, the mother of the world, as she is called in the figurative language of Arabia, with her populous avenues, her tongues of Babel, sumptuous palaces, and more splendid mosques, and minarets. The silver stream of the "blessed" Nile, flows by the walls of Cairo, bringing fertility to the earth, and joy to its people.

From this citadel the military procession, led by Toussoun Pacha, who had been appointed to command the expedition against the Wahabies, moved, and in descending to the city, passed through a narrow passage or defile. On either side was the solid rock surmounted by high walls. When the Mameluke Beys entered this defile, the gates at both end were closed, and soldiers previously stationed for that object, commenced firing upon these unsuspecting victims of a treacherous design.—One Bey alone escaped from the horrible ambushade.

The Pacha, a few years afterwards, replied to an allusion made to this dreadful massacre, that it would appear in history, along with the execution the Duke d'Enghien, by the great chieftain who had then filled the world, with the military glory of France.

An anecdote somewhat ludicrous, connected

with this tragic scene, may convey some idea of the indifference with which human life is regarded in the east, and the apathy of the Orientals to human blood. An European Consul asked an officer of the Pacha, who was witness to the massacre, if his feelings were not shocked. "Yes," he replied, "it was a pity to see so many embroidered dresses, rolling in the dirt." Another anecdote is told at Constantinople, of a Reis Effendi, who had lost his favorite Circassian by the plague. The Dragoman of the Austrian Intercourse, during an official visit to his Excellency, expressed himself in terms of condolence, for the painful event. "Yes it was a great loss," said the Effendi, "my *khanum* cost me one hundred purses."

The successful expedition of the Pacha, against the Wahabites of Arabia, the formidable enemies of the Moslem faith, established his reputation as a warrior, his claims to the consideration of the sublime Porte, and of the whole Moslem world, and secured his uninterrupted possession of Egypt. The war was concluded in 1813, by the capture of Deraiah, the Wahaba capital, and of their Chief *Abdallah-ebn-Souhoub*. The conduct of the war, which had been committed to Tounsin Pacha, was subsequently entrusted to Ibrahim Pacha, Mohammed Ali's eldest son. By him the war was brought to a close, and Abdallah-ebn-Souhoub was sent to the Sultan, under the charge of Ismael Pacha, together with the few remaining objects of value, which was recovered from among those which Souhoub's father had plundered from the sacred shrines of Mecca and Medina. Of these the most remarkable was a copy of the Koran, so small as to have rivalled the Iliad of Homer, which Alexander carried about his person. There were also pearls and precious stones of unknown value, which pious veneration had bestowed as votive offerings, at the tomb of the Prophet. Abdallah-ebn-Souhoub was presented in chains at the foot of his sovereign, and Mohammed Ali had interceded in his favor, for imperial clemency. Sultan Mahmoud was relentless towards the chief of an heretical sect, which had for so many years defied his authority, desecrated the holy places of the Prophet, and interrupted the annual pilgrimages of the Moslem world, to the venerable *Casba*, the waters of Zemzem, and the sacred sepulchre at Medina. Souhoub was publicly decapitated at Constantinople, in the open square, which may now be seen by the traveller, between the Porte of Sublimity and the Mosque of Santa Sophia.

The Wahabites, as a religious sect, have the same reference to the Mohammedan religion, which Socialism has to Christianity. The founder, Abd-ul-Wahab, was born in the last century, and after having studied divinity at Medina, and in the *Medresses*, or theological schools of Bagdad, Bassorah and Ispahan, he began to preach the novel doctrine, that the Prophet Mahomed was but a mere man, and that to invoke him with other saints, was idolatry, and was not authorized by the Koran. He adhered religiously to the text of the sacred book, but rejected all traditions, *Hadith* and the commentaries of the Imams or doctors. He contended that Mussulmans must be brought back to the original spirit of the Koran, to the exclusive worship of God, in his undivided unity. In this spirit, he forbade the pilgrimage to Mecca, the invocation of the Prophet, the use of luxuries, tobacco, opium, silk, and jewels. Following the example of the Prophet, he propagated his doctrines with the sword, and the armies of his successors marched upon Mecca and Medina, destroyed those venerable shrines, and robbed them of the unnumbered votive offerings, with which they had been enriched by piety and devotion.

Such were the doctrines of this warlike sect, which had for a long while contemned the spiritual, and defied the temporal, authority of the Sultan.

Relieved from this formidable enemy, Mohammed Ali was now at liberty to subjugate the southern provinces of Nubia, Sennaar, and Kordofan. These countries had for a long time, been in a state of anarchy and rebellion to the Government of Egypt. He accordingly, in 1820, sent an expedition of four thousand men, to those countries, under the command of his second son, Ismael Pacha, which resulted in the conquest of

those extensive provinces, with which Egypt has always had an important commerce. It was this expedition, which our countryman, *English*, accompanied. *Khalil Aga* of New York, was also attached to the army. We have another instance of the adventurous spirit of Americans, in one, who is at this moment, Governor of a District, within the territories of the Indian Prince, Runjeet Sing.

The Greek revolution commenced about this time, and Mohammed Ali prepared to obey his Sultan's *fermans*, and to furnish aid in troops, ships, and money. Whilst he opposed the movement of the Greeks, and contributed his efforts towards the suppression of their rebellion, it must be said in honor of his humanity, and in praise of his enlightened policy, that he did not imitate the massacre of these unfortunate subjects, who were residing at Constantinople. No Greek subject in Egypt was molested, and those who fled to that country were protected.

The friends of Greece, in Europe, did not so much fear the hostilities of the Sultan, as of the Pacha, in its struggle for independence. It is believed that this sentiment induced some of the greater cabinets to hold out to the Pacha the possibility of his independence, to withdraw him from combined operations with the Porte.—Whether he distrusted Christian diplomacy, or was content to enjoy his *de facto* independence, he yet continued to furnish the principal means of operation against the Morea. The policy of European cabinets was for once imperfectly understood, and pertinacity caused the loss of the Egyptian squadron at Navarino, and the retirement of Ibrahim Pacha's legions from the peninsula.

The declaration of war against Russia in 1828, by the Sultan, was made contrary to the counsel of Mohammed Ali, and its result confirmed the wisdom of that advice. Causes of jealousy and dissatisfaction towards his Pacha continued to multiply in the mind of the Sultan; which found ostensible motives in the attack which Mohammed Ali made upon Abdallah Pacha of St. Jean d'Acre in 1831. The immediate origin of this war was the protection which the Pacha of Acre gave to the fugitive subjects of Egypt. Mohammed Ali asked not the intervention of the Porte, although he was equally its vassal with Abdallah Pacha. On the refusal of the Pacha to obey the mandate of the Porte, and to withdraw his troops from Syria, he was officially denounced by the Sultan as a rebel and outlaw. This sentence of excommunication from the Caliph or head of Islam, has as much force now, as had that of the Pope in the feudal ages.

The Sultan sent his forces into Syria, under command of Hussein Pacha, Beglerbeg of Anatolia, to oppose the advance of Ibrahim Pacha. Hussein was beaten in a pitched battle, and driven from Damascus to Homs, thence to Aleppo, and across the Taurus to Koniah. At this place the Grand Vizier, Reshid Mehemit Pacha, was made prisoner, in a sanguinary action, and the whole army of the Sultan became demoralized. Ibrahim Pacha might have marched upon Constantinople, but for the intervention of an armed Russian force, to protect the capital, and for the interference of European diplomacy.

In the city of Kutahieh, of Asia Minor, in the spring of 1833, the commissioners, envoys of England, France, and Russia, concluded an armistice and convention, for the evacuation of Anatolia. By this convention, with the consent of the Porte, Mohammed Ali received his confirmation to the whole of Syria, comprising the four Pachalicks of Aleppo, Tripoli, Damascus, and Saïda, together with the province of Adana, which is of primary importance to Egypt on account of its timber. The news of peace was received at Alexandria, with demonstrations of public joy, and were attended with every species of festivity. The Pacha was compared to the "*Alexander of two horns*."

The negotiations that took place, and diplomatic notes that passed between Mohammed Ali and Admiral the Baron de Roussin, ambassador of France at the Porte, exhibit the true character of the former. He replied, in answer to the requisition of the Baron to withdraw his troops from Anatolia, "is not this pronouncing against me a sentence of political death? But I feel confident that France and England will not deny me justice. They will acknowledge my rights. Their honor is opposed to this step. But if I am unhappily deceived in this

expectation, I will submit myself, under such circumstances, to the will of God; and preferring an honorable death to ignominy, joyfully devote myself to the cause of my nation, happy to consecrate to it the last breath of my life. Upon this I am determined, and history offers more than one example of a similar immolation."

Mohammed Ali is now in the undisputed possession of Syria, Egypt, the Hadjaz of Arabia, Nubia, Sennaar, Kordofan, and the important Island Candia. That he will transmit his power and empire unimpaired to his successor in the dynasty, his past history justifies the belief.—When he was invited to take supreme command in Egypt, thirty years ago, he said, "I have now conquered this country with the sword, and by the sword will I preserve it!"

Mohammed Ali is in person of middling, or rather low stature. He is now in his sixty-seventh year, and possesses a constitution sound and vigorous. His features are not those of the Osmanli, of Constantinople, where one may frequently find the *beau ideal* of manly beauty.—The Tartar face, with its high cheek-bone, small eyes, and general flatness, which are peculiarly his, have been lost among the Ottomans, of the capital, by their marriages with the Greeks of Ionia, or the more languishing beauties of Circassia and Georgia. His dark gray eyes beam brightly with genius and intelligence, and his manners would be marked with more dignity, had they more repose. It would be difficult not to feel the presence of a superior man, when one is addressing Mohammed Ali. His dress, unlike that of Sultan Mahmoud, is not of the *mizem*, or reform. He still wears the turban, which the Sultan has abandoned, and this use of a most graceful head-dress will be approved by all persons of good taste. This remark applies only to the east. His dress is of plain olive colored cloth, without embellishment or decoration. At his side is always suspended a curved scimitar.

The Pacha is an early riser, and of abstemious habits. At the break of day he performs his orisons, and at sunrise, he repairs to his divan, for the transaction of business. After sunset he dines, and retires to his harem, where he either reads himself, or reclines on an ottoman, whilst one of his favorite Sultanas, the daughter of a mufti, and an accomplished woman, reads to him, by his instruction. He has lately been engaged in reading Montesquieu's *esprit des loix*, every successive sheet of which is prepared in manuscript by the translator, is taken by him to his harem, and becomes the occupation or relaxation of his evening. Machiavelli he read some years ago, and the code Napoleon is now the object of his deepest study and reflection.

This short sketch of the eventful life of Mohammed Ali, is not intended to exhibit the wonderful improvements which he has introduced into Egypt, nor the more wonderful personal superintendence, which he exercises over every department of the arts, and every branch of industry.—It is hoped, that the impetus which he has given to civilization will not be checked, and that if his *de jure* independence should, in any manner, contribute to this desirable object, the conflicting interests of European and the Turkish cabinets, may be conciliated, and be directed to concur in such an acknowledgment.

Mourning.—In Europe, black is generally used because it represents darkness, unto which death is like, as it is a privation of life. In China, white is used, because they hope the dead are in heaven, the place of purity. In Egypt yellow is used, because it represents the decaying of trees and flowers which become yellow as they die away. In Ethiopia, brown is used, because it denotes the color of the earth from whence we came, and to which we return. In some parts of Turkey blue is used because it represents the sky, where they hope the dead are gone; but in other parts purple and violet, because being a mixture of black and blue, it represents, as it were, sorrow on one side, and hope on the other.

A person near London recently attempted to walk 7 miles in 60 minutes, and lost his wager by 30 seconds. He had 9 minutes 37 seconds to do the last mile in, but his strength was over tasked, and he failed in the attempt.

Mechanical Skill of the Ancient Egyptians.—The inner chamber contains subjects of the most interesting and diversified kind. Among these, on the left (entering), are cabinet makers, carpenters, rope makers, and sculptors, some of whom are engaged in levelling and squaring a stone, and others in finishing a sphinx, with two colossal statues of the king. The whole process of brick-making is also introduced. Others are employed in heating a liquid over a charcoal fire, to which are applied, on either side, a pair of bellows. These are worked by the feet, the operator standing and pressing them alternately, while he pulls up each exhausted skin by a string he holds in his hand. In one instance the man has left the bellows, but they are raised, as if full of air, which would imply a knowledge of the valve. Another singular fact is learnt from these frescoes—their acquaintance with the use of glue—which is heated on the fire, and spread, with a thick brush, on a level piece of board. One of the workmen then applies two pieces of different colored wood to each other, and this circumstance seems to decide that glue is here intended to be represented rather than a varnish or color of any kind.—[Wilkinson's General View of Egypt.]

Principles of the Cotton Manufacture.—Let us briefly review the different processes through which the cotton goes, in its conversion into cloth, all of which are performed in many of the large spinning and weaving mills. The cotton is brought to the mill in bags, just as it is received from America, Egypt, or India; and it is then stowed in warehouses, being arranged according to the countries from which it may come. It passes through the willow, the scutching-machine, and the spreading-machine, in order to be opened, cleaned and evenly spread. By the carding-engine the fibres are combed out and laid parallel to each other, and the fleece is compressed into a sliver. The sliver is repeatedly drawn and doubled in the drawing frame, more perfectly to strengthen the fibres, and to equalize the grist. The roving-frame, by rollers and spindles, produces a coarse and loose thread, which the mule or throstle spins into yarn. To make the warp, the twist is transferred from cops to bobbins by the winding machine, and from the bobbins to the twisting-mill to a cylindrical beam. This beam being taken to the dressing machine, the warp is sized, dressed and wound upon the weaving beam. The latter is then placed in the power-loom, by which machine, the shuttle being provided with cops of web, the cloth is woven. Such, without entering too much into the minutiae, are the processes by which the vegetable wool is converted into a woven fabric of great beauty and delicacy; and it will be perceived that the operations are numerous, and every one of them is performed by machinery, without the help of human hands, except merely in transferring the material from one machine to another. It is by iron fingers, teeth, and wheels, moving with exhaustless energy and devouring speed, that the cotton is opened, cleaned, spread, carded, drawn, roved, spun, wound, warped, dressed, and woven. The various machines are proportioned to each other in regard to their capability of work, and they are so placed in the mill as to allow the material to be carried from stage to stage with the least possible loss of time. All are moving at once, the operations chasing each other; and all derive their motion from the mighty engine, which, firmly seated in the lower part of the building, and apparently fed with water and fuel, toils through the day with the strength perhaps of a hundred horses. Men, in the meanwhile, have merely to attend on this wonderful series of mechanism, to supply it with work, to oil its joints, and to check its slight and unfrequent irregularities;—each workman performing, or rather superintending, as much work as could have been done by two or three hundred men sixty years ago! At the approach of darkness this building is illuminated by jets of flame, whose brilliance mimics the light of day,—the produce of an invisible vapor, generated on the spot. When it is remembered that all these inventions have been made within the last seventy years, it must be acknowledged, that the cotton mill presents the most striking example of the dominion obtained by human science over the powers of nature of which modern times can boast. That this vast aggregate of important discoveries and inventions should, with scarcely an exception, have proceeded from English genius, must be a reflection highly satisfactory to every Englishman.—[Ginn's History of the Cotton Manufacture.]

Platina.—By a report in the Berlin State Gazette on the subject of platina, it appears that the quantity of ore extracted from the mines in the Ural Mountains, from the summer of 1824 to January 1834, was 230 quintals, two thirds of which consisted of pure metal. Of this, about 153 quintals were coined, amounting to a sum a little exceeding 8 million rubles. But little revenue had been derived from the mines, beyond the cost of the establishments. The coin is said to have thus far preserved an exact mean between the value of gold and silver.

Christianity in Jerusalem.—A Protestant church has been established at Jerusalem.—[There have been Catholic chapels in Jerusalem for more than six hundred years.]

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads, No. 264 Elizabethstreet, near Bleeckerstreet, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25 tf

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shingles. The nails are hammered and come from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1833. A29 fRM&F

MILL DAM FOUNDRY FOR SALE,

The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of:
No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and steam Engines.
No. 2. Blacksmith's Shop, 50 feet by 20, fitted with cranes for heavy work.
No. 3. Locomotive House, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.
No. 4. A three story brick building, covered with slate, 120 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c. Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip-Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 3 horse Steam Engine, which could be dispensed with; and a variety of other machinery.
No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.
No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.
No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.
The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbor of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.
The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.
For terms, apply to
THOS. J. ECKLEY, Treas'r, &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, Dec. 20, 1834.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Fawcett, N. J. All orders addressed to the subscribers at Paterson, or 50 Wall street, New-York, will be promptly attended to.
Also, CAR SPRINGS
Also, Flange Tires turned complete,
J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.
Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.
Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sep.12-17

RAILWAY IRON.

65 tons of 1 inch by 1 inch,	Flat Bars in lengths of
300 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ended at an angle
800 do. 2 do. do.	of 45 degrees, with spli-
500 do. 3 do. do.	cing plates and nuts to
soon expected.	suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.
Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.
Axles of 2 1/2, 3, 3 1/2, 3 3/4, and 4 inches diameter for Railway Cars and Locomotives of patent iron.
The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & O. RALSTON.
9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. dlmecw

SURVEYORS' INSTRUMENTS.

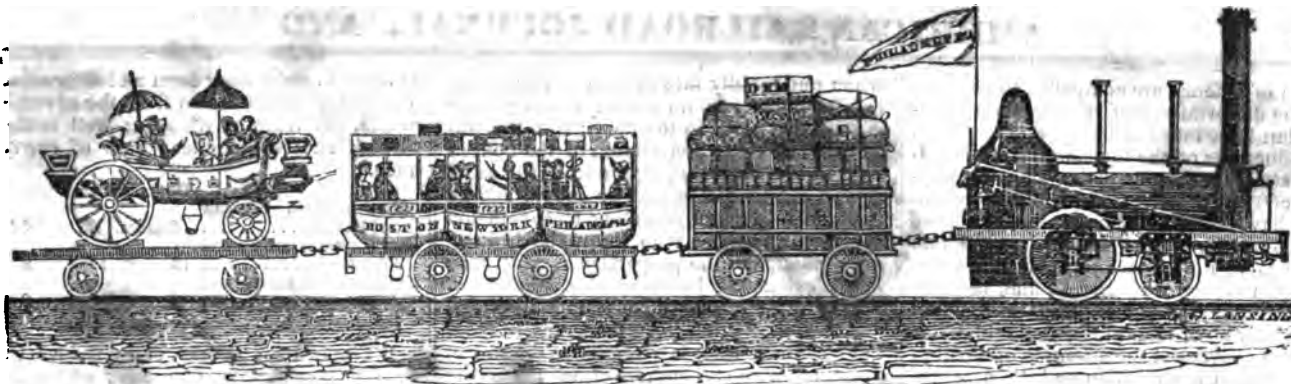
Compasses of various sizes and of superior quality warranted.
Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by
E. & G. W. BLUNT, 154 Water street, corner of Market Lane. J81 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted exact, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.
WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.
The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1833.

In reply to the inquiries respecting the instruments manufactured by me, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish the following information. The whole number of Levels now in possession of the department of construction of the make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.
Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all Instruments of the kind are liable.
I have found that the patterns for the levels and compasses have been copied by my assistants generally, to any other in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.
This Instrument, more recently improved with a reversing telescope; in place of the vanes &c., leaves the engineer scarcely any thing to do in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.
Philadelphia, February, 1833.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most heartily recommend it to Engineers and Surveyors.
E. H. GILL, Civil Engineer.
Germantown, February, 1833.
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level. I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.
HENRY A. CAMPBELL, Eng. Philad.
ml 17 GERMANTOWN and NORRISTOWN



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, MAY 2, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 2, 1835.

TO CORRESPONDENTS.—Our esteemed friend, L—W—, will very much oblige us by communicating the result of his experience. He should not withhold from the general fund, his share of the contribution, because he happens not to have enjoyed the advantages of education in the language of his adopted country.

It is the facts, and useful information, which his long experience enables him to give, and not the well turned sentences of a polished scholar, that we desire him to furnish us with. Let him, then, and others also, give to the world, through the columns of our Journal, the benefit of a well spent life in contributing to the improvement of the "ways" of their native, or adapted country.

SARATOGA AND WHITEHALL RAILROAD COMPANY.—The capital stock (\$800,000,) having been readily subscribed on the opening of the books, the first directors named in the charter, consisting of Stephen Warren, Geo. R. Davis, Le Grand Cannon, Jonas C. Heart, John Paine, Elias Pattison, Erasmus Corning, Lewis Benedict, John Townsend, John Knickerbocker, Geo. W. Kirtland, G. M. Davison, and Harman Gansvoort, organized on the 20th ult. by the appointment of the following officers, who hold until the first election of the stockholders in June next: Stephen Warren, President; G. M. Davison, Vice President; John Paine, Secretary; John Delafield,

Appointed a director in place of P. J. H. Myers, deceased.

Treasurer and Register of Transfers. Office in New-York.

We understand it is the intention of the Directors to cause this work to be commenced and completed without delay. The length of the road extending from Saratoga Springs to Whitehall, will be about 40 miles, over a very favorable country, not requiring stationary power. It will form an important link in the great thoroughfare from north to south; and when finished will, with the Laprairie and St. Johns, and Baltimore and Washington railroads, now in progress, afford an uninterrupted communication by steam between Quebec and Washington city, a distance of more than 800 miles! With such a facility, the northern travel, already heavy, will be greatly augmented, the intercourse with Canada increased, and the "northern tour" to summer visitants rendered double attractive. Indeed, when the Springs, Lake George, Montreal, and Quebec, can all be reached by steam, who will not be tempted to visit them? Certainly the road in question can hardly prove otherwise than a valuable and growing investment.

DELAWARE AND ATLANTIC RAILROAD.—Notice is hereby given, that the books for receiving subscriptions to the residue of the Stock of the Delaware and Atlantic Railroad, under the Supplementary Act, granting the Company the privilege of continuing their Road from its present termination at New Lisbon, to a point on the Atlantic between Barnegat and Tuckerton, will be opened on Wednesday, the 20th inst., from 10 to 3 o'clock, at the Merchants' Exchange, in the City of Philadelphia; on Friday, the 22d, from 2 to 5 o'clock, at the house of Wm. Arnel, in the Borough of Bordentown; and on Tuesday, the 26th inst., from 10 to 6 o'clock, at Falkenburg's Hotel, in the Town of Mahanawick, Monmouth Co. Subscribers to the above Stock will acquire equal rights with the present Stockholders, to that part of the Road already completed and now in successful operation, extending a distance of 14 miles from the Delaware River to New Lisbon. The sum of \$5 on each Share is required to be paid at the time of subscribing.

JOHN CHAMBERS,
JAMES NEWBOLD,
THOMAS HAINES,
JOSEPH SMITH,
WATSON NEWBOLD,
Commissioners.
Springfield, Burlington Co., N. J., May 1, 1835.

ON CANAL NAVIGATION, BY JOHN MACNEILL, ESQ.—We have been favored by a scientific gentleman of this city with a treatise on the subject of canal navigation, or the "resistance of water to the passage of boats on canals," by John Macneill, Esq., member of the Society of Civil Engineers, London, which gives a series of results

that will appear incredible to those who are not familiar with great speed in canal navigation. There are many persons who will require further evidence before they will believe that navigation can be carried on on canals at the rate of 10 to 14 miles per hour, without injury to the banks and that too on a canal narrower than the canals of this State; and many others who will hardly credit the theory, that the resistance will be less on a narrow than broad canal; yet such appears to be the opinion of those who have examined the subject, and experimented upon it. We shall continue our extracts from the work.

The engravings at page 260 are designed, figure 1 to give an idea of the reservoir and apparatus with which the numerous experiments described in this number were made by Mr. Macneill; figure 2 represents the boats now in use on the Paisley canal—a full description of which will be given in our next; fig. 3 shows a transverse section of the Paddington canal, breadth 56 feet, and greatest depth 4 feet 8 inches.

The following is the introduction of Mr. Macneill.

The results which I have arrived at by experiments are so much at variance with generally received theoretical deductions, that it is with much diffidence I submit these pages to the consideration of the public, and to those more immediately concerned in Inland Navigation. The following observations are made with a hope that those discrepancies between theory and practice may tend to a more rigid adherence to experimental inquiries in other branches of practical science; but especially, that they may lead to a more varied and extensive series of experiments to ascertain the best form of boats, not only at the cost of public companies, whose canal property may well demand it, but also at the expense of government, who lay out large sums in steam navigation; for I trust it is clearly shown, that very great alterations and improvements may be made in the models of all ships and boats which are not impelled by the wind, and that passengers and light goods may be carried by canals at a velocity hitherto supposed to be impracticable.

On the Resistance of Water to the Passage of Boats on Canals, &c.

The laws which regulate the resistance and impulse of fluids are involved in such obscurity, that candid investigation of this

branch of science are compelled to confess, that the dissertations of the physico-mathematician have failed in utility, and that even the deductions of the logician have been almost altogether ineffectual. The assumptions of the former, from which propositions have been deduced, and theories given out, are, at best, founded only on an hypothesis; the reasonings of the latter rest upon limited experience, and, in some cases, ill observed phenomena. And there is probably no branch of science which has so much engrossed the attention of the philosopher, and from which so little practical good has resulted.

That such is the fact, and that the farther the subject has been investigated, the more difficulties have been met with, if not always acknowledged, few can venture to deny.

If, in his zeal for information, the inquirer of the present day searches the shelves of philosophy, his labor will terminate in the settled conviction, that this branch of science is but yet in its infancy, even although illustrated by the novel algebraical calculus, and the beautiful results derived from it by French ingenuity. A long course of patient experiment will alone warrant the adoption of formulæ; for as yet, as far as regards the mere resistance of the fluid, the practical application of the laws founded by the mathematician, has failed in producing any form which will rival the skiff of the Indian, the canoe of the Esquimaux, or the junk of the Chinese.

These observations apply to all boats and ships impelled by any other force than the wind; and this must not be forgotten, whilst we proceed to examine one particular department, viz. canal navigation. Every body moving in or upon the water, it will be seen, is under similar laws; and although the following results apply particularly to canal boats, they, nevertheless, are applicable to every other body which has to make its course by water.

The object immediately in view, when we place a boat or barge upon water, is a good conveyance for persons and property. So is it when we place a wheeled carriage upon a gravelled road, or a sledge upon snow. The difference, however, in the modes of attaining this object, has been most striking. In each of these cases, the body to be moved has been rested on soft or yielding matter, and whilst, in the two latter cases, no mechanic would provide for the wheels of the carriage, or the runners of the sledge, a facility for cutting along, immersed in the softer matter under them, the boat-builder seems to have studied how he could best keep his vessel ploughing her way. The case may be different with sea-going vessels, which are impelled by the action of a wind "on the beam," and ships of war, with their decks loaded with weighty guns; in such cases it is necessary that the vessel be a good deal immersed. Nor can it be satisfactorily shown, that even sea-going ships would not be improved by such a build as would enable them to rise to the surface of the water. But to pursue our *reductio ad absurdum*: there are many cases in navigation, where a sharp "cut-water" shape to a boat would be as unphilosophical as a knife-edged felloe would be to a wheel intended for ploughed land. A cart-wheel will, on gravel or other yielding matter, sink to the determined line of gravitation with as much certainty as will a boat upon water; and a boat resting in water will (according to the velocity given to it, and the form of its prow and bottom,) rise nearer the surface of the water, as well as a cart-wheel will rise

when put rapidly into motion. The difference of density is, no doubt, much greater in one case than in the other; but the water will resist the penetration of the boat in the same manner, though not in the same degree, as the soft gravel or mould resists the wheel. Notwithstanding a conclusion so obvious to those who know the laws of gravitation, and the properties of matter, so easily calculated by every one who understands any thing of the combination of forces,* we find it has been neglected in order to determine what law regulates the movement of a body immersed to the same depth, at all velocities.

At a time when it was generally held, that the resistance to a vessel in the water increased in the duplicate ratio of the velocity of the vessel through the water, the now keenly contested merits of railway transport, and canal transport, were brought under public discussion. Experiments were instituted in order to confirm this law of resistance, but it occurred to none of the experimentalists that, although they could not increase the density of the water, or harden it, as has been done with roads for carriages, that they could still increase the relative resistance of water, by giving the boat such velocity that her prow could not penetrate fast enough, and thus that she should rise out of the fluid. They might have reasoned, by a perfectly fair analogy between conveyance on land or on snow, and conveyance of water, and have legitimately concluded that, as their object was not to cut through gravel, but to get on it, in the one case, so at high velocities in the other, they should not have endeavored only to cut through the water, but also to raise the boat to the surface, and make her skim thereon.

Such facts are obvious to all, who have seen a boy make a thin stone skim the surface of a lake,—who have watched the action of a cannon ball on the smooth sea,—who have felt the difficulty of making any impression upon the stream forced from the small aperture of a fire-engine hose-pipe,—or, indeed, who know any thing of the properties of matter; but they had never been applied to the purposes of navigation, until it occurred to Mr. Houston, of Johnstone Castle, to try the effect of a light gig-shaped boat upon a canal; and it is very surprising that the most strenuous advocates for the adoption of such boats still reject the above facts, as irrelevant. It matters not whether the water be forced against the object, or the object be forced against the water.

In the month of June, 1830, Mr. Houston succeeded in having a light, long, and shallow wrought-iron canal boat, established upon the Ardrossan canal, in Scotland, between Paisley and Glasgow. Since that period, such boats have continued to run regularly, conveying about sixty passengers a distance of "twelve miles, at a rate of eight miles an hour, stoppages included." Succeeding improvements in the construction of the boat, as well as in the mode of working the horses, enable us to state the above as a minimum of performance. In the Appendix (A) will be found a specification of one of such boats, and Plates III.

* We find a good illustration of this resistance in "A Winter in Lapland and Sweden by Arthur de Capell Brooker, 1727," p. 338.—"The real superiority of the skielobers is chiefly shown when the enemy halt after a long march. Whatever precaution may then be taken, they are in constant danger from troops which have no occasion for path or road, and traverse with indifference marshes, lakes, rivers, and mountains. Even in those parts where the ice is too feeble to bear the weight of a man, the skielobers glide safely over, by the mere rapidity of his motion."

IV. and V. show their form and dimensions. The following quotation from the advertisements, the truth of which is well authenticated, shows the cheap rate of conveyance.

	Distance. Cabin. Steerage.		
"Fare between Glasgow and Paisley.....	8 miles.	9d.	6d.
Fare between Glasgow and Johnstone.....	12	12	9
Fare between Paisley and Johnstone.....	4	5	3
Intermediate distance as in the way-bill.			

"The boats, at times, carry twelve hundred passengers in one day; and during eight months of last year, (1832,) notwithstanding the prevalence of cholera, they conveyed one hundred and twenty-six passengers, which is at the rate of fifteen thousand seven hundred and fifty, monthly."

Mr. Thomas Grahame, in his "Letter to Canal Proprietors and Traders," says, "The experiments of great velocity have been tried and proved on the narrowest, shallowest, and most curved Canal in Scotland, viz. the Ardrossan or Paisley Canal, connecting the city of Glasgow with the town of Paisley and village of Johnstone, a distance of twelve miles." The result has disproved every previous theory as to difficulty and expense of attaining great velocity on canals; and as to the danger or damage to the banks of canals by great velocity in moving vessels along them.

"The ordinary speed for the conveyance of passengers on the Ardrossan canal, has for nearly two years been from nine to ten miles an hour, and although there are fourteen journeys along the canal per day, at this rapid speed, the banks of the canal have sustained no injury."

The boats are formed seventy feet in length, about five feet six inches broad, and, but for the extreme narrowness of the canal, might be made broader. They carry easily from seventy to eighty passengers, and when required, can, and have carried upwards of one hundred and ten passengers. The entire cost of a boat, and fittings up, is about £125. The hulls are formed of light iron plates and ribs, and the covering is of wood and light oiled cloth. They are more airy, light, and comfortable, than any coach. They permit the passengers to move about from the outer to the inner cabin, and the fares per mile are one penny in the first, and three farthings in the second cabin. The passengers are all carried under cover, having the privilege also of an uncovered space. These boats are drawn by two horses (the prices of which may be from £50 to £60 per pair) in stages of four miles in length, which are done in from twenty-two to twenty-five minutes, including stoppages to let out and take in passengers, each set of horses doing three or four stages alternately each day. In fact, the boats are drawn through this narrow and shallow canal at a velocity which many celebrated engineers had demonstrated, and which the public believed to be impossible."

Mr. Grahame then proceeds making apparent his want of confidence in railways—"The entire amount of the whole expenses of attendants and horses, and of running one of these boats four trips of twelve miles each (the length of the canal) or forty-eight miles daily, including interest on the capital, and twenty per cent. laid aside annually for replacement of the boats, or loss on the capital therein invested, and a considerable sum laid aside for accidents and replacement of the horses, is 700l. some odd shillings, or taking the number of working days to be three hundred and

twelve annually, something under 2l. 4s. 3d. per day, or about 11d. per mile. The actual cost of carrying from eighty to one hundred persons, a distance of thirty miles, (the length of the Liverpool railway,) at a velocity of nearly ten miles an hour, on the Paisley Canal, one of the most curved, narrow, and shallow canals in Britain, is therefore just 1l. 7s. 6d. sterling. Such are the facts, and incredible as they may appear, they are facts which no one who inquires can possibly doubt."

The following is a statement I am enabled to publish showing the gross expense of running old heavy boats on the Paisley canal at the rate of four miles per hour, and new light boats on the same canal at the rate of ten miles per hour, and the comparative expense per mile; also the number of passengers carried before and after the introduction of the high and cheap speeds.

Speed per hr.	Number of passengers carried	Number of miles run each day	Whole expense per year	Cost per mile, year taken at 315 days
1830* . . 4	32831	48	700l. 4s. 7d.	11d.
1831† . . 10	79455	vary'g	1316l. 17s. 5d.	—
1833† . . 10	148516	152	218l. 5s. 11d.	104d.

The power of conveyance thus established on the Paisley canal, may be judged of from the fact that on the 31st of December, 1832, and 31st of January, 1833, there were conveyed in these boats nearly 2,500 passengers.

The number of passengers continue to increase. The number carried in April, 1833, was twenty thousand, or at the rate of two hundred and forty thousand yearly.

It does, therefore, appear surprising, that canal owners in particular, whose property was daily becoming less valuable in the share market, by the alleged superiority of railway conveyances, should have been so blind or supine as to allow nearly three years to pass over, without making vigorous efforts to follow the successful example; but it is not the less true that they were, and indeed are still so; although, if the system be a good one, and practicable, and lucrative, as to me it appears undoubtedly to be, they could not have hit upon a more happy arrangement for keeping up their dividends, and for improving their property to a greater extent than it has arrived at, since the commencement of canal navigation in England. In many situations throughout the kingdom, where the quick transit of passengers, and even of light goods, was of consequence, it would not only enable the canal companies to compete with existing turnpike roads, but also to supersede the necessity for railways for general purposes.

We must suppose that canal proprietors did not credit the various reports in circulation as to the speed at which the boats were drawn upon the Paisley canal, the ease with which horses perform their work, and the small surge produced on the sides of the canal. But even supposing many of these reports to be exaggerated, and that false conclusions were come to by those who witnessed the performance, the great points of speed and economy were established to the satisfaction of many inquirers. Had the facts been known to canal proprietors, we should have expected the institution of a series of experiments long ere this, for ascertaining the actual resistance of boats at high velocities, and under every

variety of circumstance, as well as the best form of boat suited to these velocities; the height of the wave or surge, as well as its character and effects, and many other important features, which were now for the first time exhibited.

It is most unaccountable why canal companies did nothing to determine such; and it is to be hoped they may now be induced to institute extensive experiments. The few experiments which are detailed in the following pages, though made with as much accuracy as circumstances would admit, and though they are conclusive on some points, are by no means as extensive and varied as the importance of the subject demands. The scale of expenses was so exceedingly limited that they could not be carried farther, and others of still greater importance have not, in consequence, been undertaken, and remain yet to be made.

The energy and inquiring habits of Mr. Telford would not let such a practically useful inquiry remain dormant. He therefore directed me to make some preliminary experiments on a small scale, and to his liberality we are indebted for the first series, which were made entirely at his expense, in the National Gallery of Practical Science in Adelaide street; where the arrangements of the room were so admirable, and the accommodation, which the managers of the Gallery always gave for uninterrupted experiment during three weeks, was such,* that the most accurate results were obtained on a limited sheet of paper.

Plate (I.) represents the plan and elevation of the reservoir of water in the National Gallery of Practical Science in Adelaide street, with the apparatus which was fitted up by Mr. Saxton, for the purpose of making the experiments. The straight part of the reservoir is seventy feet long, and four feet wide, with upright sides. The wheel and axle, B & b, were of excellent workmanship; the axle on which the weight acted was of hard wood, three and a half inches in diameter, and the wheel on which the line that pulled the boats was coiled, was of brass, thirteen inches in diameter; the axis on which the wheel and axle turned was of polished steel, half an inch in diameter, working in brass. The pulley or sheave F, f, which was attached to the tin box or can, C & c, which held the weights, was of brass, two and a half inches in diameter, and its axis was of steel, with conical points working in brass. The line used for the weight was of cat-gut, one eighth of an inch in diameter, and the lines used for pulling the boats were, in some of the experiments, of silk, in others hemp, varying in thickness from one fortieth to one twentieth of an inch in diameter. The tension of the line in each experiment, or the force which was exerted on the boat by a given weight, placed in the bucket C & c, was not determined by calculations, but practically and accurately ascertained, not only by a spring dial placed on the line as at f, but also by an accurate beam and scales, furnished by Mr. Simms; by which means any mistake or inaccuracy in estimating the quantity of power, was effectually prevented. The boat is seen at (a, a) as she appeared in her passage from one end of the straight canal to the other; the moving power being the weight in the bucket (C & c).

* Every gentleman who witnessed the experiments, and saw the facilities with which the Committee and their manager, Mr. Payne, gave, agrees with me in bearing testimony to the liberal and philosophical spirit with which we were aided. They not only allowed a large portion of the gallery to be set apart, and put themselves to considerable inconvenience, but ordered the free admission of all persons interested or assisting in the experiments.

In making some preliminary experiments it was found that a considerable space was necessary to be passed over by the boats, from the point of starting, before they acquired a uniform velocity. It was therefore found necessary to limit the distance over which the uniform motion was measured, to a space of fifty feet, and consequently, great accuracy was necessary in determining the time of the boat's transit over so short a space. I therefore applied to my friends, Messrs. Arnold and Dent, the celebrated chronometer makers, in the Strand, who, with that liberality which usually accompanies science, not only furnished me with chronometers, but Mr. Dent himself, more than once, assisted in measuring the time, and comparing it with that observed by Mr. Turnbull and Mr. Bourns, whose accurate and careful observations have contributed so much to the success of these experiments.

Occasionally two, and sometimes three chronometers were used, placed as at (A, A,) on brackets, screwed to the side of the reservoir, at the commencement and at the end of the measured space.

Close to these chronometers, and exactly at fifty feet apart,* two brass wires were stretched across the reservoir, at eight inches above the surface of the water; by means of which wires the observers could determine the exact instant of time that the bow of the boat came under them, as they were slightly touched by a slender piece of brass wire, rising perpendicularly from the stem of the boat.

In some of the first experiments it was found extremely troublesome to ascertain the exact interval of time of the boats passing between the wires, in consequence of the chronometers having different rates of going; but this difficulty was obviated by a suggestion of Mr. Cubitt, who proposed that after a certain number of experiments, the place of the chronometers should be changed, and the experiments repeated. This effectually obviated the difficulty, and enabled us to get the time with great precision. In the latter experiments, only one chronometer was used; it was placed on the bracket at the first wire, and a line was brought from the second wire, along the side of the reservoir, up to the point: by which means, the observer, holding the line in his hand, and keeping his finger on the wire next him, was enabled to ascertain, by the touch, the passage of the boat under each wire, and the exact time intervening between each wire, by counting the number of beats of the chronometer. These experiments were frequently repeated, and the times noted by different observers, without communicating the results to each other, until each series was completed, after which they were compared, and the mean time taken.

In making the experiments, the line was made fast to the stem of the boat, which was then drawn to the farther end of the reservoir; the required weight was put in the bucket, and on a signal being given, the boat was disengaged, and drawn by the weight in the bucket to the opposite end of the reservoir, where it was stopped by a bag of cork shavings (f). In some of these experiments an additional weight was allowed to act on the boat for the first twenty feet, in order to get up the velocity; then it was cut off, and the boat went on with the uniform velocity; this was accomplished by putting a ring of lead (x), weighing 20 pounds, on the top of the bucket holding the weights, and making this ring fast by

* In most of these experiments this distance was reduced to 20 feet, as shown in the "general plan."

* These charges are the bare outlays.

† These charges include loss on purchase and sale of additional horses, and ten per cent. on cost of horses, boats; deposited in a contingent fund.

Figure 1.

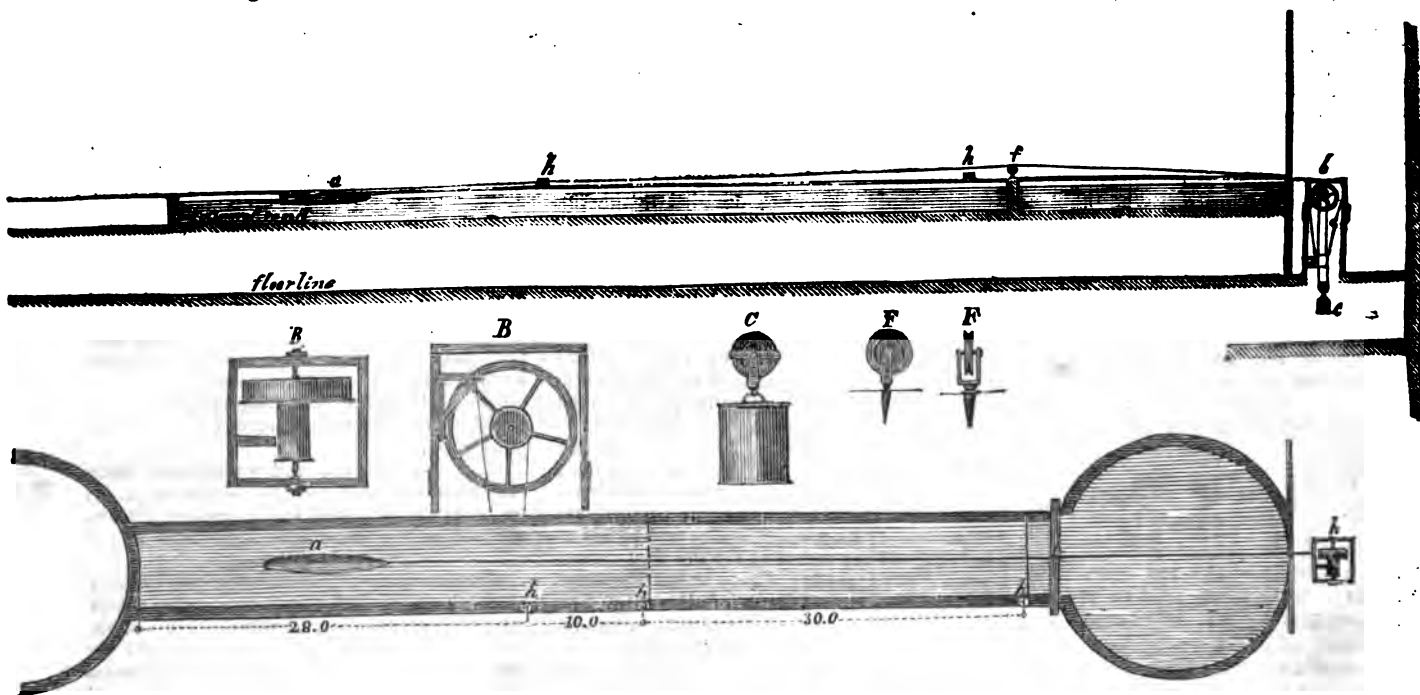
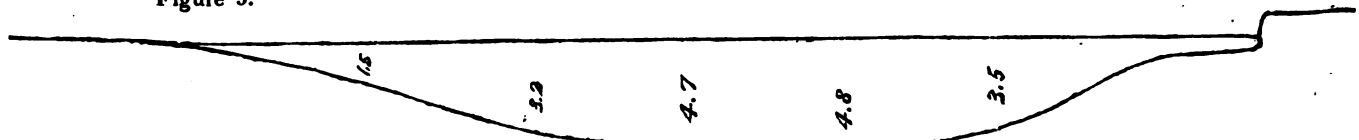


Figure 2.



Figure 3.



four lines to the upper frame work, these lines being of sufficient length to allow the ring to act on the bucket, and to descend with it through a given space.

TABLE I.—Experiments made with different models over the sheet of water in the National Gallery of Practical Science, London, for the purpose of ascertaining the law of resistance, or force of traction at different velocities.

The boat used for the experiments was 10 ft. 2 inches long, 8.5-10 inches broad at water level, 3.5 inches deep, and when empty immersed 1.5 inches, and weighed 22.19 lbs.

In the first series of eight experiments, 17.06 lbs. of shot were placed in the centre of the boat, making its weight 39.25 lbs., and a line made fast to the boat, extended the length of the reservoir of water, and over a pulley, with one lb. weight attached to it. The length of the canal or reservoir in which the experiments were formed was 70 feet; but the space marked out to be passed over with a uniform velocity was 30 feet; the first part of the space being used merely to attain headway. The shortest period of passing the 30 feet marked off was 9.4-10, and the longest 10 seconds, giving an average rate of 2.069 miles per hour—with a force of traction or weight on the towing line during each experiment of 0.466 lbs.

and an average difference of +0.40 between theory and experiment.

In the second series of eight experiments, boat, load, and distance same as above, with 5 lbs. weight attached to the cord—the time was 7.0—7.0—7.0—7.0—7.20—7.4—7.0—7.0 seconds, and the average velocity 2.802 miles per hour—and the force of traction, or weight on the towing line, during each experiment, 1 lb., with a difference between theory and experiment of -0.102.

In the third series of eleven experiments, the boat, load, and distance same as in the first and second series, with 10 lbs. attached to the cord, time in seconds of passing the 30 feet with uniform velocity was 6.2—6.2—6.0—6.4—6.2—6.2—6.4—6.2—6.0—6.2—6.4—with an average of 3.290 miles per hour, and a force of traction of 1.718 lbs.—or weight on the towing rope during each experiment, giving a difference of -0.556 between theory and experiment.

In the fourth series of ten experiments, boat, load, and distance same as above, with 20 lbs. weight attached to the cord; the time in seconds of passing 30 feet was 4.0—4.2—3.8—3.4—4.0—4.0—4.0—3.8—4.0—4.0 seconds, or an average of 5.232 miles per hour, with a force of traction, or weight on the towing line during the experiments—giving a difference of -0.216 between theory and experiment.

In the fifth series of nine experiments, boat, load, and distance same as in preceding, with 40 lbs. weight attached to the cord, the time in seconds of passing 30 feet was as follows: 2.8—2.8—3.0—2.8—3.0—2.8—2.8—2.8—2.8 seconds, or an average of 7.196 miles per hour, with a force of traction, or weight on the cord, of 5.812 lbs. during each experiment, and -0.251 between theory and experiment.

In the sixth series of six experiments, boat, &c., as in preceding experiments, with 60 lbs. attached to the cord, the time of passing 30 feet was as follows, viz.: 2.2—2.0—2.2—2.2—2.0—2.0 seconds, or an average of 9.607 miles per hour, and force of traction of 8.500 lbs. on the towing line during each experiment—with a difference of +1.412 between theory and experiment.

In the seventh series of three experiments, weight of boat and cargo 58.06, distance 30 feet, with 10 lbs. weight attached to the cord, the time of passing 30 feet was as follows, 7.0—7.2—6.8; making an average of 2.932 miles per hour—force of traction, or weight on the towing line 1.718—giving a difference between theory and experiments of -0.800.

In the eighth series of five experiments, boat, cargo and distance, same as in preceding series, with 20 lbs. attached to the towing line, the time of passing 30 feet was as follows: 5.4—5.2—5.4—5.4—5.2—ma-

king an average of 3.845 miles per hour, with a force of traction, or weight on the towing line, of 3.156; making a difference between theory and experiments, of -1.568.

In the ninth series of eight experiments, the boat weighing 22.19 without load, the distance passed over, and weight attached to towing line, same as in the preceding, time of passing 30 feet was as follows, viz.: 3.0—3.0—2.9—3.2—3.1—3.2—3.0—3.2—at an average rate of 6.600 miles per hour, with a force of traction, or weight on the towing line during each experiment, of 3.156; making a difference between theory and experiment, of +1.608.

In the tenth series of four experiments, or from the 69th to the 72d; the boat, distance, space and weight, attached to the rope same as in preceding, the time of passing over 30 feet was as follows, viz.: 3.0—3.0—3.1—3.0, at an average rate of 6.763 per hour, with a force of traction, or weight on the towing line, of 3.156; making a difference between theory and actual experiment of +1.756. In this series, an additional 10 lbs. weight was added for the first 30 feet of the canal, to bring the boat to her full speed, before reaching the measured space of 30 feet.

In the eleventh series of seven experiments, or 73 to 79 inclusive, the boat, load and space passed over, same as in the first series, with a weight of 20 lbs. attached to the line, the time of passing 30 feet was as follows, viz.: 3.4—3.6—3.6—3.4—3.6—3.6—3.8, at an average rate of 5.601 per hour, with a force of traction, or weight on the rope, during each experiment, of 3.156, giving a difference between theory and experiments of +0.322. In this series an ac-

celerating force of 10 lbs. was added during the first 20 feet of the canal.

In the twelfth series, or from 80 to 82 inclusive, boat, load, space and power, (except the 10 lbs. additional,) as in the preceding time as follows: 3.8—4.0—3.6, with an average of 5.392 per hour, and a power of traction of 3.156, and a difference of -0.034 between theory and experiment.

In the thirteenth series, from 83 to 87 inclusive, boat, load and space, same as in preceding, with 40 lbs. weight, (and 10 lbs. additional to 86 and 87,) the time in passing the thirty feet, was as follows, viz.: 2.8—2.7—2.7—2.7—2.7—with an average speed, of 7.521 miles per hour, force of traction of 5.812; making a difference between theory and experiment, of +0.263.

In the fourteenth series, or from 88 to 92 inclusive, boat, load and space, same as in preceding, with 70 lbs. attached to the rope, the time of passing over the 30 feet was 1.9—1.9—1.8—1.6—2.0—with an average rate of 11.180 miles per hour, power of traction 9.863; making a difference between theory and experiment of +3.561.

In the fifteenth series, from 93 to 101 inclusive, boat and space, same as in preceding, and in No. 1, with 80 lbs. attached to rope, the time of passing 30 feet was as follows: 1.9—1.8—1.8—1.8—1.8—1.6—1.6—1.6—or an average of 11.923 miles per hour, and a power of traction of 11.217, and a difference between theory and experiment of 4.063.

The following experiments are given in full as contained in the table, and not, as in the previous descriptions, in a condensed form.

I call attention particularly to these individual experiments, in order that the wide deviation may be noticed, and serve to shake the confidence still entertained by the adherents of the old school, who cannot allow that a high velocity is attainable upon canals with economy. Not that I consider the old law of the squares to be incorrectly stated; in so far as the boat remains immersed in the water to the same water line, that law may be correct; but that whenever the velocity of the boat is increased beyond a certain point, as will be seen hereafter, the boat emerges a little out of the water, and skims nearer the surface. The transverse section of immersion being lessened. This will be proved as we proceed.

Such facts being obtained and found to differ so widely from the opinions of philosophers, it was exceedingly desirable that they should not go forth to the public without the fullest confirmation. Happily for science, Colonel Page, Chairman of the Kennett and Avon Canal Company, to whose exertions and liberality it is entirely owing, induced the principal canal companies in England* to subscribe towards paying the expenses of an extended course of experiments with a large boat. I accordingly proceeded to Scotland, and purchased one of the Paisley Canal Company's quick boats, "the Swallow," which we afterwards named the "Grahame and Houston," in compliment to the two gentlemen who have been so eminently successful in improving the canal conveyance of Scotland. Indeed, Mr. Grahame's letters on the subject of canal navigation will furnish the most satisfactory reason why we should have used his name for the boat.

* The Grand Junction, the Kennett and Avon, the Aire and Calder, the Oxford, and the Leeds and Liverpool.

The National Intelligencer says: We refer those who are interested in such undertakings, to the invitation to contractors, given by the Georgia Union Railroad Company, in this day's paper. Lest any persons in the northern parts of the Union, disposed to offer for the contract, may be deterred by apprehensions of unhealthfulness of the country through which the road passes, we think it proper to state that the route of the road pursues the elevated ridge separating the waters falling into the Savannah river from those falling into the Ogeechee and Oconee rivers, and is presumed to be as healthy as any tract in the Southern country. The length of this road is 75 miles, and it is intended to extend branches to Athens and to Madison, making in all 145 miles of railway.

The New-Brunswick Fredonian says, that Railroad Stocks are all the go now-a-days, among the speculators and capitalists. A few days since books were opened in Philadelphia for subscription to the stock of the Lancaster, Portsmouth and Harriburg Railroad. In thirty-one minutes every share was taken, and a large number applied for beyond the ability of the Commissioners to supply.

The stock of the New-Jersey Railroad and Transportation Company is gradually advancing to its real value. It is eagerly sought after now at 126, and will, it is believed, not stop much, if any, short of 200! The stock of the Camden and Amboy Railroad is also selling at an advance of something like fifty per cent.

It is stated by the Belfast, Maine, Advocate, that there will be sowed on the Penobscot this year, one hundred and fifty million feet of boards—worth at the mill three million dollars.

Number of Experiments.	Weight of Boat and Cargo.	Space passed over.	Time.	Miles per hour.	Moving Power.	Force of traction, or weight on the rope.	Force of traction calculated as squares of velocities.	Difference between theory & experiment.	GENERAL REMARKS.
102	39.25	30	3.1	6.598	40	5.812	4.675	-1.137	One weight was placed in the centre of the boat; another weight 18 inches from the centre, abaft; and another 15 inches from the centre, forward.
103	"	"	3.0	6.818	"	"	4.992	-0.820	
104	"	"	2.7	7.575	"	"	6.162	+0.350	
105	"	"	3.6	5.681	20	3.156	3.466	+0.310	
106	"	"	3.8	5.392	20	"	3.111	-0.045	
107	"	"	3.6	5.681	"	"	3.466	-0.310	
108	"	"	3.8	5.392	"	"	3.111	-0.045	
109	"	"	3.8	5.392	"	"	3.111	-0.045	
110	"	"	5.6	3.653	"	"	1.433	-1.723	
111	"	"	3.1	5.382	"	"	3.111	-0.045	Weights distributed as in No. 102.
112	"	"	3.8	5.532	"	"	3.111	+0.045	
113	"	"	3.9	5.245	"	"	2.954	-0.202	
114	"	"	3.9	5.245	"	"	2.954	-0.202	
115	"	"	2.0	10.927	60	8.500	11.233	+2.733	
116	"	"	2.0	10.927	60	"	11.233	+2.733	
117	"	"	2.0	10.927	60	"	11.233	+2.733	
118	"	"	1.5	13.636	80	11.217	19.970	+8.753	
119	"	"	1.6	12.784	80	11.217	17.552	+6.335	
120	"	"	1.5	13.636	90	12.619	19.970	+8.351	Grahame boat model.—Weight of boat alone 22.19 lbs.; length, 10 feet 9 in.; breadth at water line 8.5 in.; depth, 3.5 in.; do., immersed when empty, 1.5 in. One weight 94 in. from the stern; a second weight 94 in. more forward; and a third 24 in. still more forward.
121	"	"	1.4	14.610	90	12.619	22.294	+10.305	
122	"	"	1.5	13.636	90	12.619	19.970	+7.351	
123	"	"	1.5	13.636	90	12.619	19.970	+7.351	
124	"	"	1.4	14.610	100	14.021	22.924	+8.903	
125	"	"	3.8	5.532	10	1.718	"	"	
126	"	"	4.0	5.113	10	1.718	"	"	
127	"	"	3.6	5.681	30	4.359	"	"	
128	"	"	3.0	6.818	50	7.265	"	"	
129	"	"	3.2	6.392	50	7.265	"	"	
130	"	"	3.6	5.681	50	7.265	"	"	Bell boat model. Weight 9 lb. 13 oz.
131	"	"	2.6	7.867	10	1.718	"	"	
132	"	"	2.8	7.305	10	1.718	"	"	
133	"	"	2.6	7.867	10	1.718	"	"	
134	"	"	1.8	11.363	20	3.156	"	"	
135	"	"	1.8	11.363	20	3.156	"	"	

It will be observed in the above tables, that as the velocity was increased, the power did not require to be increased in any thing like the duplicate ratio, and that the difference shown in the above column, betwixt the theory of the duplicate ratio and the actual experiments, becomes greater as the velocity is increased. I select from these experiments the following as instan-

ces. They are not taken from the means, but from the items of the experiments themselves.

At a velocity per hour of

2.703 miles, 1.	lb is required, or	180 more
5.382 "	3.156 "	" .045 "
5.382 "	3.156 "	" .945 "
10.765 "	9.803 "	" 2.353 less
6.792 "	3.156 "	" 1.262 "
12.734 "	11.317 "	" 6.335 "

than the theory of the square.

Central-discharging Water Wheel,
New-York, March 18th, 1885.

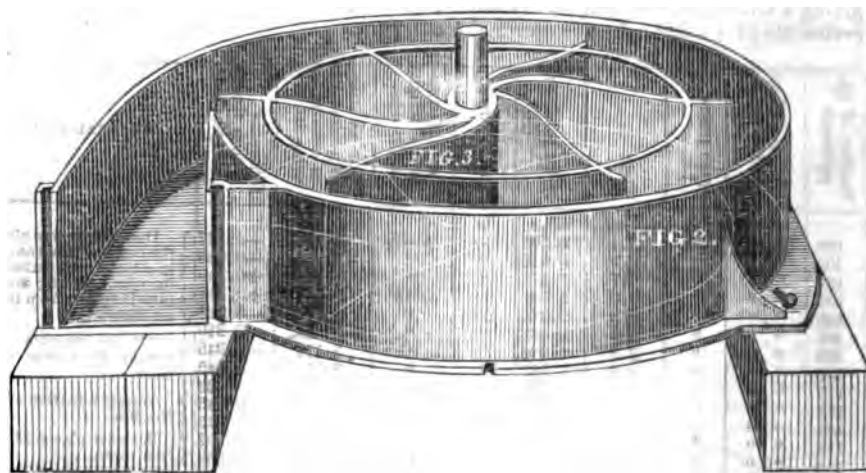
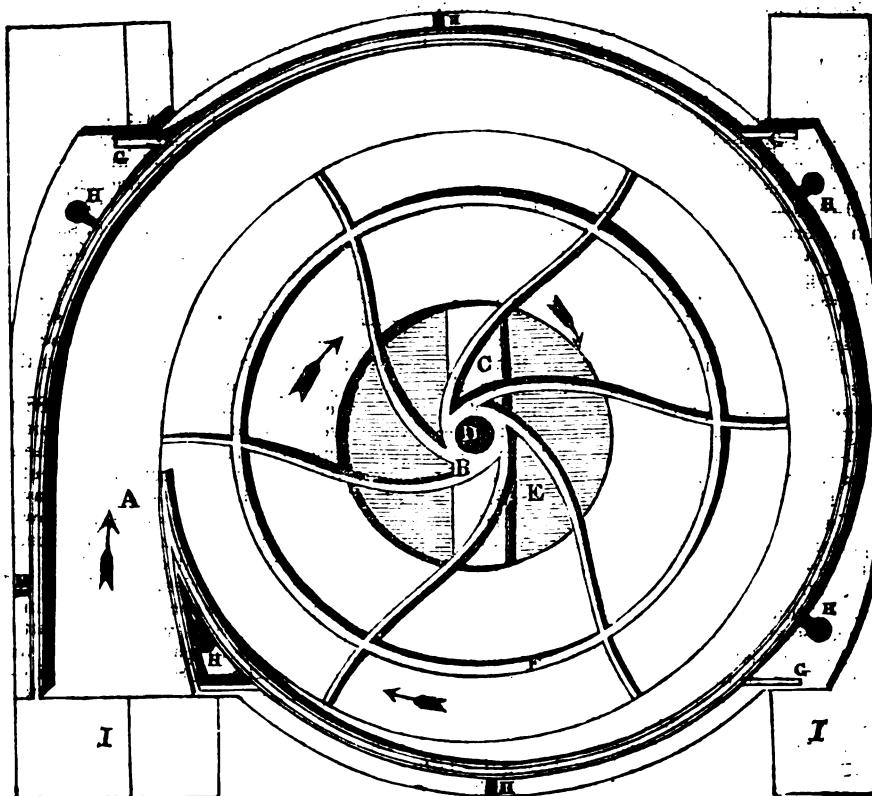
To the Editor of the *Mechanics' Magazine*:

Sir,—I herewith forward you a drawing of Joel Eastman's Central-discharging Water Wheel, patented lately. The inventor died before he had brought it to that degree of perfection it has now attained. The undersigned being a joint patentee, has devoted considerable attention to this wheel, in order that he might present it to the public for their patronage, in a form that would do them, and the wheel itself, justice. This, he thinks, has now been fully attained. During the last year, many of them have been built and put in motion in the western part of New-York, with a degree of success unprecedented. The wheel is adapted to all degrees of head and fall. It runs as well in backwater as out of it, the head being the same. In cold climates, where the ice is troublesome, this wheel is a relief from the difficulty, as it can be so placed that ice cannot form near it. It may be wholly buried in water to effect this object, in which case the shaft must be surrounded with a water-tight case, to prevent the water from coming into the wheel around the shaft, as that would injure its action.

In many instances this wheel has been put in comparison with those before in use, and in every instance the comparison has been very much in its favor. A few facts on this point will be stated in this place, believing they will be acceptable to your readers, and especially interesting to mill owners.

The first wheel which the undersigned put in operation was for Messrs. Ford & Chapman, Clyde, Wayne County. The head and fall in this case was 4 feet; it took the place of a reaching wheel, and was designed to carry two large double carding machines, pecker, and a grindstone. The wheel was made of wood, 4½ feet diameter, 4 arms, or floats, morticed through the shaft, 12 inches wide. The throat was 8 inches wide, and 12 inches high, = 96 square inches area of water. The reaching wheel had 12 openings, whose aggregate area amounted to 336 square inches. In this place it should be remarked, that, from the peculiar nature of this wheel, it does not expend the water so fast under the same head and aperture, as in the case of the wheels in common use. When the wheel runs, light, or without a load, the difference is one half; in other words, only half as much water is expended as would flow through the same aperture when the wheel is removed out of the way. This has been ascertained by experiment. When the wheel is charged with its ordinary load, the expense of water is one third less than if discharged under the same head and aperture on an undershot wheel; so that in the case above, where the aperture was 96 inches, the expense was only equal to 62 inches.

When this wheel was set to work, it was found to exert more power than the reaching wheel, which the millwrights in this case judged consumed from four



to six times as much water. When the operation of fulling commenced, this wheel was found able to finish a stock of cloth in six hours that used to require eight hours by the reaching wheel. This wheel was built and put in motion in three days by four men, and, as may be supposed from the above statement, gave great satisfaction. The proprietors, among the most intelligent mill owners in the State, unsolicited, have furnished me with a statement of the performance of this wheel, certified.

Another wheel was put in motion in Eldridge. It took the place of a tub wheel, 6½ feet diameter, which received 280 inches of water. This wheel was 5 feet 10 inches, used just one half of the water required by the tub wheel to drive a pair of heavy rock cornstones, and with one half the water it ground faster.

In Courtland County, there are about

20 of these wheels in use, generally with a head and fall of about 5 feet, on a stream very sluggish, and in time of floods the head is sometimes reduced to 16 inches; still the wheel goes, though with less power, bearing a just proportion to the head and fall. The general rate of the performance of this wheel is, that it requires only half the water used on the ordinary undershot, tub, and flutter wheels, and about one third less than a low breast wheel; and, as it is known that the overshot wheel doubles the working effect with some water and head used by the undershot, it follows from analogy that this wheel (being found to do the same) is equal to the overshot in its effect. It has not been tested against an overshot wheel, except in one instance, a common country mill; in this case it exceeded the overshot in effect, but it is not considered a satisfactory experiment. The under-

signed, however, is so well convinced that it will equal the overshot in its performance, that he would not hesitate to put it to the test under a heavy forfeiture.

Millwrights, generally, when they first see the plan, are inclined to treat it with utter contempt; which, in every case that has come under observation, has been subdued. When they have seen the wheel at work, they uniformly give it up, and admit that it excels all other wheels for low heads, although its being so small and simple puzzles them to account for the effect.

This wheel is also well adapted for saw-mills. When used for this purpose, the shaft is usually placed horizontal, and the wheel vertical. If the head is less than 6 feet, then the best way to apply it to sawing is to form the wheel of its usual size, varying from 4 to 6 feet, according to head and fall, and gear to the crank shaft by two small bevel wheels. There are several saw mills in operation on both of these plans; that is, when the motion is given directly to the crank shaft by the wheel being on it, and by gearing. The accompanying drawing represents one of these wheels, made entirely of cast iron, except seven screw bolts, to secure it in its place upon a foundation of bed timbers. Fig. 1 represents a plan. Fig. 2, a view of the same in perspective. The circle in which the wheels revolve is $4\frac{1}{2}$ feet, about medium size. Fig. 3 shows the wheel in its place, the floats being connected and supported by a ring of iron near their extremities. A represents the throat, by which the water is admitted, 10 wide by 13 high, forming an aperture of 130 square inches. B on the plan represents the wheel; C, the bed piece, supporting the step of the shaft; D, the shaft; E, the opening in the bottom of the case containing the wheel, by which the water is discharged, 2 feet in diameter, equal to 452 square inches. The general rule is, to make the discharging circular opening about four times the dimensions of the aperture by which the water is admitted on the wheel. F, the ring of support to the floats. G G G, brackets to add strength. H H, &c., holes and notches, to admit of bolts to secure the whole together, and to the bed timbers, I I.

The top of the case, in which the wheel revolves, is not shown in the drawing; it is made to fit on the top edge of the rim, forming the spiral exterior of the wheel; a groove of slight depth is formed in it, to admit of making it tight. The throat enlarges outward, and at its extremity on either side is provided with vertical grooves, the more readily to admit of connecting it with the flume. A wheel of this size will weigh from 2000 to 2500 lbs., and can be put up, all expense included, for about \$150. Nearly all the wheels in use are made of wood, in the following manner, viz.: a course of 2 $\frac{1}{2}$ or 3 inch plank is laid level in the bed timbers; the rim, or circumference, is formed of timber framed together at the corners, and curved out so as to form the proper inside shape. The top

is to be formed also of plank jointed together, and the whole well secured together; an opening must be left through the top, to admit the shaft to turn freely, without rubbing.

The periphery of the wheel case varies as much from a true circle as is equal to the breadth of the throat. A convenient mechanical method of generating this spiral curve is as follows: when the breadth of the throat is determined on, prepare a circular piece of wood, whose circumference is equal to the breadth of the throat; plant this circle exactly in the centre of the shaft; then fasten a small wire to the side of the circle opposite the throat, and in a loop prepared for the purpose, put the point of the scribe, and proceed to trace the curve; when an entire revolution is made, the wire will be wound once around the circular plane in the centre, and of course the radius will be shortened just the breadth of the throat. This is a convenient and true method of generating the required spiral curve.

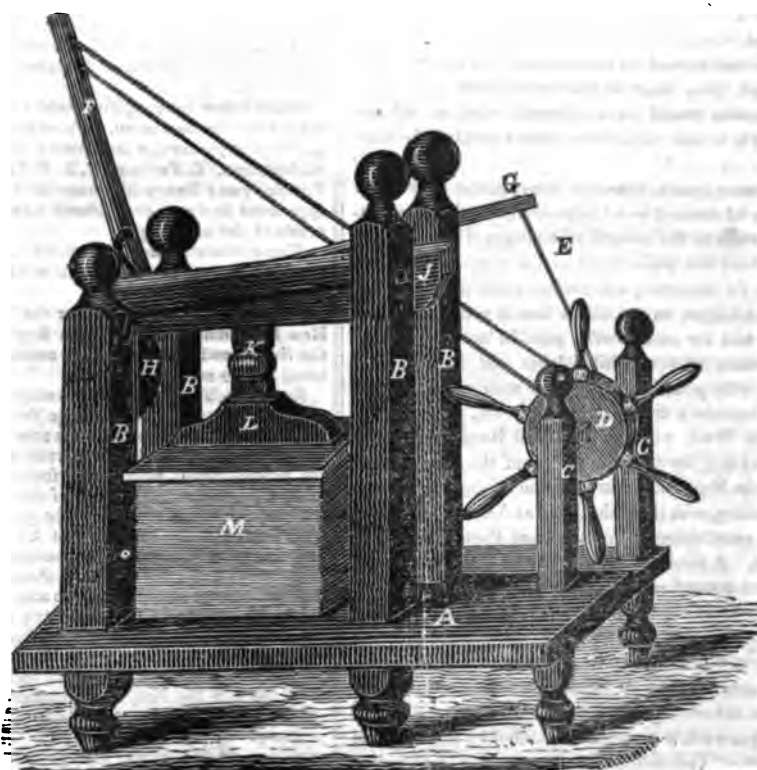
In conclusion, it may be remarked that this wheel is entirely new; in form it is very simple, small in bulk, having no friction except on the journal of the shaft, and the friction of the water in passing through the case. When the

head and fall is eight feet and upwards, no gearing is necessary to give the proper motion to millstones; and when the head of water is below eight feet, single gearing, quite small, is all that is necessary. This wheel runs nearer the motion of the water than any other; and from the known effects of its operation, it clearly proves that water, when acting by its impulsive force, if such force can be intercepted, as is the case in this wheel, yields its maximum effect, equal gravity.

Having thus, sir, at some length, given a description of this new wheel, and the mode in which it may be constructed, should you deem it worthy, you are at liberty to give it a place in your valuable journal. The right to use this invention in all the States and Territories, except Delaware, New-Jersey, New-York, and the Eastern States, is not disposed of. Persons wishing to purchase the right for a State, County, Town, River, or a single dam, will be met on liberal terms by addressing me, post-paid, at this place. The wheel must, in all cases, be properly portioned to the head and fall in any given case, and the power required.

Yours respectfully,

JOHN MARTINEAU.



[From the Mechanics' Magazine.]

Description of Scripture's Power-Press.

On the platform, A, stand six posts, four long, B B B B, and two short, C C. Between the latter is suspended the windlass, D, upon a horizontal shaft, to which is attached one end of the rope, E, which passes in an inclined direction over a sheave in the upper end of an elevated post, F, the foot of which is secured by bolts, or staples, upon one of the long posts, from which sheave the said rope is

returned several times around the shaft of the windlass, D, and is fastened to the outer end of the acting lever, G, the opposite end of which lever is connected by means of an elliptical lever, H, to the power beam, J, which, by the operation of the windlass, D, forces down the moving fulcrum and follower, K and L, upon the material to be acted upon, M.

When this press is arranged for light pressure, as in the pressing of cheese, &c., a weight suspended upon the end of

the acting lever, G, is used instead of the windlass power, as above described.

The proposed advantages of this press, whether employed in heavy or light pressure, is derived from its powerful compound leverage, uniting economy in construction, with facility and simplicity of operation.

This press is well adapted, by a proper variation of its size, to the various purposes of letter pressing, seal and metal stamping, cotton, tobacco, cheese, &c.; for all of which it is manufactured and for sale by FRANCIS S. LAMB, 279 Bleecker, corner of Barrow street, New-York.

N. Y. AND ERIE RAILROAD.—We publish to-day the proceedings of a public meeting, at Owego, in reference to the rejection, by the Legislature, of the application of the N. Y. and Erie Railroad for aid in constructing that work.

It is not surprising that, in the portion of the State whence these proceedings come, there should be such a feeling of resentment against the Legislature, for refusing the assistance which they might, with such perfect safety, have afforded to this enterprise; and which, timely given, would insure its prompt accomplishment.

The Company having it in charge, are indeed earnest in pushing on the work, but they cannot, from private subscription, hope to obtain at once so large a sum as will be requisite, nor feel justified in advancing with as much rapidity, as if the State had agreed to countenance the undertaking. Hence, there must be inevitably more delay than otherwise would have occurred—and in delay—there is in this, as in every other urgent case—danger.

Pennsylvania, however sluggish she may sometimes be deemed as a Commonwealth, is abundantly awake to the natural advantages of her position, and bold and persevering in the adoption of every plan, for improving still further those advantages.

In addition to the direct line of communication, now and for some weeks past, in such successful operation between Philadelphia and Pittsburgh, a new enterprise is about to be undertaken, which will become a direct rival as it were, for the trade of the West, with the Erie Rail Road. It is that connecting, through the waters of the Beaver river and the Mahoning, through the Mahoning valley, Pittsburgh, with the Ohio Canal at Akron—by means of a canal through Trumbull and Portage counties, Ohio. A road, into the heart of that great State is thus opened—direct—avoiding the circuitousness of the Ohio river, and striking the Ohio canal at a point so near Cleveland, as to make it possibly the earliest and easiest route, through that port, to convey merchandise to Michigan, and to the upper parts of Indiana and Illinois.

This work is thus recommended by the Board of Trade of Philadelphia, to the citizens of Pennsylvania.

The Directors of the Board of Trade, observe, with great satisfaction that Books are to be opened in this city, on the 27th instant, for subscriptions to the capital stock of the Pennsylvania and Ohio Canal Company, under the very liberal Charter granted by the two States for the purpose of connecting the great Canals of Ohio and Pennsylvania, by a canal along the valley of the Mahoning to intersect the Ohio canal, at or near Akron—a work which has engaged the attention of the Board of Trade since its organization, and which on several occasions they have urged upon the attention of our Legislature and citizens, as an improvement of vital importance to the State and City. And now that the construction of this valuable improvement is placed within our power, the Board would again press

its claims upon the attention of the commercial and landed interest of our city, and upon all who desire to secure to Pennsylvania and Philadelphia the trade of Ohio, the Upper Lakes, and the Illinois and Indiana Canals, which lead to these Lakes. Therefore,

Resolved, That the Directors of the Board of Trade continue to entertain undiminished confidence in the advantages of a connection with the Ohio Canal, by the route of the Mahoning Valley, and of the important benefits which must result to the trade and commerce of our State and City.

Resolved, That this Board recommend to their fellow citizens, to secure the speedy construction of the said Canal, by promptly filling up the stock on the opening of the books.

Thos. P. Core, President.

J. M. Wright, Sec'y.

The stock, we need not add, was at once taken up—the work will proceed rapidly—and while the sordid calculations of political and personal interests, are permitted to paralyze the public energies, and to trifle with the highest interests, of this great State, Pennsylvania and Maryland are marching with giant strides, to take possession of those avenues of commerce with the West, which, when once formed, it is always most difficult, and frequently impossible, afterwards to change.

Railroad Meeting.

At a meeting of the citizens of Owego and other towns in the county of Tioga, held at the court house, on Friday evening, 10th inst., for the purpose of expressing their sentiments in relation to the recent rejection, by the Assembly, of the bill for aiding the construction of the New York and Erie Railroad—Hon. S. B. Leonard, was called to the chair, and George J. Pumpelly, appointed Secretary.

After a few very spirited and appropriate remarks by the chairman, as also by several other gentlemen present, a committee consisting of L. A. Burrows, T. Farrington, S. B. Leonard, James Pumpelly and Henry McCormick, Esquires, were appointed to draft resolutions expressive of the sense of the meeting.

The committee having retired for a short time, reported the following, which were unanimously adopted:

Resolved, That we consider the New York and Erie Railroad an object of the first importance to the State, and that its speedy construction is dictated by the soundest policy.

Resolved, That we entertain a high regard for the ability and experience of Judge Wright, as an Engineer, and that we believe his recent report to the Legislature, relative to the survey of the route for the contemplated Rail Road from New York to Lake Erie, to be entitled to the fullest credit.

Resolved, That in view of the great benefits that would necessarily flow to the State, when this grand work shall have been consummated, and especially to that portion of it through which the road is to pass,—in view of the strong claim which the southern tier of counties have for a participation in that system of internal improvement for which the bounty of the State has been so liberally extended to other sections of its territory,—and in view, also, of the fact, that an enterprising and responsible Company, chartered for the purpose, have proposed to enter immediately upon the construction of the work, and prosecute it to completion, on condition that the State would lend its aid, by authorizing a loan to the amount of one third of the stock, for which loan the company offered to furnish the most abundant security,—and from the fact, that this proposition, thus honorable as regards the Company, and safe, as respects the interests of the State, has been contumeliously rejected by one branch of our Legislature—we are reluctantly compelled to believe that there exists a settled determination to withhold from these privileges to which we are legitimately entitled, with the view of advancing the interests of our more favored neighbors at the north. Under all these circumstances, we feel called upon, as citizens of the Southern tier of counties, to express our full, unequivocal, and unqualified disapprobation of the course which has been pursued by the present Legislature, and we do not hesitate to pro-

nounce the policy by which they appear to have been governed in this matter, as unjust and oppressive,—and one which, if persisted in, cannot but be productive of the most pernicious consequences. The claims of the Southern section of the State, have been repeatedly and respectfully submitted, for a number of years in succession, by prayers and petitions, and as often have they been turned off with cold neglect. Forbearance, under such circumstances, cannot longer be considered a virtue. We have RIGHTS in this matter, and we owe to ourselves and to our posterity, independently to assert, and, if possible, maintain them. If sectional interests and influences are thus to be arrayed against us, and our equitable claims forever to be disregarded, we shall be compelled to act on the defensive, and waiving all other considerations, have recourse to our own sectional views and interest.

Resolved, That the acknowledgments of this meeting are due to the liberal minded and enterprising directors of the New York and Erie Railroad Company, for the determination manifested by them immediately to commence this great and important work, notwithstanding the refusal of legislative aid for the purpose.

Resolved, That we pledge ourselves to the Directors of the New York and Erie Railroad Company, to sustain them in this spirited and patriotic effort to the best of our ability.

Resolved, That disregarding all minor and party considerations, we will unite with our brethren of the other counties in this sequestered region of the State—in a vigorous and continued effort to assert those rights which have been disregarded and trampled upon, and that we will support no man for office, executive, or legislative, who is not known to be in favor of the New York and Erie Railroad, and who will not exert his utmost effort for the accomplishment of this great and important improvement.

Resolved, That we hereby respectfully request the Members of the Assembly from this county, and the Members of the Senate from this Senate District, to oppose all appropriation of public money for internal improvement, until justice shall be done to the southern tier of counties.

Resolved, That we are unwilling to submit our rights, either political or pecuniary, to the control of an Albany interest—and that when the stockholders and stockjobbers of that city, can bring themselves to bear thus effectively upon the legislation of the State—it is high time the Capitol was removed to some other location.

Resolved, That the thanks of this meeting are due to those members of the Assembly, who by their votes, and by their efforts on the floor of the House, sustained the bill for aiding the New York and Erie Railroad Company.

Resolved, That the thanks of this meeting are also due to those conductors of the newspaper press, who have so ably and faithfully sustained the interests of the southern tier of counties.

Resolved, That with a view to that concert of action which is necessary to the efficiency of our future efforts, it is expedient that a General CONVENTION be held at some central point, in the course of the next summer.

Resolved, That we respectfully recommend to our fellow citizens of the southern tier of counties, to appoint delegates to meet in convention at the Court House in the village of Owego, on Wednesday, the 29th day of July next; and that our fellow citizens of the adjacent counties, and all others interested in the construction of the New York and Erie Railroad, be invited to send delegates to said convention.

Resolved, That this meeting recommend to the people of the several towns in the county of Tioga, that a county convention be held at this place, on the 2d Tuesday in June next, for the purpose of appointing delegates to attend the general convention.

Resolved, That for the above purposes, Jedediah Fay, Ezra S. Sweet, and Harmon Pumpelly, Esq., be a corresponding committee.

Resolved, That the proceedings of this meeting be signed by the officers thereof and published in the "Owego Gazette" and the other papers of the southern tier of counties; and that the editors of all other papers in the State friendly to the object, be respectfully requested to publish the same.

S. B. LEONARD, Chairman.

G. J. PUMPELLY, Secretary.

Pennsylvania Canals and Railroads.—A friend called at our office yesterday, and stated that he had just met a Western Merchant who had the day before returned from Tennessee, after having received, by way of the Pennsylvania Canals and Railroads, a stock of goods that he had purchased in Philadelphia this Spring. In conversation with the gentleman who communicated this statement, the Tennesseean mentioned that a neighbor who travelled with him from the West during his first trip, and who preferred making his purchases in New York, was still in that city waiting for an opportunity to forward his goods by the canals of that state. No wonder our neighbors are anxious for the completion of the Erie Railroad. Goods to the amount of thousands have been passing westward by way of the Pennsylvania improvements, for more than a month past, and yet the Erie canal has but just been filled with water.

The Argus will doubtless think it very questionable policy in us to republish such a paragraph as that above, from the Philadelphia Inquirer—but we feel nevertheless that it is both right and useful to do so. Until this State, and particularly this city, is made sensible of the enormous advantages which year after year Pennsylvania will derive from her earlier communication with the West by her Railroads and canals, than can be had by us, through the Erie Canal, there will not be aroused here that spirit, which alone is wanting, by making the accomplishment of the Erie and New York Railroad a certainty, to secure to New York very much of what Pennsylvania now monopolizes.

We have recently had occasion to see for ourselves, part of the prodigious benefits which the line of internal improvements from Philadelphia to Pittsburgh, is working to both cities, and to every intermediate point on the way. The point at which the railroad commences in Philadelphia—where within a recent period all was dullness—is now alive with the most hurried movements of an immense trade. Ranges of brick stores of the largest dimensions, built and building, line the street on each side for a great length, burdened with innumerable things of the way—and all that steam and animal power can do, seems insufficient to satisfy the demands that are making for transportation both to and from this line.

Philadelphia itself has not known for many years such a trade as she is now carrying on, in sales of merchandise to the West. Merchants in numbers such as she has not before seen, are flocking thither from the valley of the Mississippi to make their purchases—very many of whom would come here in preference, if they could get their goods as early to market. But even though they should buy here and expedite their purchases to Philadelphia—as in twenty-four hours by the means of the Camden and Amboy Road, or Raritan Canal, they can do—they have not the same certainty of having their goods forwarded from Philadelphia, as if they were purchased in that city. This fact was stated in our hearing by merchants from the West—and it is not unnatural that it should be so. It is not pretended that goods bought in New York are always, or even systematically thus held back, but that when there is great pressure and great struggle for preference, the Philadelphia bought goods will have the precedence.

We do not belong to that school of economists which assumes that the prosperity of one city is incompatible with, and adverse to, that of others—and it is not that sort of envy, or hostility to, the growing greatness of Philadelphia and of Pennsylvania, by reason of her line of canals and railroads, that we desire so earnestly to impress the fact of this prosperity upon our readers. Our motive is to stimulate our own State and people to exertion—there is field enough for both. But if we are su-

pine, Pennsylvania will have by far the largest portion of the field.

If the owners of real estate, and the active merchants of this city, would only go and see for themselves the effect, in Pennsylvania, at this early part of the season, of a ready communication with the Ohio, we venture to say, the stock of the New York and Erie Railroad, the only expedient by which we can share in these benefits, would not remain unfilled another day.

[From the Baltimore American.]

As the recent Act of Pennsylvania, authorizing the extension of the State Canal from Columbia to the Chesapeake Bay, has placed our city in a new and most commanding position in reference to the whole line of Internal Improvements of that State, we have thought that a brief notice of the extent and location of those improvements would not be unacceptable to our readers. In their Annual Report to the Legislature, presented in January last, the Canal Commissioners of Pennsylvania say to their fellow-citizens:—"The six hundred miles of Canal and one hundred and twenty miles of Railroad which you directed us to have constructed, are now ready for use." Seven hundred and twenty miles is then the length of the State internal improvements, to which are to be added improvements by private companies, making the entire facilities of transportation by means of Canals and Railroads in the State of Pennsylvania amount in extent to upwards of a thousand miles. We propose rapidly to trace the course of the greater part of this great system, the Main Line of which commences in Philadelphia and ends in Pittsburgh.

The Columbia Railroad commences at two points on the Delaware river, the one near the Navy Yard in the southern extremity of Philadelphia, the other in the northern, in what is called the Northern Liberties. The routes from these two points join in the north western part of Philadelphia, and thence the road crosses the Schuylkill by a viaduct of one thousand and eight feet in length, and runs to Columbia, on the Susquehanna river, by a route of eighty-two miles. At Columbia commences the main line of the Pennsylvania Canal, running up the Susquehanna to the mouth of the Juniata, and thence along the Juniata to Hollidaysburg, a distance of one hundred and seventy-two miles. From Hollidaysburg the course westward is continued over the mountains by the Portage Railroad for thirty-six miles to Johnstown, where the canal navigation is resumed and continued to Pittsburgh, the length of the canal from Johnstown to Pittsburgh being one hundred and four miles. By this route the whole distance from Philadelphia to Pittsburgh is three hundred and ninety-four miles. By the Schuylkill and Union Canals—private works—the latter of which strikes the Pennsylvania Canal at Middletown, seventeen miles above Columbia, the distance is about four hundred and forty miles.

At the junction of the Juniata with the Susquehanna, which takes place about forty-three miles above Columbia, while the main line of the canal ascends along the banks of the Juniata, the northern line continues up the Susquehanna to Northumberland, a distance of about thirty-five miles. There it divides into two branches, one up the North Branch extending a distance of seventy miles to the mouth of the Lackawanna, ten miles above Wilkesbarre, and the other up the West Branch by a circuitous route of about the same distance to Dunstown. These two branches lead into regions that are rapidly improving. That on the North Branch abounds in anthracite coal, and that on the West Branch is bituminous.

By a reference to the map, the reader will perceive that all the improvements north and west of Columbia, the starting point of the Pennsylvania Canal, will be opened to Baltimore by the construction of the canal from that point down to the Maryland line, a distance of only 28 to 30 miles. From the Maryland line to Port Deposit a canal has long existed.

The Locomotive Engine, ordered for the Paterson and Hudson River Railroad, has arrived at this port from Liverpool and will be placed on the rail in a few days.

First Boat at Buffalo.—Extract from a letter dated at Buffalo, 22d April, 8 o'clock, A. M.:—"The Troy and Erie Line Boat Nile, from Troy, has just arrived with a full cargo of merchandise destined for Ohio, Michigan and Illinois. No other boat has yet arrived from Albany or Troy."

The boats White Pigeon and Nile were the first boats arrived at Rochester which was the 20th inst., both belonging to the Troy and Erie Line.

Lake Open—First Arrival.—On Saturday evening last, the steamboat Wm. Penn, Capt. Dwight, arrived at this port from Detroit. This is the first arrival at the port of Dunkirk this season. The Wm. Penn, we understand, has been fitted up in a neat and handsome style, and has undergone several essential alterations, by which her speed and ability to encounter the frequent rough seas of the Lake has been much increased.—[Dunkirk Whig of April 21.]

The Dunkirk Whig of 21st April, says that owing to the late strong winds blowing down the lake for several days past, the ice, which previous to the 21st inst. extended near 50 miles above this place, has been driven down about 10 miles below us, and lies packed up in one solid mass between that and Buffalo, so that it is believed that a navigable communication from Dunkirk to Buffalo will not be opened short of from three to five weeks. Should this be the fact, a vast amount of western produce will find its transit through the Welland canal, giving to the Canadas all the advantages of a trade which of right belongs to the State of New-York.

In connexion with this subject, in relation to an earlier communication between the Lakes and the City of New York, we make use of the following language of the Rochester Democrat:—"New York may, if she will, enjoy almost exclusively and forever, the trade of the immeasurable west."

"The New York and Erie Railroad would for the present, secure all that is now secured by the Erie Canal. But this means is, for the present, perhaps for years, put aside. In thrusting it away, the State has struck a suicidal blow at its own prosperity and greatness."

The Burlington Free Press of the 24th, says:—"Our steamboats are now all in motion. The Franklin and Phoenix commenced their regular trips yesterday, and will run for the present the same as last season—leaving each end of the Lake at one o'clock, P. M., and meet here about nine."

The Pittsburg Gazette of the 16th, says:—"Business was we believe never so brisk as at present. The Canal is in full and successful operation—steamboats crowded with passengers and with full cargoes, are arriving and departing daily. Our Manufactories have all as much work as they can do. As to our merchants and commission merchants, they are all literally oppressed with business, being usually kept at work from daylight to midnight. We must admit that they bear this pressure most patiently, for we have not heard a single complaint."

The amount of tolls received for transportation on the Pennsylvania Improvements during the week ending the 18th inst. was 20,514 dollars 19 cents—a much larger amount, says the Harrisburg Reporter, than was derived from the same source during the corresponding period of last year.

A meeting of the freeholders of Alexandria was held on the 24th inst. and a resolution passed directing the Common Council to subscribe fifty thousand dollars to the stock of the Alexandria Canal Company, and that for the payment of the interest on this sum a tax to be levied on the real estate of the town.

NEW-YORK AMERICAN.

APRIL 23—MAY 1, 1835.

LITERARY NOTICES.

CONFESSIONS OF A POET, 2 vols. Philadelphia, CAREY, LEA & BLANCHARD; for sale here by G. & C. CARVILL.—We hardly know what to make of these handsomely printed volumes. They purport to be confessions, and they unfold a state of mind which is pitiable enough. The story, which is altogether in the dark vein, of disgust of life, of doubt, not to say disbelief, of the future, and of actual guilt, is yet wrought out with occasional power and skill.—There are notes too, some in French, some in English, and one or two in Latin, which are meant to explain, extenuate, or justify the sentiments expressed in the text—and which are misanthropic and unjust enough to human nature. We can conceive no good to be acquired, and not much interest to be experienced, in reading this record of libidinous excesses and sceptical ravings.

JOURNAL OF A RECENT VISIT TO THE PRINCIPAL VINEYARDS OF SPAIN AND FRANCE, &c. &c. by JAS. BUSBY, Esq. N. Y., C. G. FRANCIS. A treatise on wines from New South Wales, is certainly a curiosity in literature, as well as in the progress of civilization, of which wine drinking is in some degree an indication. Mr. Busby having found the climate of the Convict Colony of England, favorable to the grape, determined on visiting the vine districts of the same or merely same climate in Europe, and collecting from them specimens of the most approved vines, and learning the process of making the wine. This therefore is a practical book, and in that point of view of interest even here.

THE PENNY MAGAZINE; THE PENNY CYCLOPEDIA; N. Y., WM. JACKSON 53 Cedar st; These publications—cheap, accurate, and comprehensive, issued by the London Society—for the diffusion of useful knowledge, continue to be regularly published here in monthly numbers, at 12 1/2 cents each.

JAPHET IN SEARCH OF A FATHER—Franklin Library Edition—part 1. N. Y., WALLIS & NEWALL.—This admirable story by Capt. Marryatt is republishing in this library—in numbers which cost 12 1/2 cents each—as fast as it is received from England.

LIVES OF THE ENGLISH PIRATES, HIGHWAYMEN AND ROBBERS; by C. WHITEHEAD. 2 vols.—Philadelphia: E. L. Carey & A. Hart. For sale in New York by Wiley & Long.—The records of crime are always more attractive than those of virtue. We will not stop here to inquire, what principle of our nature it is which determines this preference, but appeal to the fact, that books, such as that now under notice, always find ready sale and willing readers. This compilation, beginning with Robin Hood, and ending with the pickpocket Barrington,—almost a contemporary of the men of this day,—develops a series of crimes, murders, thefts, and violence of all sort, that cannot but be very edifying to all inquirers after, or believers in, the perfectibility of human nature.

DISCOURSES ON VARIOUS SUBJECTS BY REV. ORVILLE DREW; 1 VOL: N. Y. DAVID FELT.—“Cut off by ill health,” as the Rev'd author tells us, from his pastoral connexion with a people with whom, during a period of ten years he had been accustomed to meet in the service of religion, he now publishes the sermons preached during that time, as a record of the interest taken by him in his congregation. The volume is dedicated to “the first church, and congregation in

New Bedford,” and it is most be received by them, to judge from portions of the work we have looked at, with affection and respect.

SKETCHES OF SOCIETY IN GREAT BRITAIN AND IRELAND; by C. S. STEWART. 2 vols. Carey Lea & Blanchard.—This is a second edition, handsomely printed, of a work heretofore noticed by us. Its popularity may, we presume, be inferred from the fact, that it has thus early run to a second edition. We see no reason however, to alter our original opinion, that it is a light work, rather calculated for the eye of partial friendship, than for the ordeal of a calm and cold public.

We have received, and cheerfully publish, the following notices of some little works fraught with moral and religious instruction, which are published by a Society, and are to be had at 305 Broadway:

“ANN CONOVER” is the history of a young Irish girl, who, being deprived of her mother by death soon after her arrival in this city, was compelled to resort to domestic service for a support. In her attempts at procuring a situation, she was aided by an affectionate aunt, who was well qualified by long experience and true Christian principles, to instruct her niece in the duties of her station. Her counsels and directions are founded on the only true rule of duty, *the Bible*; and the whole is written in a style of great simplicity and clearness.

This work is well calculated to benefit the large class for whom it is specially designed; and, when we remember how much of our domestic happiness depends upon the proper discharge of the relative duties which devolve on servants and their employers, we cannot but recommend to every lady at the head of a family, first to read “Ann Conover” herself, gleanings many useful hints for her own guidance, and then to place it in the hands of her domestics.

“THE GOOD RESOLUTION;” a little book of 69 pages, containing an account of a young girl, who rendered herself uncomfortable, and caused much unhappiness to her parents, by the habit of indulging in a fretful and irritable temper.

On the morning of her fourteenth birth-day, she was induced by the judicious instructions and entreaties of her kind mother to form a solemn resolution to try to subdue her perverse temper. In this resolution, she was enabled to persevere, and succeeded so well, that, before the year had closed, her improvement was hailed with delight by her family, and was the source of new happiness to herself. All little girls who indulge in similar bad habits, are invited to read this account of Isabella Gardner, and “do likewise.”

“THE REFUGEE;” or story of Archibald Thompson.—This is the narrative of a boy whose mother, anxious for her son's improvement, sent him to a good school six days in the week, and on Sundays, to a good Sunday School.

But, notwithstanding his mother's kindness, and his teachers' faithfulness, he yielded to the influence of evil association, and the power of temptation, until, he was at length, guilty of a crime for which he was summoned before a magistrate, and sent to the House of Refuge. The book commences with an allusion to the *City of Refuge*, as once existing in the land of Judea; and then states more particularly the design of a House of Refuge, and its first introduction into the city of New York, and the subsequent creation of a similar building in Philadelphia. Of the arrangements of this latter institution, a minute and

interesting account is given. To Archibald Thompson was sent, as a place of correction and instruction. This history is continued in another little volume lying before us, called,

“THE INFIDEL'S CLASS;” the design of which is stated to be, “to remove some of the common difficulties which young men find in the attempts they make to form religious habits, and to furnish them with such rules of conduct, as will enable them to escape from much of the evil that is in the world.” In the course of his instructions in the House of Refuge, the teacher was surprised to find *seventeen* of the older boys, who *entirely disbelieved the Bible*! He at once proposed to form a class to talk about the truth of the Bible, and to find out what evidence there might be to support it. The proposal was acceded to, and in five distinct conversations with the boys, various proofs of the authenticity and inspiration of the scriptures are adduced and carefully examined, and objections answered so satisfactorily, that each one of the class separately declared his sincere and honest belief that *the Bible is true*. The book concludes with various directions to Archibald on the occasion of his leaving the Refuge, to live with a respectable farmer in the country.

These little books are elevated in their character, written in an easy perspicuous manner, and treat of subjects so important to all, that, not young readers merely, but those of more matured intellect, may read them with interest and profit. They are besides, presented in a very neat dress, and embellished with many appropriate engravings.”

MEMOIRS OF CELEBRATED WOMEN OF ALL COUNTRIES, by MADAME JUNOT, 2 vols.: Philadelphia, CAREY, LEA & BLANCHARD. For sale by G. & C. CARVILL, N. Y. These two volumes will certainly attract attention, for they present very striking pictures. Queens, murderers, women celebrated in letters, and in arms, figure alternately. The list however is far from complete. We give an extract from the life of *Charlotte Corday*, whom love of country, and the excitements of a revolutionary age, made a murderer:—

The day after she went to the Palais Royal and bought a sharp-pointed carving-knife, with a black sheath. On her return to the hotel in which she lodged—Hotel de la Providence, Rue des Augustins—she made her preparations for the deed she intended to commit next day.—Having put her papers in order, she placed a certificate of her baptism in a red pocket-book, in order to take it with her, and thus establish her identity. This she did because she had resolved to make no attempt to escape, and was therefore certain she should leave Marat's house for the *Conciergerie*, preparatory to her appearing before the revolutionary tribunal.

Next morning, the 14th, taking with her the knife she had purchased, and her red pocket-book, she proceeded to Marat's residence, No. 16, Rue de l'Ecole de Médecine. The representative was ill, and could not be seen, and Charlotte's entreaties for admission on the most urgent business were unavailing. She therefore withdrew, and wrote the following note, which she herself delivered to Marat's servants.

“CITIZEN REPRESENTATIVE,
“I have just arrived from Caen. Your well known patriotism leads me to presume that you will be glad to be made acquainted with what is passing in that part of the republic. I will call on you again in the course of the day; have the goodness to give orders that I may be admitted, and grant me a few minutes conversation. I have important secrets to reveal to you.”

“CHARLOTTE CORDAY.”
At seven o'clock in the evening she returned, and reached Marat's antechamber; but the woman who waited upon him refused to admit her to the monster's presence. Marat, however, who was

in a bath in the next room, hearing the voice of a young girl, and little thinking she had come to deprive him of life, ordered that she should be shown in. Charlotte seated herself by the side of the bath. The conversation ran upon the disturbances in the department of Galvados, and Charlotte, fixing her eyes upon Marat's countenance as if to scrutinize his most secret thoughts, pronounced the names of several of the Girondist deputies.

"They shall soon be arrested," he cried with a howl of rage, "and executed the same day."

He had scarcely uttered these words, when Charlotte's knife was buried in his bosom.

"Help!" he cried, "help! I am murdered."—He died immediately.

Charlotte might have escaped, but she had no such intention. She had undertaken what she conceived a meritorious action, and was resolved to stay and ascertain whether her aim had been sure. In a short time, the screams of Marat's servant brought a crowd of people into the room. Some of them beat and ill-used her, but the Members of the Section having arrived, she placed herself under their protection. They were all struck with her extraordinary beauty, as well as with the calm and lofty heroism that beamed from her countenance. Accustomed as they were to the shedding of human blood, they could not behold unmoved this beautiful girl, who had not yet reached her twenty-fifth year, standing before them with unbleached eye, but with modest dignity, awaiting their fiat of death for a deed which she imagined would save her country from destruction. At length Danton arrived, and treated her with the most debasing indignity, to which she only opposed silent contempt. She was then dragged into the street, placed in a coach, and Drouet was directed to conduct her to the Conciergerie. On her way thither, she was attacked by the infuriated multitude. Here for the first time she evinced symptoms of alarm. The possibility of being torn to pieces in the streets, and her mutilated limbs dragged through the kennel and made sport of by the infuriated rabble, had never before occurred to her imagination. The thought now struck her with dismay, and roused all her feelings of female delicacy. The firmness of Drouet, however, saved her, and she thanked him warmly.

"Not that I feared to die," she said; "but it was repugnant to my woman's nature to be torn to pieces before every body."

Whilst she was at the Conciergerie, a great many persons obtained leave to see her, and all felt the most enthusiastic admiration on beholding a young creature of surpassing loveliness, with endowments that did honor to her sex, and a loftiness of heroism to which few of the stronger sex have attained, who had deliberately executed that which no man in the country had resolution to attempt, though the whole nation wished it, and calmly given up her life for the public weal.

Charlotte's examination before the revolutionary tribunal is remarkable for the simplicity of her answers. I shall only mention one, which deserves to be handed down to posterity.

"Accused," said the President, "how happened it that thou couldst reach the heart at the very first blow? Hadst thou been practising beforehand?"

Charlotte cast an indescribable look at the questioner.

"Indignation had roused my heart," she replied, "and it showed me the way to his."

When the sentence of death was passed on her, and all her property declared forfeited to the state, she turned to her counsel, M. Chauveau Lagarde:

"I cannot, Sir, sufficiently thank you," she said, "for the noble and delicate manner in which you have defended me; and I will at once give you a proof of my gratitude. I have now nothing in the world, and I bequeath to you the few debts I have contracted in my prison. Pray discharge them for me."

When the executioner came to make preparations for her execution, she entreated him not to cut off her hair.

"It shall not be in your way," she said; and taking her shawl, she tied her thick and beautiful hair on the top of her head, so as not to impede the stroke of the axe.

In her last moments, she refused the assistance of a priest; and upon this is founded a charge of her being an infidel. But there is nothing to justify so foul a blot upon her memory. Charlotte Corday

had opened her mind, erroneously perhaps, to freedom of thought in religion as well as in politics. Deeply read in the philosophic writings of the day, she had formed her own notions of faith. She certainly rejected the communion of the Roman Church; and it may be asked whether the conduct of the hierarchy of France before the revolution was calculated to convince her that she was in error? But because she refused the aid of a man as a mediator between her and God, is it just to infer that she rejected her Creator? Certainly not. A mind like hers was incapable of existing without religion; and the very action she committed may justify the inference, that she anticipated the contemplation, from other than earthly realms, of the happiness of her rescued country.

As the cart in which she was seated proceeded towards the place of execution, a crowd of wretches in the street, ever ready to insult the unfortunate, and glut their eyes with the sight of blood, called out: "To the guillotine with her!"

"I am on my way thither," she mildly replied, turning towards them.

She was a striking figure as she sat in the cart. The extraordinary beauty of her features, and the mildness of her look, strangely contrasted with the murderer's red garment which she wore. She smiled at the spectators whenever she perceived marks of sympathy rather than of curiosity, and this smile gave a truly Raphaele expression to her countenance. Adam Lux, a deputy of Mayence, having met the cart, shortly after it left the Conciergerie, gazed with wonder at this beautiful apparition—for he had never before seen Charlotte—and a passion, as singular as it was deep, immediately took possession of his mind.

"Oh!" cried he, "this woman is surely greater than Brutus!"

Anxious once more to behold her, he ran at full speed towards the Palais Royal, which he reached before the cart arrived in front of it. Another look which he cast upon Charlotte Corday completely unsettled his reason. The world to him had suddenly become a void, and he resolved to quit it. Rushing like a madman to his own house, he wrote a letter to the revolutionary tribunal, in which he repeated the words he had already uttered at the sight of Charlotte Corday, and concluded by asking to be condemned to death, in order that he might join her in a better world. His request was granted, and he was executed soon after. Before he died, he begged the executioner to bind him with the very cords that had before encircled the delicate limbs of Charlotte upon the same scaffold, and his head fell as he was pronouncing her name.

Charlotte Corday, wholly absorbed by the solemnity of her last moments, had not perceived the effect she had produced upon Adam Lux, and died in ignorance of it. Having reached the foot of the guillotine, she ascended the platform with a firm step, but with the greatest modesty of demeanor. "Her countenance," says an eye witness, "evinced only the calmness of a soul at peace with itself."

The executioner having removed the handkerchief which covered her shoulders and bosom, her face and neck became suffused with a deep blush. Death had no terrors for her, but her innate feelings of modesty were deeply wounded at being thus exposed to public gaze. Her being fastened to the fatal plank seemed a relief to her, and she eagerly rushed to death as a refuge against this violation of female delicacy.

When her head fell, the executioner took it up and bestowed a buffet upon one of the cheeks. The eyes, which were already closed, again opened and cast a look of indignation upon the brute, as if consciousness had survived the separation of the head from the body. This fact, extraordinary as it may seem, has been avowed by thousands of eye witnesses; it has been accounted for in various ways, and and no one has ever questioned its truth.

SUMMARY.

EXTRAORDINARY BALLOON VOYAGE.—The Cincinnati Gazette of the 18th inst., furnishes the following statement by the *Frontier* Mr. Clayton, of by far the longest voyage on record, we believe, in a ship of the air. In January, 1785, Blanchard, and Dr. Jeffries, an American, crossed the channel from England to France in a balloon, a distance of not more than 23 miles. Here the distance gone over is more than 400 miles.

We happened to be in Cincinnati when Clayton

made his ascent on Wednesday, Oct. 18th, and though we have seen many such performances, never saw one better conducted, or undertaken with more sang-froid. The voyager stood on the top of his car, supporting himself by the hoop through which the ropes passed from the netting of the balloon to it, and waved his flag, as long as he was visible, with as much confidence as though he were on *terra firma*. He told every one that he had with him provisions and clothing, and meant to do something that had never been accomplished before. He has fulfilled his promise amply.

Clayton is an American—a mechanic, we believe, of Cincinnati—and both constructed his own balloon and superintended the preparation of the gas, and the filling of the balloon. It is, too, his first experiment.

Mr. Clayton's Account of his Aerial Excursion.

At 6 o'clock I took my departure from the Amphitheatre, which was pretty well filled with spectators, the beauty and fashion of the city, and ascended with celerity into the atmosphere, amidst the cheering sounds of music, and the acclamations of my friends. In a few moments I had a full view of Cincinnati, of Newport, and Covington, and of the thousands of spectators that surrounded the amphitheatre, and covered every point which afforded a favorable opportunity of seeing the ascension. I soon arrived at a sufficient altitude to give the spectators a good view of the descent of my parachute, containing a dog of about 20 pounds weight. The parachute, on being liberated from the car, descended with great velocity for a considerable distance before it spread open. When it opened its descent was more slow, and as I watched its course downwards, thought for some time it was falling in the Canal, but at last saw it pass a little on one side; and I have no doubt it arrived safe upon *Terra Firma*. As I ascended the scene became more extended and diversified, but every object more diminutive. The spectators shrank to Lilliputians, and the horses and carriages on the roads were like the toys of children. The hills around the city, which form the boundary of one's view when below, sank into the earth, and became on a level with the plain; and far beyond them, amidst the vast woods, I could distinguish numerous towns and cultivated spots. The whole appeared like an extensive map spread at my feet, with every street, and alley, and building, and every improvement plainly marked upon it. Through the centre the Ohio passed, and wound its serpentine course in each direction, until lost in the mist, which surrounded the scene, and for a number of miles I could trace the river Licking, the zig-zag course of the Miami Canal, and the turnpikes and different roads branching from the city. At starting the Barometer stood at 29.3.10 inches, and Thermometer at 72 degrees. The wind carried me east south east, in the direction of Batavia.

At a quarter past 5, the Barometer stood at 19 inches, and the Thermometer 26 degrees, I began to feel cold, and put on my great coat. At this time I heard the report of a Cannon, and could hear at this height the noise of the Woodman's axe. About this time I passed over the Little Miami River, kept the Ohio River a little to my right, and after descending a little I had a fine view of the towns and cultivated spots on each side of me.

A little before six I passed over Batavia, and continued to travel in an East South East direction. My altitude at this time, as indicated by the Barometer, was 2.1-2 miles. I again felt a little cold; the Thermometer stood at 23 deg. I sat myself down in the car and took some refreshment. I was now moving delightfully through the air; the little agitation the balloon received on starting had now ceased, there was not the least rotary or oscillatory motion perceptible; not a ripple in the silk of the balloon to be seen, and all was perfect silence. I could have almost imagined that I was an inhabitant of a little world of my own, fixed in the immensity of space, and could view at my feet, the earth in motion, re-

volved on its axis. I felt no unpleasant sensation, no difficulty in breathing, no pain nor swelling in my head, as has been said by some Aeronauts, to be experienced at great altitudes; but I have no doubt, that at the altitude of 3 1-2 or 4 miles, owing to the rarity of the atmosphere, a difficulty in breathing, and a swelling in the head, is experienced.

At the altitude of 2 1-2 miles, the scenery is not so beautiful as it is when about half a mile from the earth; for the objects appear concealed in mist, and have a monotonous appearance. At 25 minutes after six, I had a fine view of the setting of the Sun; 30 minutes after six I passed over Williamsburg; about 7 o'clock over Georgetown; and although I was several miles distant from the Ohio river, it appeared but very little to the right of me, and I could distinctly see Augusta and Maysville, and the towns and farms alongside of the river. A little before 8 o'clock I passed over West Union. The wind now changed a little to the south, about one point, making S. E. by East. About 9 o'clock, I passed a little to the left of Portsmouth; could see plainly the Scioto River and the canal. I was enabled to see the different places over which I passed by the light of the Moon, and by the lamps and lights in the houses. These lights, which were numerous, and which I could see in every direction in which I turned my eye, formed a field of fiery stars at my feet, and contrasted finely with the brilliant stars that shone in the cloudless hemisphere above me.

A little beyond Portsmouth I had a fine view of the Iron Forges and Furnaces, whose fires illuminated the atmosphere for a number of miles. I could not by the light of the moon, make any Thermometrical observations, the quicksilver in the tube being so small I could not see its height; but the quicksilver in the Barometer being of greater volume, I could plainly see it move up and down; and although I could not see the figures on the scale,—yet, I could tell when I was at a safe distance from the earth, by the distance that the quicksilver stood above a piece of brass which formed a protection to the Thermometer, immediately alongside of the Barometer. Whenever I felt tired, I would seat myself in the bottom of the car, placing the Barometer opposite to me, watch its height, and when I found it rising, would throw out some ballast and counteract its course. Now and then I would look over the car, and notice, particularly, the direction and situation of the water courses which I had in sight, nearly the whole of my voyage, and without which I should not have been able to trace my course. Soon after passing the Scioto River, I entered another current of air, which carried me due East, and immediately over Concord. Soon after I passed into another current, which carried me East North East, and brought me at 11 o'clock, nearly up to Gallipolis, a little below which I crossed the Ohio River. On passing into a new current of air, the Balloon is slightly agitated, at which time I would always be particular in ascertaining its direction. Soon after crossing the O., the Balloon was again agitated, and I found that I had passed from the East North East current, into another, which carried me South East, and soon brought me over the Kanawha River, and from the rapidity the terrestrial objects appeared to move, I found my rate of travelling had increased. At half after 12 I passed over Charleston, and in a few minutes I was carried over the Furnaces of the Kanawha Salt works. I continued this course until I was in sight of the fork formed by Gauley and New rivers.

While in sight of New River I approached the earth: my ballast was nearly exhausted, and as the place over which I was floating appeared to be an open country, I prepared for a descent. I threw overboard my Anchor, which, after dragging for a little distance, caught firmly hold of a tree; but on coming close to the tops I found, to my surprise, that instead of a fine open country, I was in a dense forest, on a considerable elevation. The wind was blowing powerfully, and finding it impossible to break the hold of the anchor, the only way of liberating myself from this situation was to cut away the cable. This I did, and in a short time ascended to an altitude as great as I had previously attained. The cold was intense, but I could not ascertain the height of the Thermometer: I have no doubt it was nearly as low as zero. I had now lost sight of the water courses, and could see no lights in any direction. I had myself down in the bottom of the Car, buttoned my coat tightly around me, put on my gloves, covered myself with

two blankets, which I had taken as wrappers for the Balloon, drank some brandy, felt comfortable and highly delighted with my novel trip, and in this situation fell fast asleep. I was awakened, at last, by my Car striking. I immediately sprang on my feet, and in another moment the Car was dragging over the tops of the trees. I saw before me a river and I thought some buildings; they appeared but a little distance from me; but I afterwards found they were about four miles off.

I attempted to stop my Balloon by clinging to the branches of the trees. Several of them broke; but at last I caught hold of a strong bough, and by clinging with all my strength with one hand, and pulling the Valve rope with the other, I was enabled in a short time to draw my Car down the tree several feet, and to secure it by means of a rope. After being confident that I had secured my balloon, I looked at my watch and found it to be half after 2 o'clock. At this time of the morning I thought it would be useless to go in search of any assistance. I therefore remained in the Car, 40 feet at least from the ground, until day-break, and then descended to explore the wilderness in which I had landed.

I could discover no trace of human footsteps, no mark of change produced by man. Numerous large trees had been levelled to the ground, but there was no mark of the woodman's axe upon them; they had evidently been uprooted by the hurricane. Perceiving that I was on a mountain and that there was another point still higher, I ascended to the top of it and could perceive in the valley, and in the direction that I had seen the river the previous evening, a cultivated spot. After travelling alongside of a beautiful spring rivulet for about 3 miles, I found this spot, but had to follow a track of 2 miles further to get assistance. We conveyed the balloon to the house of Mr. Joseph Graham, a respectable and intelligent farmer with whom I remained 3 days before I could get a conveyance to return. During my stay at Mr. Graham's I was visited by great numbers of People from the surrounding country.

The spot on which I landed, is the top of the mountain, 3000 ft. (as indicated by the Barometer) above the level of the sea, and is called Stevenson's Knob, or Stinson's Knob, near Keeney's Knob, Monroe county, Virginia, about four miles from Green Brier River, 18 miles from Union, 20 miles from Louisa. I travelled in the Balloon, of three hundred and fifty miles, but according to the usual method of travelling, more than 400 miles, which distance I travelled in 9 1-2 hours.

This voyage I believe has fulfilled the promise made in my advertisement, and is the longest voyage, by far, ever performed by any person in a Balloon.

EXTRAORDINARY PERFORMANCE.—The purse of \$1000 offered by Mr. J. C. Stevens to any one who should succeed in going ten miles, on foot, within the hour, was yesterday gained, *eleven seconds* within the time, over the Union Course, L. L., by a Connecticut man, named *Henry Stannard*, a farmer of Killingworth. Two others, as we learn from the Courier, went the 10 miles, one a Prussian, named *George W. Glaue*, who did the distance in 60 1-2 minutes—and the other an Irishman named *Mahoney*, who did it in 61 3-4 minutes.

There were at starting nine competitors, whose names and deeds are thus set forth in the Courier:

	MILES.									
	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
Stannard,	3	4	3	3	3	2	2	1	1	1
Glaue,	2	2	1	1	2	3	3	3	2	2
Mahoney,	1	1	5	5	4	4	4	4	2	2
Downes,	5	3	2	2	1	1	1	2	gave in.	
McGargy,	6	7	7	7	5	gave in.				
Wall,	4	5	4	4	gave in.					
Sutton,	8	8	6	6	gave in.					
Mallard,	9	9	8	8	fell and gave in.					
Vermillye,	7	6	gave in.							

The winner did not show much fatigue, and was seen soon after riding about the Course.

The other two who went the ten miles received \$200 each.

The Courier gives this statement of the time in which each mile was done by the winner:

	Min.	Sec.
1st. mile.	5	36
2d. "	5	45
3d. "	5	58
4th. "	6	29
5th. "	6	2
6th. "	6	3
7th. "	6	1
8th. "	6	3
9th. "	5	57
10th. "	5	54
	59	48

It is said that the course is six feet over a mile, making sixty feet more than the ten miles, in the distance run.

Now 60 feet being the 88th part of a mile, it would allow (taking the time of the last mile) four seconds, which is to be deducted, making the distance therefore in 59m. 44s.

The speed of the runners will be best estimated perhaps by stating, that Stannard was accompanied the whole distance by Mr. Stevens on horseback, and that the horse was all the time on a fast canter.

A bill passed the Assembly to-day, by a vote of 89 to 8, subjecting non-resident lands to taxation, for the improvement of roads and bridges, to the same extent that the lands of residents are taxed in the several towns. The bill passed the Senate last week, and only requires the signature of the Governor to become a law. It will be an important law for the western part of the State.—[Albany Evening Journal.]

New Publications—from the press of Messrs. Cary Lea & Blanchard:—"Memoirs of Celebrated Women of all Countries," by Madame Junot—two duodecimos. The translation was made in London, and has been commended there. We doubt not that Madame Junot has acquitted herself well as far as she has proceeded in her interesting task, which will be continued without delay.

"The Juvenile Popular Library"—Boston—published by John Allen & Co. The first volume—a very neat one—of this series, is on *Domesticated Animals*, considered with reference to civilization and the arts. It is well adapted to the instruction and entertainment of youth.

"The American Popular Library"—Boston, duodecimo—conducted by an Association of Gentlemen. The present number is entitled *New England and her Institutions*, and contain some good sketches of New England life. But the eleventh chapter deserves strong reprehension. It consists of foul obloquy on the Irish Catholics, and seems to have been introduced as a seasoning for the book. False anecdotes of priests and Irishmen are told, with a strain of remark such as this—"An Irish Catholic is impervious to reason. It is in vain to argue with him. * * Look at a gang of fifty Irishmen, and you can select a Yankee, if there be one among them, almost as readily as you could if he were surrounded by so many negroes." *Forbear Gentlemen!*—[Gazette.]

SEAT OF WAR IN THE NORTHWEST—Commencement of Hostilities.—From the latest intelligence received and contained in the following letter in the Cleveland Whig, of April 22d, we regret to perceive that matters are assuming a more serious aspect than we had imagined:

MAUMEE, April 16, 1835.—"With regard to the war, I will say without entering into particulars, that I strongly suspect that blood will be shed here in less than ten days. May God avert it; but if the present rash course of Michigan is pursued, the sword and bayonet will have to determine the controversy. We are driven from our homes for acting under the authority of Ohio; our houses are broken open in the dead of night; citizens taken prisoners, bound hand and foot, and tied to wild fiery horses, gagged that they may not alarm the rest of the citizens; the females too in the same house are treated with violence by being held and prevented from going to alarm the neighbors; and all this for saying to an individual he need not obey the laws of Michi-

gan. After this first attack, 280 horsemen, armed with guns and bayonets, came into our place, took three individuals, two of whom they released. They were not able to take any of the officers, whom they designed to take, and were so exasperated that they fell at the Ohio flag, made out of cotton cloth, and tied it to a horse's tail, and dragged it through the streets and departed. The citizens soon raised another, and three days after they came with an armed force, and took an Irishman for whipping a negro after he had been dared to do it; and took an axe, cut down the tree that contained the flag, and bore it to Monroe as a trophy of their victory, and burnt it.—We can destroy this band of ruffians, but the Governor wishes us to forbear; and it is probably the best. He will probably be molested in remarking our northern line; and then we shall have an opportunity to settle the whole."

THE ARMY.—We learn from the Army and Navy Chronicle that General Roger Jones has resigned his commission, in the line of the Army, as Lieutenant Colonel of the Fourth Regiment of Artillery. He retains however, his Staff appointment as Adjutant-General of the Army. The following List of Promotions, is from the Chronicle:

Major A. S. Brooks, of the 3d Artillery to be Lieutenant-Colonel of the 4th Artillery, vice Jones resigned.

Captain Sylvester Churchill, of the 1st Artillery, to be Major of the 3d Artillery, vice Brooks, promoted.

First Lieutenant Justin Dimick, of the 1st Artillery, to be Captain, vice Churchill, promoted.

Second Lieutenant Edmond French, of the 1st Artillery, to be 1st Lieutenant, vice Ramsey, appointed Captain of Ordnance.

Second Lieutenant, William Palmer, of the 1st Artillery, to be 1st Lieutenant, vice Dimick, promoted.

Brevet 3d Lieutenants T. A. Morris, and R. T. P. Allen, of the 1st Artillery, to be 2d Lieutenants, vice French and Palmer, promoted.

Gen. J. E. Wool, one of the inspectors General of the Army, is on a tour of inspection to some of the Northern military posts.

The Branch Bank of the United States at Washington has commenced the operation of winding up its concerns, preparatory to the expiration of the charter.

By the following notice from the Fredonian, it will be perceived that the Farmers' & Mechanics' Bank of New Brunswick has resolved to withdraw from circulation all notes of the denomination of those stolen last winter:

TO THE PUBLIC.

The Farmers' & Mechanics' Bank of New Brunswick, hereby give notice, that in consequence of the depredation committed upon it in February last, it has withdrawn from circulation its first emission of notes of the denominations of 100 dollars and 50 dollars. None of them are now out, it is believed, but those that were stolen; and they will not, of course, be redeemed.

A new emission, is, however, to be made of these denominations. They will be filled up with red ink; dated on the 1st of May, 1835; made payable, the 100's to C. Dunham, and the 50's to P. Nefus; numbered from 200 upwards; and endorsed by Wm. P. Forman, Assistant Cashier.

By order. L. CARMAN, Cashier.

New Brunswick, April 12, 1835.

Doings at New Orleans.—The Legislature of New Orleans have enacted that a poll tax of one dollar per head on every cabin passenger, and fifty cents on every deck and steerage passenger that shall arrive at that place by ships or steam boats, shall be collected. The proceeds are to be appropriated, one half to the Charity Hospital; the other half to be divided between the Orphan Asylum, male and female, and the primary schools of the city. A neat mode of levying contributions this; it will become that anomaly, a Whig Legislature that elects a Jackson Senator in Congress. Two collectors are to be appointed

whose salaries shall not exceed \$3000 each!!! Such an enactment would produce a pretty sum to Cincinnati.—Quere, as to its policy, liberality or constitutionality?—[Cincinnati Gaz.]

The Estate of the late Mr. Samuel Slater, who died recently at his residence in Webster, Mass., is estimated at about *Two Millions of Dollars!* the result of a life devoted with singular perseverance and industry to the manufacturing business, into which he has introduced many valuable improvements.

The brig *Fairy*, Capt. Josiah Wing, arrived at Boston from Philadelphia, on Thursday morning, having made the trip from Boston to Philadelphia and back, in just fourteen days, with full cargoes both ways.

Battle of Lexington.—An interesting ceremony took place at Lexington, Mass., on Monday, April 30th, in commemoration of the events in 1775. "The concourse of people from that and the neighboring towns, and from Boston," says the Boston Gazette, "was very great. At eleven o'clock, a procession, escorted by two military companies in uniform, under the direction of General Chandler as chief marshal, aided by several assistant marshals, was formed in front of the "Monument House," and proceeded to the burying-ground. Here the remains of Monroe, Parker, Hadley, the two Harringtons, Muzzy, Brown and Porter, the men who fell a sacrifice to the cause of liberty and the country, on the morning of the memorable nineteenth, (which had previously been taken from the grave and placed in a sarcophagus) were received into the procession, drawn on a hearse by a white horse; and the whole proceeded to the Meeting house. The sarcophagus was placed in the aisle fronting the pulpit, the two military companies standing in the aisle." The services of the occasion were as follows: Dirge by the choir; prayer by Rev. Mr. Walker, of Charlestown; Ode,—written by Mr. Pierpont of Boston; Oration by the Hon. Edward Everett; Ode,—written by Miss H. F. Gould. At the close of these services, the procession was again formed, and the Remains were taken to the Monument, where a new tomb had been prepared for their reception. Having completed this interesting ceremony, the procession returned to the "Monument House," in the rear of which, and under a spacious pavilion, a collation had been provided.

Death of Dr. Nutt.—In copying our late contradiction of the decease of Dr. Nutt of this State, in travelling from Alexandria, in Egypt, to Cairo, the editor of the Salem Landmark adds the following information:—

We have been informed by an American gentleman, lately returned from Egypt, with whom we have conversed, that the traveller alluded to is not Dr. Nutt of New York, but Dr. Nutt of Natchez, in Mississippi. Dr. Nutt, accompanied by his son, arrived at Alexandria in the latter part of September last, and immediately proceeded up the Nile, intending to make a geological reconnaissance of the Delta, and the valley of the Nile, so far as the second cataracts. He then purposed to cross the desert, to Mount Sinai, and thence passing through Palestine and Syria, to return to Paris, via Constantinople and Vienna.

There were three Americans in Alexandria when Dr. Nutt arrived, and by them he was supposed to be Dr. Nutt. They were all delighted with the arrival of their distinguished countryman, and they immediately said he must be introduced to the Pacha, and talk about his inventions. But unfortunately Egypt required no stones, and possessed no anathema: at all events there should be a Yankee improvement upon the oven for hatching chickens. Nutt was, however, soon found to be Nutt, and with this discovery disappeared the Yankee projects of improving Egypt. *Sono sigaleri essi questi A nortem, said a Piedmontese hakim of Cairo to our informant, non sono mai contenti.* Very true, he replied, we are always improving.

We may mention some names of American travellers who were in Egypt last year: Mr. Izard, of South Carolina; Stackpole, of Boston; Cohen, of Baltimore; Hamnerley, of New-York; Mayo, of South Carolina. Mr. Lowell, of Boston, accompanied by a suit, which distinguished him for taste and opulence, was travelling in Turkey. He was expected in Egypt, and it was said that he designed to visit India by way of the Red Sea.

The brig *Halcyon*, which arrived at Boston from Trieste, reports that she passed Gibraltar on the 14th ultimo, in company with an Austrian Frigate, bound to this country, having on board a large number of expatriated Poles.

The following gentlemen were yesterday elected Trustees of the New York Society Library for the ensuing year:—John I. Morgan, Edward W. Lought, David S. Jones, Gulian C. Verplank, J. Kearny Rodgers, Evert A. Bancker, John Le Conte, James Campbell, Rev. William Berrian, John Anthon, Henry I. Anderson, Washington Irving. [*Newly elected.]

STATE LANDS AT AUCTION.—The Surveyor-General has given notice, that all the unsold State Lands situated in Buffalo will be sold at Auction—the sale to commence on Monday the 22d day of June next. One-fourth of the purchase money to be paid at the time of sale, and the remainder in six equal annual instalments, with interest at six per cent.

The packet ship *Charlemagne* sailed Friday, for Havre, seventy-three days from the date of her previous departure for the same port. Within that space, she has had on board three full cargoes, and landed two of them on opposite sides of the Atlantic.

Cotton.—The Columbia Telescope of the 17th inst. says: "A choice lot of 20 bales of Cotton, from the plantation of Dr. Herndon, of Union, was sold yesterday by the Hon. Wm. Rice, to Mr. Felix Meetze, for 18 7-8 cents.—the highest price that has been given in our market this season. Good to fair readily commands from 17 to 17 1-2."

POPULAR EDUCATION.—We consider the annexed act, lately passed by our Legislature, as laying the foundation—if it be duly appreciated and fully carried out, by the inhabitants of the School districts—of a most essential and much needed improvement in our Common School Education.

The smallness comparatively of the sum, must not lead any one to suppose, that the consequences will be in proportion. Far, very far from it. A few books well selected, may inoculate—no one can say how many, minds, and decide their bias forever. The District Library will be the foundation, or we mistake the matter much, of a new and higher order of district instructors; for the master who has scholars that can read, will not be able long to hold his place, if he do not too, both read and think.

We trust the country papers generally will exert themselves to make this law universally known, and to point out the certain and unalloyed benefits, which the establishment of libraries such as it contemplates, must confer upon every district where they are introduced.

An act relating to Public Instruction. Passed April 13, 1835.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The taxable inhabitants of each School District in the State, shall have power, when lawfully assembled at any district meeting, to lay a tax on the district, not exceeding twenty dollars for the first year, for the purchase of a district Library; consisting of such books as they shall, in their district meetings, direct, and such further sum as they may deem necessary for the purchase of a book case. The intention to propose such a tax shall be stated in the notice required to be given for such meeting.

§ 2. The taxable inhabitants of each school district shall also have power, when so assembled in any subsequent year, to lay a tax, not exceeding ten dollars in any one year, for the purpose of making additions to the District Library.

§ 3. The clerk of the District, or such other person as the taxable inhabitants may, at their annual meeting, designate and appoint by a majority of votes, shall be the Librarian of the District; and shall have the care and custody of the Library; under such regulations as the inhabitants may adopt for his government.

§ 4. The taxes authorized by this act to be raised, shall be assessed and collected in the same manner as a tax for building a school house.

Progress of the ancient Egyptians in the Fine and the Useful Arts.—On the right hand wall are some very elegant vases, of what has been called the Greek style, but common on the oldest tombs in Thebes. They are ornamented as usual with Arabesques and other devices. Indeed, all these forms of vases, the *Tuscan* border and the greater part of the painted ornaments which exist on Greek remains, are found on Egyptian monuments of the earliest epoch, even before the Exodus of the Israelites; which plainly removes all doubt as to their original invention. Above these are carriages, chariot-makers, and other artisans. The semi-circular knife used for cutting leather is precisely similar to that employed in Europe at the present day for the same purpose, of which there are several instances in other parts of Thebes; and another point is here satisfactorily established, that the Egyptian chariots were of wood, and not of bronze, as some have imagined. —[Wilkinson's General View of Egypt.]

Literary Confession.—A French author I was reading last night says, he that has written will write again. If the critics do not set their foot upon this first egg that I have laid and crush it, I shall probably verify his observations; and, when I feel my spirits rise, and that I am armed with industry sufficient for the purpose, undertake the production of another volume. At present, however, I do not feel myself so disposed; and, indeed, he that would write should read; not that he may retail the observations of other men, but that, being thus refreshed and replenished, he may find himself in a condition to make and to produce his own. I reckon it among my principal advantages, as a composer of verses, that I have not read an English poet these thirteen years, and but one these twenty years. Imitation, even of the best models, is my aversion; it is servile and mechanical, a trick that has enabled many to usurp the name of author, who could not have written at all, if they had not written upon the pattern of somebody indeed original. But when the ear and the taste have been much accustomed to the manner of others, it is almost impossible to avoid it; and we imitate, in spite of ourselves, just in proportion as we admire. —[Cowper the Poet's Letters.]

Plagues during the Middle Ages.—Every country in Europe, and Italy perhaps more than any other, was visited during the middle ages by frightful plagues, which followed each other in such quick succession that they gave the exhausted people scarcely any time for recovery. The oriental bubo-plague ravaged Italy sixteen times between the years 1117 and 1340. Small-pox and measles were still more destructive than in modern times, and occurred as frequently. St. Anthony's fire was the dread of town and country; and that disgusting disease, the leprosy, which in consequence of the crusades, spread its insinuating poison in all directions, snatched from the paternal hearth innumerable victims, who, banished from human society, pined away in lonely huts, whither they were accompanied only by the pity of the benevolent and their own despair. All these calamities, of which the moderns have scarcely retained any recollection, were heightened to an incredible degree by the Black Death, which spread boundless devastation and misery over Italy. Men's minds were every where morbidly sensitive; and as it happens with individuals whose sense, when they are suffering under anxiety, become irritable, so that trifles are magnified into objects of great alarm, and slight shocks, which would scarcely affect the spirits when in health, give rise in them to severe diseases, so it was with this whole nation, at all times so alive to emotions, and at that period so sorely pressed with the horrors of death. —[Hecker's Epidemics of the Middle Ages.]

Excitability of the Female Imagination.—The imaginations of women are always more excitable than those of men, and they are therefore, susceptible of every folly when they lead a life of strict seclusion, and their thoughts are constantly turned inwards upon themselves. Hence in orphan asylum hospitals and convents the nervous disorder of one female so easily and quickly becomes the disorder of all. I have read in a good

medical work that a nun, in a very large convent in France, began to mew like a cat; shortly afterwards other nuns also mewed. At last all the nuns mewed together every day, at a certain time, for several hours together. The whole surrounding Christian neighborhood heard, with equal chagrin and astonishment, the daily concert, which did not cease until all the nuns were informed, that a company of soldiers were placed by the police before the entrance of the convent, and that they were provided with rods, and would continue whipping them until they promised not to mew any more. But of all the epidemics of females which I myself have seen in Germany, or of which the history is known to me, the most remarkable is the celebrated convent epidemic of the 15th century, which Ovidian describes, and which peculiarly proves what I would here enforce. A nun in a German nunnery fell to biting all her companions. In the course of a short time all the nuns of this convent began biting each other. The news of this infatuation among the nuns soon spread, and it now passed from convent to convent throughout a great part of Germany, principally Saxony and Brandenburg. It afterwards visited the nunneries of Holland, and at last the nuns had the biting mania even as far as Rome. —[Dr. Babington.]

Napoleon's Character.—These transactions throw as important a light upon the moral as the intellectual character of Napoleon. To find a parallel to the dissimulation and rapacity by which his conduct to Venice was characterized, we must search the annals of Italian treachery; the history of the nations to the north of the Alps, abounding as it does in deeds of atrocity, is stained by no similar act of combined duplicity and violence. This opens a new and hitherto unobserved feature in his character, which is in the highest degree important. The French republican writers uniformly represent his Italian campaigns as the most pure and glorious period of his history, and portray his character, at first almost perfect, as gradually deteriorated by the ambition and passions consequent on the attainment of supreme power. This was in some respects true; but in others the reverse; his moral character never again appears so base as during his earlier years; and, contrary to the usual case, it was in some particulars improved by the possession of regal power, and to the last moment of his life was progressively throwing off many of the unworthy qualities by which it was first stained. Extraordinary as this may appear, abundant evidence of it will be found in the sequel of this work. It was the same with Augustus, whose early life, disgraced by the proscriptions and horrors of the triumvirate, was almost overlooked in the wisdom and benevolence of his imperial rule. Nor is it difficult to perceive in what principle of our nature the foundation is laid for so singular an inversion of the causes which usually debase the human mind. It is the terrible effect of revolution, as Mad. de Staël has well observed, to obliterate altogether the ideas of right and wrong, and instead of the eternal distinctions of morality and religion, to apply no other test in general estimation to public actions but success. It was of this corrupted atmosphere that the mind of Napoleon, like that of Augustus, at first arose, and it was then tainted by the revolutionary profligacy of the times; but with the possession of supreme power, he was called to nobler employments, relieved from the necessity of committing iniquity for the sake of advancement, and brought in contact with men professing and acting on more elevated principles; and in the discharge of such duties, he cast off many of the stains of his early career. This observation is no impeachment of the character of Napoleon; on the contrary, it is its best vindication. His virtues and talents were his own; his vices in part at least, the fatal bequest of the revolution. * * * United with the great qualities of Napoleon's character, was a selfish thirst for glory, and consequent jealousy of any one who had either effectually thwarted his designs, or rendered him such services as might diminish the lustre of his own exploits. His undying jealousy of Wellington was an indication of the first weakness; his oblivion of Kellermann's inappreciable service, an instance of the

second. When this young officer was brought into the presence of the first consul, after the battle, he coldly said, "You made a good charge this evening;" and immediately turning to Bessières, added, "The guard has covered itself with glory." "I am glad you are pleased," replied Kellermann, "for it has placed the crown on your head." He repeated the same expression in a letter, which was opened at the post office and brought to Napoleon. The obligation was too great to be forgiven. Kellermann was not promoted like the other generals, and never afterwards enjoyed the favor of the chief on whose brow he had placed the diadem. Napoleon, at the same time, was perfectly aware of the immense service rendered by the charge of Kellermann; for he said in the evening to Bouronne, "that little Kellermann made a happy charge. He struck in a critical moment; we owe him much." On what trivial events do affairs depend! —[Alison's Europe during the French Revolution.]

Emigrants in America.—A German emigrant generally remains in a large city only as long as he cannot help it; his great and laudable desire is always to get a farm, and to own it. The Irish are, in this respect very different; they prefer the cities, and wherever you meet with a populous place in the United States—I do not only speak of the Atlantic cities, but also of those in the interior, such as Albany, Utica, Cincinnati, Louisville, you are sure to find a great number of poor Irish in and about it. The German, as I said, pushes on; if he has not the means to proceed immediately to the west, and must take his temporary abode in a large place, it is only in order to save, as soon as he possibly can, the requisite sum to carry him and his family to those parts of the Union where land is cheap and fertile. Here again he has not perhaps, the means to purchase a few acres, though Government sells public lands for the low price of one dollar and twenty-five cents per acre. If this is the case, he will first work for another farmer; never, however, losing sight of his main object, the having a farm to himself. As soon as he has it, he loves it as a German trooper loves his horse; it becomes his "all in all," so that he sometimes forgets the proper mental education of his offspring. Scotch emigrants, I imagine, arrive here provided with sufficient means to begin farming immediately, and it is very interesting to see how the Scotch and Germans, among whom I count the Alsatians, since they are French in a political sense only, always show their natural predilections wherever the wide west offers them a fair chance of displaying it. The Scotch uniformly select hilly parts of the country, and dearly love their dairies. Germans prefer the waterside; they settle upon land bordering upon rivers and creeks. The German, the boldest of all in science and knowledge, is slow when he comes to acting; I mean the German who has not left his country, where, by its peculiar state of politics, brisk practical activity is so much cramped in its operation. When he sees other countries, and has free intercourse with their inhabitants, he generally finds his way uncommonly well: for though the German has, as things now stand, originally not much of a practical disposition, his versatility of mind is very great; which is proved as much by the truly noble height of criticism to which German science elevates itself, because it requires his entering into all the views of other nations, and ages, as by the success by which the German meets in all climes and under all forms of Government. A Frenchman shifts easier than a German; but his mind has not that degree of versatility to enable him to persevere in a totally new situation. A Yankee is bolder and shrewder than a German, and will often succeed where few others may hope for success; but he is not willing to labor as hard and plod as perseveringly, nor has he that knowledge of languages which the German naturally possesses. The German, in foreign countries, if a man of business, labors always under one great disadvantage; he is not backed and supported by a political nationality. Germans and French change, perhaps, more to their advantage, by travelling and collecting experience in foreign countries, than any other people; the former by obtaining more practical views of things, and learning to keep their disjunctive thinking more within definite limits; the latter by becoming more liberal, more reflective, by expanding their

views beyond national vanity. However, who does not or ought not to improve in the latter way by travelling? Certainly, neither John or Jonathan is here excepted. Gothe says, "He who is ignorant of foreign languages is ignorant of his own." And, he who is ignorant of foreign countries is ignorant of his own.

The Philosopher on Horseback.—I never see the word "momentum" but it brings to my recollection an anecdote of an old friend of mine, a Fellow of a college, and a good fellow too, who was used to amuse me much by talking philosophically and mathematically on riding to hounds, the words *momentum*, *vis viva*, and *impetus* being forever on his tongue. With the nerves of a bull-dog, and no mean opinion of his prowess, he was in the habit of purchasing horses, which, from natural or acquired defects, had failed of making hunters in the hands of others. His idea was, that if nature had unfortunately intended such brutes to carry themselves in all forms but the right, that intention could be obviated by the means of mechanical force. To effect this, all sorts of trapping were resorted to; and it was really alarming to men with any nerves at all, to see him sailing across a country with the *momentum*, *vis viva*, and *impetus* all in full operation, on horses with mouths like the heart of oak, but with their heads confined with a strong cavesson-martingal. On one occasion a most ludicrous accident occurred. This gentleman was out with the Duke of Beaufort's hounds, in Oxfordshire, on a horse thus accoutred, when the cavesson he was riding in unfortunately gave way. As may be expected, having no further power over the brute, away went the philosopher, like a ship at sea without a rudder, and, as ill-luck would have it, the *momentum*, the *vis viva*, and the *impetus* all formed their nucleus in the person of an unfortunate butcher on his pony, who was going quietly along a road; and the two riders and their horses were laid prostrate on the ground. —[Nimrod's Hunting Torte.]

Chinese Advertisement.—The following is a specimen of the manuscript bills or advertisements, which it is the custom in China to stick up against the walls, when children have been stolen, apprentices have run away, &c. — "Chang-Chaoulai, who issues this thanksgiving advertisement, lives outside the south gate in Great Tranquillity lane, where he has opened an incense-smoking-mosquito shop. On the evening of the 12th instant, two of his fellow workmen in the shop, Neahung and Atik, employed a stupefying drug, which, by its fumes, sank all the partners in a deep sleep, during which they robbed the shop of all the money, clothes, &c. which they could carry away. Next morning when the partners awoke, no traces was to be found of these two men. If any good people know where they are and will give information, a thanks offering in flowery red paper of four dollars will be presented. Decidedly I will not eat my words. This advertisement is true. Neahung is about 20 years of age, short stature, has a white face, and no beard. Atik, whose surname is not remembered, is upwards of 30 years of age, is tall, and no beard. Reign of Taouk-wong, 9th year, 9th moon, 3d day." —[Mirror.]

Discovery of Valuable Mines in the Pyrenees.—"Two learned Mineralogists, Messrs. Malus Dietrich, have discovered in the Pyrenees, and described, above five hundred mines: some containing gold; others silver, copper, lead, iron, zinc, pyrites, fossil coal, &c. &c. Nearly one half of these mines have been opened; but nearly all of them as soon as glanced at abandoned.—This discouragement has followed the very first attempts; frequently through the ignorance of the miners; but nearly always from the want of communication with these high and remote regions."

[To remedy in some degree, the latter evil, it is proposed to extend the Canal of Languedoc from Toulouse to Bayonne.]

[Sterne has told us, "they manage these things better in France." How widows manage to get husbands there, the following advertisement from the *Courrier Français* of the 17th of last month, will show.]

* **Marriage.**—A widow, 46 years of age, without children, and possessing an income of 50,000 francs,

is desirous of uniting herself with a person who has seen the great world (*le grand monde*). Address Madame de Nanteuil, rue de Bondy, No. 13, post paid."

Invention to enable persons to descend into cellars, buildings, &c. when on fire.—M. Paulin, Colonel in the corps of sapeurs-pompiers, has invented a dress which covers the head and part of the body, without hindering the freedom of his movements, or depriving him of the power of seeing. It is fitted with pipes, by which he is supplied with the air necessary to sustain life; and with others by which he breathes it out again. The air is supplied from without by an ordinary pump. The experiment made has been perfectly satisfactory. They heaped up in the cellar of a hay barrack, wet straw, shavings, rosin, brimstone, &c. No sooner was the fire put to the heap than a thick cloud of fetid smoke issued from all the apertures. As soon as the fire was completely kindled, a *pompier*, protected by the covering of M. Paulin, descended into the cellar, and remained there 19 minutes. The stench of the exhalations which came out of the cellar during this time was such that no one could stand on the highest step of the cellar, without being instantly suffocated. They likewise closed the cellar door and the vent holes.

At length the *pompier* came up, (he had been provided, it should have been stated, with a pipe from a fire engine,) and he had completely extinguished the fire. Doubtless, the high temperature of the cellar on fire had rendered his situation one hard to bear; although he was continually refreshed by the air conveyed to him from without. They found his pulse beat at the rate of 130 per minute; and likewise that the metallic parts of the dress were very hot; notwithstanding, the experiment showed the possibility of conveying assistance where cellars are on fire, without risk to the life of those who undertake the task. It is an invention which renders us indebted to the zeal and ingenuity of M. Paulin.

[The invention would be applicable in many other cases beside those of cellars on fire.]

[From Blackwood's Magazine]

The Last Journey.
Michaud, in his description of an Egyptian funeral procession, which he met on its way to the cemetery of Rosetta, says,—"The procession we saw pass, stopped before certain houses, and sometimes receded a few steps. I was told that the dead stopped thus before the door of their friends, to bid them a last farewell, and before those of their enemies, to effect a reconciliation before they parted forever." —[Correspondance d'Orient, par M.M. Michaud et Poujoulat.]

Slowly, with measured tread,
Onward we bear the dead
To his long home.
Short grows the homeward road,
On with your mortal load,
Oh, Grave! we come.
Yet, yet—ah! hasten not
Fast each rumpled spot
Where he had been;
Where late he walked in gloom,
There from henceforth to be
Never more seen.
Yet, yet—ah! slowly move—
Bear not the form we love
Fast from our sight.
Let the air breathe on him,
And the sun beam on him,
Last looks of light.

Rest ye—dun down the bier,
One he loved dwelleth here.
Let the dead lie
A moment that door beside,
Woe to fly open wide,
Ere he drew nigh.
Hearken!—he speaketh yet—
"Oh, friend! wilt thou forget
(Friend more than brother!)
How hand in hand we've gone,
Heart with heart harked in one—
All to each other?"
"Oh friend! I go from thee,
Where the worm fasteth free,
Darkly to dwell.
Giv'st thou no parting kiss?
Friend! is it come to this?
Oh, friend, farewell!"

Uplift your head again,
Take up the mourning strain!
Pour the deep wail!
Lo! the expected one—
To his place passeth on—
Grave! bid him hail.
Yet, yet—ah!—slowly move;
Bear not the form we love
Fast from our sight—
Let the air breathe on him,

And the sun beams on him,
Last looks of light.
Here dwells his mortal foe;
Lay the departed low,
Even at his gate.
Will the dead speak again,
Uttering proud boasts and vain,
Last words of hate?
Lo! the cold lips unclose—
Ere! list! what sounds are those,
Plaintive and low?
"Oh thou, mine enemy!
Come forth and look on me,
Ere hence I go.
"Curse not thy foeman now,
Mark! on his pallid brow
Whose seal is set!
Pardoning I passed away—
"Then—wage not war with clay—
Pardon—forget."
Now his last labor's done!
Now, now the goal is won!
Oh, Grave! we come.
Seal up this precious dust—
Land of the good and just,
Take the soul home!

MILL-DAM FOUNDRY.

ON MONDAY, June 1, at 12 o'clock, at City Hall, (unless previously disposed of at private sale,) will be sold by auction, the above well known establishment, situated one mile from Boston. The improvements consist of—

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 30, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 130 feet by 40, containing two water-wheels, equal to 40 horse power; Machine Shop, fitted with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the supervision of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 35, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 35, containing counting room, several stores, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and iron can be carried from vessels in the harbor of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOMAS J. ECKLEY, Treas., &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, April 21, 1835.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads, suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 229 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

PRICES OF RAILROAD STOCKS,

At the New-York Stock and Exchange Board.

MAY 1, 1835.

	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	130	129½
Patterson.....	50	111	110
Ithaca and Owego.....	—	—	—
Saratoga.....	—	115	115
Harlem.....	—	108	108
Boston and Providence....	100	122	122
New-York and Albany.....	—	—	—
New-Jersey Railroad and Transportation Line.....	100	120	119
Camden and Amboy.....	100	—	—
Providence and Stonington..	100	108	103
Boston and Worcester.....	—	109	108
Philadelphia and Trenton...	100	105½	103½
Utica and Schenectady.....	100	131	128
Jamaica.....	—	120	117
Washington.....	—	112½	110

Stocks Higher and Higher.—The Bulls have it all their own way. The Bears suffer most awfully. On Friday several descriptions, which had been deemed too high, took a fresh start—Dry Dock up to 145, higher, we believe, than any Bank stock has sold at in ten years; Mohawk Railroad sold at 130, an advance of twenty-five per cent. in five months. We give the following, to show the most extraordinary rise in stocks in five months.—[Daily Adv.]

Sales, 26th Nov. 1834.	25th April, 1835.	Rise.
Mohawk Railroad 107	130	23 pr. ct.
Patterson " 85	111	26 "
Saratoga " 95	115	20 "
Harlem " 64	108	44 "
Bos. & Prov. " 105	122	17 "
Utica " 106	129	23 "
Morris " 70	200	130 "
Del. & Hud. Canal 72	113	41 "
Jackson Marlee 91	113	22 "
Dry Dock Bank 118	145	27 "

[From the Portland Advertiser.]

Good News from Quebec.—We understand that Gov. Dunlop has received a letter from Lord Aylmer, the Governor General of British America at Quebec, stating in substance that he and his government are ready to meet ours in a survey of the route for the proposed Railroad from our Atlantic Sea Board to Quebec, whenever our Government shall appoint the necessary Surveyors and Engineers. The Report in our Legislature on this subject, we are informed, has attracted the attention of the Quebec and Montreal papers, who have republished it and commented upon it at some length. The Montreal people feel but little interest in it, as they have comparatively an easy communication with the Atlantic via New York. But the Quebec people look to this city as their grand outlet and inlet, particularly in the winter, spring, and the months of October and November. The republication of the report in our Legislature in the Quebec newspapers, with the interest felt by the Quebec public in the establishment of such a communication, induced Lord Aylmer to enter upon the subject with zeal—and therefore, he has tendered a co-operation in a survey, to the Governor of Maine. Probably Lord Aylmer, as Governor of Lower Canada, has under his command a corps of Engineers attached to the army stationed at Quebec—or has the power of defraying the expense out of the income arising from the sale of the crown lands—for it seems that he has the power to make the Canada part of the survey without an appropriation by the Colonial Legislature.

Portugal.—The sale of the National property is expected soon to take place, and it is said that orders for purchasing £100,000 worth of it have arrived from different persons in England. Mr. Craig, an English Engineer, is about to Macadamise the road from Lisbon to Cintra. The road between Lisbon and Oporto is also to be improved. The new Minister of the Interior has begun his career well with these improvements in the means of communication.

Lafayette's Tomb.—A simple slab of black marble in the burying ground at Flépas, in Paris, marks the spot where repose the remains of Lafayette. It bears this inscription:—"Here lies M. P. J. R. C. M. de Lafayette, Lieut. General, Deputy; born at Auvergne, in 1757; married 1776 Mlle. de Noailles; died in 1834; Requiesce in pace"

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RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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* All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

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This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Vols. 6 and 7, or 1 and 2, new series, \$3 per volume.

QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 230 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fennenden, Philadelphia; or of the Proprietor and Publisher,

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WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the same sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLE, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

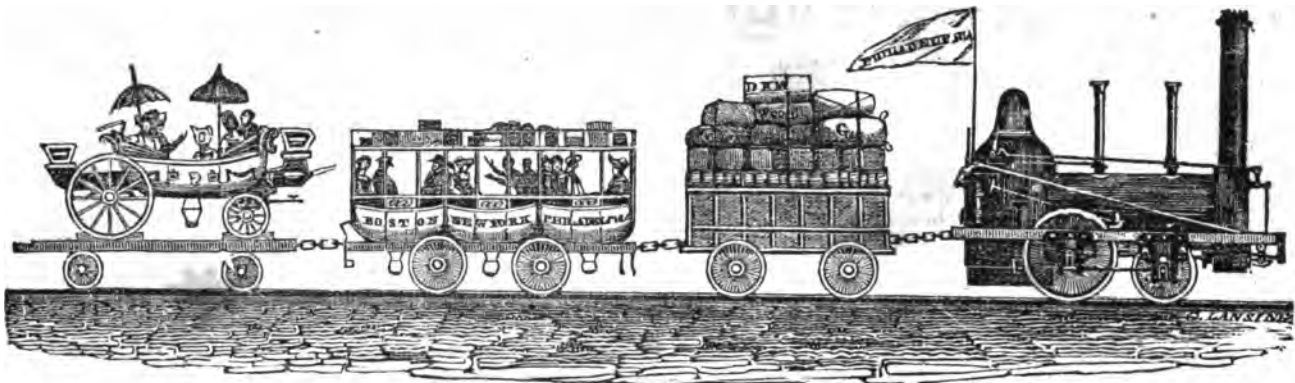
E. M. GILL, Civil Engineer.
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
German and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, MAY 9, 1835.

[VOLUME IV.—No. 18.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 9, 1835.

We have been furnished with a copy of the proceedings of a meeting held at Norwich, Conn., on the 29th of April, in relation to the railroad from Norwich to Worcester, for the purpose of opening an easy communication between Boston and Long Island Sound, and of course with New-York, which will be found on the 5th page of this number. This road will pass through a thickly populated and wealthy part of the country, which abounds in those productions that will, aside from the immense travel which will pass over it, insure, we doubt not, a good return upon the investment. Norwich will not quietly relinquish to Providence and Stonington the entire business between New-York and Boston, but with a spirit which does her credit, and which will ensure her success, enters the field, and will contend manfully for the prize—a prize indeed well worth her utmost efforts; and it is time that her citizens awake, as we perceive that the commissioners of the Long Island Railroad have given notice of their intention to open books to receive subscriptions for stock.

It is therefore important that those who mean to contend successfully for the business, should be ready to connect with that road when completed, as completed it surely will be.

We have been requested to call attention to the Great Au Sable Railroad, from Port Kent on Lake Champlain, to Keeseville. The following article was furnished us by a gentleman who is perfectly familiar with the business of that vicinity, and he assures us that it will prove a good investment.

GREAT AU SABLE RAILROAD.—This road runs from Port Kent, on Lake Champlain, to Keeseville, on said river, 5½ miles. It was laid out by Major Beach, civil engineer of Newark. His report to the President was published in detail in vol. 3, p. 50, by which it will be seen from statistical documents, that upwards of 50,000 tons would pass over the road in the offset, yielding a neat income of 20 per cent., and constantly increasing, to which may be added, that the charter extends to 50 years, and that the amount of produce is unlimited; and that the road can be made for \$6000 a mile, the materials being along the route.

We can safely recommend this stock to our friends, as among the most certain and productive in the United States. Capital stock, \$60,000; 1200 shares at \$50, 300 of which have been taken near the road. The residue, we are informed, will be in market next week, with explanatory maps, &c. It is contemplated to finish the road in October next. John T. Norton, President; Robert Gilchrist, Treasurer; Ephraim Beach, Chief Engineer.

The United States have also caused a breakwater to be laid off in front of the harbor of Port Kent, which has been acted upon by Congress, and will doubtless go into effect the ensuing year.

Our readers must know that Port Kent is the outlet of what is emphatically called the Sweden of America.

[From the Baltimore American.]

New York is alarmed for her Western trade, and well may she be. Pennsylvania has the shortest, cheapest and quickest line of communication between the West and the Atlantic, and we venture to assert without hesitation that her immense line of Canals will in a short time be as much thronged with trade as those of New York now are.

By the recent act of Pennsylvania, authorizing the extension of her Canal from Columbia down to the Chesapeake, Baltimore is placed in a position which gives her a direct and very large interest in all that concerns the Internal Improvements of that State. The opening of the extension Ca-

nal—Columbia being but forty miles from the tide waters of the Chesapeake—will unite our city with the Pennsylvania Canals by an unbroken water communication which will render the Baltimore market of easier and cheaper access than any other on the sea board. A share—a very large share—of the trade of Pennsylvania and of the great West, will descend to the Chesapeake through the Extension Canal, and make its way to us. This short work, at the first moment of its completion will turn the course of this immense trade in this direction, and if the undertaking is taken up and prosecuted with vigor and efficiency commensurate with its importance to those who are directly concerned in its successful accomplishment, it may be in full operation by the spring of 1837. The Maryland Canal, reaching from Port Deposit to the State Line, can easily be enlarged to the requisite dimensions while the remaining thirty miles between the Line and Columbia, divided into half mile sections, are being constructed. The friends of the work have only to determine that it shall be finished by the end of 1836, and will it be done.

Trenton Trade.—New evidences of the prosperity of our city, are daily opening upon us. A year ago, and our "Editor's attic" was in the most retired and quiet part of the town—now, the din of masonry, carts, and falling lumber, is in our ears—huge piles of stone, brick, and plank, are around our doors—and just before our window, proudly floating on the breeze, rolls our national flag, from the mast head of a gallant schooner. We walked out to make acquaintance with the stranger, and found her to be the *Caroline Frances*, a trim built craft from the New York ship yards, taking in a cargo of lumber, grain, flour, tar, Indian meal, &c. for the Eastern markets. She is the first of a regular line of packets owned by our enterprising citizens, Messrs. Rose, Green, Hoy & Co., intended to ply constantly between this place and New York.—This brings the up-river trade of the Delaware in rivalry with the trade of the Hudson, and enables East Pennsylvania and New Jersey to throw their produce into the Eastern markets, with as little, if not less, freight and duties than the interior of New York. Besides, goods stored at Trenton have this advantage—should sales in the Eastern mart be dull, the Southern are of still more easy access. During the day, the *Caroline Frances* passed round from the Feeder Basin to the Trenton Basin, and there now waive her stripes and stars over the very fields where first that flag won the respect of its enemies, and the adorations of freemen—the Battle Field of Trenton.—[Trenton N.J. Emporium.]

To the Editor of the Am. Railroad Journal:

SIR,—What objection could there be to using a steam engine on the towpath of a canal?

Will some one of our readers who has leisure, answer this "query?"—[Ed. R. J.]

Macneill on Canal Navigation.

(Continued from our last number.)

With this boat the results exhibited in the following tables (II. III. IV.) were obtained on the Paddington canal, opposite Holsden Green. The important effects which they are calculated to produce in the minds of the unprejudiced, not only upon inland navigation, but to nautical science in general, have determined me to publish them in the fullest manner, giving every particular connected with their arrangement, as well as the names of those scientific gentlemen who assisted me, together with the names of the assistants from my own office, so that the most ample evidence of accuracy and care may be had. For more advantage will be derived by accurate trains of experiments than will follow from the assumptions of a mathematical century.

The first requisite was a good dynamometer for measuring the tractive force necessary to move the boat at various velocities, and as I showed a marked preference for my own, with which I had obtained such important results during my surveys of roads for the parliamentary commissioners, I shall give a description of it, in order that readers may be satisfied such preference was justly given.

The dynamometer or pirameter, I originally intended for measuring the draught of carriages on turnpike roads, and for this purpose I have used it very extensively under the Parliamentary Commissioners, for the London and Holyhead road, and elsewhere. The following is a description of the instrument, and in the appendix (B) will be found the opinions of competent judges upon its merits. When I at first endeavored to adapt Marriot's spring weighing machine, so as to ascertain from it the amount of the horse's draught, the stepping motion of the horse created a quick succession of vibrations, which completely prevent any one from reading off the figures indicated—and this confusion of vibrations will always prevent the simple adoption of any species of spring weighing machine. To remedy this inconvenience, and do away with the vibrations as much as was necessary, I applied a piston, working in a cylinder full of oil, and connected with the spring in such a manner that when any power or force is applied to it, so as to make the hand traverse the index, the piston is at the same time moved through the fluid. The connection of the spring and index with the cylinder is by means of a lever working on a pivot: the arms of the lever are of unequal length; the tail-piece of the spring and index is connected with the short arm; at the extremity of the long arm the piston rod is connected; the piston rod, after passing through a stuffing-box in the cap of the cylinder, is screwed into a piston or circular plate of thin brass, perforated with small holes; and out of one part of the circumference a square notch is cut, the use of which will be seen below.

By this construction, the resistance of the fluid to the piston, which acts at the extremity of the long arm of the lever, prevents the sudden jerks of the horse from being marked with those vibrations on the index so much to be avoided; at the same time the piston will move over a space proportioned to the intensity of the force exerted by the horse, and the same will be indicated accordingly upon the dial of the instrument; if the pulls follow each other in rapid succession, the piston will move slowly out, and the hand upon the index will turn round steadily and uniformly, until the power is balanced by the spring.

The dial is graduated in pounds, and decreases from zero upwards, in order to compensate for the increased force which the spring exerts in proportion as it is wound up; in consequence of this the index does not pass over equal spaces when equal forces are applied in different states of tension of the spring: the piston therefore will not pass through equal spaces in the cylinder, and the vibrations would consequently be greater in the higher numbers, because the velocity of the piston being less, the resistance to the piston in passing the fluid will be less, at the same time the power opposed to it is greater. To obviate this, and to make the index equally steady on all parts of the dial, a narrow slip of brass, formed into an inclined plane, is soldered to the inside of the cylinder, parallel to its axis, the largest (or highest) part of this inclined plane being at that end of the cylinder towards which the piston rises when the index moves towards the greater power. The notch which is said above to be cut in the circumference of the plate, (which traverses like a piston in this cylinder,) corresponds in size exactly with the largest part of this inclined plane; so that when the piston is at the upper end of the cylinder, the notch is completely filled up by the inclined plane; on the contrary, when the piston is at the lower end of the cylinder, the aperture is completely opened. By this contrivance the aperture through which the fluid is obliged to pass, as the piston moves from the lower end of the cylinder to the higher, is gradually contracted, and of course the resistance to the passage of the piston through the fluid is gradually increased, and thus compensates the increased power of the spring; rendering the vibrations nearly uniform from the lowest to the highest power. This compensation is similar to that by which the fusee regulates and gives uniform power to the main-spring of a watch.

This instrument* was placed in the doorway of the front cabin, (which is about fourteen feet from the stem of the boat,) and in a line with the ordinary tugging hook; secured with wooden braces and screw nails in such manner as to be perfectly firm and steady, in some instances the towing line was made fast to the weighing bar of the dynamometer, and the power communicated directly to it. In other cases the towing line was made fast to a shackle on an iron lever, the fulcrum of which was the screw bolt which made the bar fast to the gunwale of the boat on the bow nearest the towing path; the power being communicated from the lever to the dynamometer by means of another shackle; this last mentioned shackle being precisely twice the distance from the fulcrum. By this arrangement we were enabled to bring either the whole tractive force to be indicated on the dial plate at once, or only one half that power, as we please, by merely shifting from one position to the other.

I consider this arrangement to be advisable, lest by any chance there should have been an error in the graduation of the dynamometer. To prove its accuracy, we repeated most of the experiments with and without the lever. If when the power was communicated to the weighing bar of the dynamometer, the instrument indicated the whole traction to be one hundred pounds, and if, when the power was communicated

* In the modification of this instrument, which I have now mounted in a light double-bodied piston, the dial plate is fitted, not only with an index and hand, but also with a card for determining the bearing; a pendulum which shows, by means of an index and hand, the inclination; a time-piece; and an index and hand to show the distance travelled by the wheels.

to the other shackle, the instrument indicated only fifty pounds, we were warranted in concluding, that as far as this experiment was concerned, the dynamometer was accurate. Now this I had done on numerous occasions, to prevent the possibility of error; and in order to be more perfectly assured, I repeatedly employed weights, suspended, over a pulley, to check the dynamometer.

In making the observations with the dynamometer, every care was taken to have accuracy. Mr. Whitwell kindly assisted me in all these observations. He took the time with an excellent watch, having a detached second hand, with a dead beat, which enabled him to give a signal very accurately at intervals of two seconds. At these signals the power of traction indicated by the dynamometer was read off silently and distinctly by two gentlemen, whose names are at the head of their respective copies. Each of these gentlemen added the observations together, and took the means of each set.

Whilst these observations were making at the fore sheets of the boat, the times of the boat's passage were noted a little farther aft, by Mr. Turnbull and Mr. Dundas, who had each an excellent chronometer (from Arnold and Dent's). The word "time" was given by Mr. Wilson, when the boat passed the stakes which had previously been driven in the embankment at distances of one hundred yards apart. By this means the observers of the time had never occasion to lift their eyes from the chronometers, except to note down the observations.

Besides the gentlemen making these observations, I was always assisted by others; but more especially by Mr. Alexander Gordon and Mr. Saxton, both of whom being so well qualified from their practical and scientific acquirements, for such a series of experiments, contributed very materially to prevent errors from taking place, by a general view over each department.

Fig. 3 represents a transverse section of the Paddington canal, opposite the village of Holsden Green; the soundings and measurements having been taken by Mr. Bouris and Mr. Turnbull.

[In the following experiments great care appears to have been taken to ensure accuracy; as the time of passing each stake, placed at 100 yards distance from each other, was marked by two first rate chronometers, and a full account of each is given, both the moment of passing each and the time between the stakes. It is not, however, deemed necessary here to give the separate statements of each time-piece—but merely the mean time of passing over the space of 100 yards between each stake, the velocity of passing, the mean force of traction as observed, and the weight of passengers in lbs., &c.]

In Table II., the first ten experiments are not published, because the arrangements were not, at that time, as perfect as could be wished. The length of the horse line was 82.1 feet; girth, 1.7.8ths; weight, 10 lbs. 1 oz. The length of the light line was 68.1 feet; girth, 7.8ths; weight, 2 lb. 8 oz. The standard adopted for calculating the squares and cubes of the velocities in the experiments mentioned in this table, and all those made on the Paddington Canal, was 2.517 miles per hour.

In Table III., experiments 5, 6, 7, 8, were made by a weight over a pulley; no accurate result. Experiments 13, 14, 15, 16, were also made by a weight over a pulley.

TABLE II.—Experiments made with the "Grahame and Houston" Iron Boat, on the Paddington Canal, for the purpose of ascertaining the law of resistance, or force of traction at different degrees of Velocity. 8th April, 1833.

No. of Experiments.	Mean time of passing over 100 yards between each Stake.	Velocity in miles per hour.	Mean Force of Traction in lbs., as observed.	Mean Force of Traction, calculated from the squares of the Velocities.	Mean Force of Traction, calculated from the cubes of the Velocities.	Weight of Passengers in lbs.	OBSERVATIONS.
11	42.25	4.841	75.				
12	40.5	5.050	69.87				
13	40.0	5.113	66.50				
14	43.5	4.702	47.26				
15		4.955	61.21	97.90	192.58	2511	Wind ahead, but scarcely perceptible.
16	37.5	5.454					
17	36.5	5.603	130.46				
18	36.75	5.565	150.11				
19	36.0	5.681	143.77				
20		5.616	141.44	125.94	280.33	2511	
21	29.0	7.053	140.53				
22	28.5	7.177	122.76				
23	27.5	7.437	119.67				
24	26.75	7.646	107.48				
25		7.420	116.63	219.09	646.68	2511	
26	27.0	7.575	170.87				
27	25.5	8.021	140.04				
28	25.0	8.181	136.98				
29	25.0	8.181	144.66				
30		8.187	140.56	262.83	849.71	2511	
31	21.75	9.404	226.28				
32	22.75	8.990	211.58				
33	23.0	8.893	183.40				
34	23.0	8.898	180.21				
35		8.925	191.73	314.80	1125.38	2511	
36	50.37	4.060	50.12				
37	47.37	4.318	49.84				
38	47.5	4.306	42.59				
39	50.25	4.070	43.30				
40		4.231	45.24	71.24	119.89	2711	
41	23.0	8.893	235.07				
42	19.0	10.765	281.00				
43	18.0	11.363	303.47				
44	18.0	11.363	278.14				
		11.163	287.53	496.10	2202.02	2711	
45	19.75	10.356					
46	17.5	11.698	309.16				
47	18.5	11.056	311.39				
48	19.5	10.489	261.82				
49		11.077	294.12	498.83	2139.2	2711	
50	96.5	2.119					
51	91.0	2.247	23.45				
52	94.25	2.170	33.75				
53	92.25	2.217	23.3				
54		2.311	23.5	19.47	17.04	2711	
55	53.75	3.805					
56	57.25	3.572	47.98				
57	56.5	3.680	47.18				
58	56.0	3.652	45.04				
59		3.614	46.5	52.03	74.43	2711	
60	94.5	8.249					
61	23.5	8.704	174.97				
62	23.25	8.797	193.41				
63	23.25	8.797	174.18				
		8.766	180.85	306.14	1179.74	2711	

TABLE III.—Experiments made with the "Grahame and Houston" Iron Boat, on the Paddington Canal, for the purpose of ascertaining the law of resistance, or force of traction at different degrees of Velocity. 9th April, 1833. 15 Passengers.

No. of Experiments.	Mean time of passing over 100 yards between each Stake.	Velocity in miles per hour.	Mean Force of Traction in lbs., as observed.	Mean Force of Traction, calculated from the squares of the Velocities.	Mean Force of Traction, calculated from the cubes of the Velocities.	Weight of Passengers in lbs.	OBSERVATIONS.
1	"	2.801	29.73			2381	
2	77.25	2.647	26.21				
3	83.5	2.449	25.6				
4	83.25	2.456	23.9				
		2.517	25.24	25.94	25.24		
5	84	2.435					
6	80.5	2.540	21 lbs.				
7	76.5	2.673					
8	79.25	2.580					
		2.597	21	26.87	27.72		
9	68.25	2.977	35				
10	68.0	3.008	26.2				
11	63.25	3.233	33.8				
12	64.75	3.158	29.95				
		3.133	29.98	39.10	48.67		
13	67.5	3.030					
14	69.0	2.964	33 lbs.				
15	67.75	3.019					
16	73.25	2.791					
		2.924	30	34.06	39.57		
17	48.5	4.217	59.4				
18	48.0	4.261	56.62				
19	45.5	4.317	62.83				
20	44.0	4.648	65.5				
		4.375	61.65	76.25	132.55		
21	52.0	3.923					
22	45.5	4.495	58 lbs. too little by 10.				
23	43.75	4.675					
24	44.25	4.622					
		4.597					
25	21.5	9.513	267.0				
26	21.25	9.625	238.52				
27	22.0	9.297	228.20				
28	21.75	9.404	231.48				
		9.442	232.73	355.18	1332.51		
29	16.5	12.396	436.94				
30	17.0	12.032	395.66				
31	19.5	10.489	300.26				
32	20.0	10.277	270.5				
		10.383	285.15	429.50	1771.93		
33	18.25	11.207	403.6				
34	19.12	10.697	344.8				
35	20.25	10.100	273.0				
36	22.0	9.297	245.75				
37		10.031	287.85	400.87	1597.77		
38	75.5	2.709	27.34				
39	77.5	2.638	25.21				
40	81.0	2.525	22.01				
41	86.0	2.378	22.82				
42		2.513	23.34	25.16	25.12		
43							
44	61.75	3.312	37.35				
45	64.5	3.171	32.36				
	64.25	3.183	32.23				
	65.0	3.146	30.15				
46		3.166	31.58	39.93	50.23		
47							

48	17	12.032	350.9				
49	17	12.032	337.75				
50	18.5	11.056	318.9				
51	20.5	9.977	276.53				
52		11.021	310.86	483.90	2112.05	2391	
53	26.25	7.792	189.5				
54	27.	7.575	148.7				
55	26.5	7.738	147.23				
56	26.0	7.867	148.85				
		7.72	149.26	237.44	728.33		
57	36.5	5.603	132.84				
58	38.25	5.347	135.26				
59	34.0	6.016	155.41				
60	38.25	5.347	154.52				
61		5.57	148.99	123.60	273.54		
62	26.25	7.792	199.07				
63	25.75	7.943	159.65				
64	26.75	7.646	149.2				
65	25.25	8.100	147.62				
		7.896	152.15	248.38	779.28		
66	33.75	6.080					
67	35.5	5.761	168.58	139.48	327.92		
68	33.5	6.105					
69	34.75	5.886					
70		5.917					

APPENDIX.

A.
Specification of a Light Iron Passage Boat, such as ply on the Summit Level of the Forth and Clyde Canal, between Port Dundas and Windford, and such as was used in the Experiments detailed in the foregoing paper.

Extreme length, 70 feet; do. breadth, 54 feet. The iron of the very best manufacture. The body plates in particular must be free from rust, cracks, blisters, and roughness of every description. The whole of the iron must be coated with linseed oil, previous to its being used. And the boat must be built under cover, so that the work may be kept dry until the boat is finished.

Although not shown on the plan, the said boat has a hollow keel, so as to prevent the lodgement of water beneath the floor, between the ribs. The stem and stern shall consist of bars of iron, six inches in breadth, and a quarter of an inch thick, which are hammered flat at the lower part to the breadth and thickness of the keel-plate, to which they are scarfed and secured with clenched rivets.

As stated above, the keel-plates are formed hollow, and consist of hoop iron, six inches in breadth, and one eighth of an inch in thickness. To which a wood keel of Mamel plank, fifty feet in length, nine inches in depth, three inches in thickness next the bottom of the boat, and an inch and a half at the lower edge, tapered off to nothing at each end, must be secured to the keel-plates with glands an inch and a half in breadth, and a quarter of an inch thick, sunk flush into the keel, and screwed inside at the distance of three and a half inches apart.

The ribs shall consist of T and angle iron, and placed alternately at the distance of twelve inches from each other, and extending from gunwale to gunwale; after being bent to suit the curved form of the vessel, two rows of holes are punched on the flat side of the angle and T ribs to secure the body plates, and holes at convenient distances are punched through the upright flange to secure the false ribs for the inside lining.

The body-plates must consist of the best double rolled No. 16 sheet iron, two and a

half lb. per superficial foot, and these sheets are in lengths of eight and ten feet. The first range of bottom plates which join the hollow keel, eight feet in length and 24 inches in breadth; the next two ranges on each side which form the bilge, ten feet in length, by twelve inches in breadth, and the range next gunwale, ten feet in length by eighteen inches in breadth. Particular attention is requisite, both with the view to the strength and appearance of the boat, that the whole of the body-plates be run in fair sheer lines from stem to stern, and that the lower edge of each succeeding length or range of plates cover the upper edge of their accompanying ones, three quarters of an inch, so that the boat in every respect may have the appearance of being clench built.

The butts, or end joints of the plates, must be kept smooth, and meet on the centre of the T rib, and the joints of each succeeding plate be so shifted as to meet on the T rib nearest the centre of its accompanying ones. It must, however, be expressly understood, that previous to any of the plates being rivetted, a thin stripe of cotton cloth, dipped in white lead paint, be put in between the overlaps of the edge joint, and between the ribs and the end joints, so as to prevent leakage and corrosion. The whole end and edge joints must be secured with countersunk rivets, made from a three-sixteenth of an inch bore, placed at the distance of three fourths of an inch from centre to centre, and made from the best charcoal rivet iron; the rivets, except those for securing the end joints, must be placed two inches distant from each other, and the whole, as stated above, be countersunk, and kept as smooth as possible.

Plates, six inches in breadth, and one eighth of an inch in thickness, to be placed on each side along the bilge, over the body plates, where they are most exposed to injury when taking on board and landing passengers, which will extend from the round of the entry, at the bow, to the commencement of the run or exit at the stern, and is secured to the ribs and body plates with countersunk rivets, placed at the distance of three inches apart; but before they are secured, both the bilge plates and body plates must be properly coated with white lead paint, and a ply of sheathing dipped in the same, put in between.

One and a quarter inch of angle bars extend from stem to stern, to form the gunwale, to which welts or wood mouldings are secured; and another of the same dimensions to be placed seven inches below the gunwale, to which the wood-belt, three inches thick, and four inches deep round off, is to be secured.

The boat is framed and moulded, and in every respect formed exactly and agreeably to the plan, and the work must be done in a substantial and workmanlike manner.

Specification of the Carpenter and Joiner Work of such a Light Iron Canal Passage Boat.

The length of the boat as specified, at seventy feet in length, five feet six inches in breadth, and two feet six inches in depth. It is divided in the following manner, viz. Fore deck, 4 feet in length; fore sheets, space for steerage cabin and principal cabin, &c., and after sheets, according to the number of the travellers intended for; after deck, 4 feet.

The false ribs for securing the inside lining consist of willow timber, one inch in breadth, and seven-eighths of an inch in deepness, which must be free from knots and shakes, so that they may bend easily after being stoved to the curved form of the

boat, to which they are secured with nails, rivetted to the upright flange of the ribs.

The sea-crofts, fore and aft, must extend from the stem and stern to the end of the cabins, and be four inches in breadth, and two inches in thickness, of best Memel plank, which is kept flush with the gunwale inside, and secured with three-eighths of an inch rivets, one throughout each rib.

Two timber heads on each side, near the bow and stern, are placed in the most convenient situation for mooring the boat, and secured with glands fixed with clenched rivets, so that the timber heads may be taken out and replaced when found necessary; to consist of solid oak timber, five inches in breadth, two inches thick, one foot in length below the gunwale, and seven inches above.

The beams which support the deck fore and aft, consist of oak plank two inches thick, three inches deep in the centre, and two inches deep at each end, with a curve of half an inch to the foot in length; and they are secured with a sheet-iron plate to the gunwale, angle iron, and sea-croft.

The gunwale or covering boards should consist of the best Memel fir plank, one inch in thickness, which extends from stem to stern; the cover is secured to the gunwale flange and wele that forms a moulding round the same.

The ends and divisions of the cabins should consist of Memel plank, two and a half inches in breadth, and one and three-fourths inch thick, which will form diagonal frames, for the purpose of strengthening the boat, so as to resist external pressures. The said frames must be lined at the ends of the cabins outside, with the best half-inch American yellow pine plank. The framing in the inside of the cabins may be lined as may be approved of.

The sleepers, for support of the flooring, should be two inches deep, by one and a quarter inch thick, placed and fitted to each alternate rib, and fixed to the upright flange with rivet nails. The flooring should consist of the best yellow pine plank, one inch thick, and not to exceed six inches in breadth, which must be properly cleaned, ploughed, and feathered.

The height of the cabins, from the top of the floor to the lower part of the beams, six feet at the centre, and the height of the sides above the level of the floor will be five feet under the beams, consequently the beams will have a curve of twelve inches.

The standards or stanchions of the sides of the cabins should consist of the best white American oak, one inch thick, and one and a half broad at the gunwale, and one inch in breadth at the top of the cabin, and placed at each alternate rib, to which it is secured, the distance being twenty-four inches from centre to centre. The top gunwale, for the support of the roof, to be made of the best Memel fir or red pine, free of blemish or knots, and extend the whole length of the cabins, two and a half inches deep outside; the upper edge is bevelled to suit the curve of the beams, and two inches in thickness, mortised to fit the tenure of the standard, having a projection for a bead, and thickness of outside lining.

The beams, as stated above, to have a curve of twelve inches, to consist of the best clean ash timber, an inch and a half in breadth, by one inch in depth, the lower part rounded to a half-circle, and is placed at the distance of two feet from centre to centre, dove-tailed and secured to the gunwale with screw-nails; and a framing of iron wire gauze, well painted, shall be

made to connect them, so that the top may form one solid connected form from end to end.

A stringer extends the whole length of the cabins in the centre to support the roof, which is let in, and bound to the diagonal frames, the upper edge kept flush with the top of the curve, consisting of clean solid white Quebec oak timber, three inches in depth, by an inch and a half thick; into which the beams are let nearly in the whole depth, and made exactly for the top covering.

The space outside of the cabin, fore and aft, must be lined from the floor to the gunwale with five-eighths of an inch red pine boards, and seated in the usual form; the tops seven-eighths of an inch thick, with round supports and cross bearers, with two front rails, two and a half inches in breadth, beaded, and let in flush with the bottom and top of the supports or feet.

In order that the boat may be kept as light as possible in the fittings-up, there should be no inside lining of wood from the floor up, consequently the whole seatings in the cabins must have fronts supported with brackets; these brackets to be secured to a stringer, fixed to the sides of the boat the whole lengths of the cabin, three inches in breadth, by an inch and a quarter thick, to which the brackets are let in flush, and nailed to it and the floor. The seats in the principal cabin to be sixteen inches in height, so as to allow cushions two inches thick and eighteen inches in breadth; the back to be one inch lower than the front, which is considered an improvement as a comfortable seat; the seats in the principal cabin may consist of cane, light wood, or lacing, as may be approved of; the fronts consisting of the best American yellow pine five-eighths boards. The seats in the steerage, eighteen inches in height, by fourteen inches in breadth, and fixed with brackets in the same manner as the principal cabin, and be seven-eighths of an inch in thickness.

The outside lining between the gunwale and top of the cabins should consist of the best yellow pine half-inch boards, well seasoned, free of knots, sound, and properly cleaned, ploughed, and feathered. The first board will extend the whole length of the cabins, eight inches in breadth, neatly joined to the covering boards, thin fitters being fitted between the standards or stanchions, and, laid in white-lead paint, so as to be water-tight, is fixed to the side standards with springs.

The space between the standards being twenty-four inches from centre to centre, it is proposed that light windows or patent gauze wire shall be placed in every alternate space, so as the passengers may have a view of the country without being under the necessity of removing to the outside. These windows and frames should be made as light as possible, and made to slide or fold, as may be considered most convenient.

The inside lining, from the seats up, and between the windows, should consist of oil-cloth, fixed and finished with beads and facings.

The top or cover of the cabins to consist of oil-cloth, which must be perfectly water-tight, and fixed to the beams, top gunwales, and ends of the cabin, with a moulding. It will be necessary to have a thin sheet of plate-iron for the funnels, so as to prevent any danger from the heat of the stoves during the winter.

The outside doors should consist of red pine plank, one inch and a quarter thick, bound and pannelled, to be hung with neat

light hats and bands, have good five-inch rimmed locks, brass mounted, to open out in two halves, and to have small brass slip bolts at top and bottom. The doors in the divisions to have check locks, and hung with five-inch edge hinges.

The inside doors should consist of the best yellow pine plank, one and one-eighth inch thick, and twenty-two inches in breadth, and finished with facings.

That the whole of the inside, previous to the joiner work being commenced, should have two coats of good lead color paint, and the whole of the iron-work on the outside, as well as the wood-work in the outside and inside, should have three coats of paint of different colors, and finished in a sufficient and workmanlike manner. (To be continued.)

[For the American Railroad Journal.]

Railroad Meeting.

In pursuance of public notice a meeting of gentlemen interested in the railroad from Norwich to Worcester, was held at Norwich in the Town Hall on Wednesday evening last—J. G. W. Trumbull in the chair, L. F. S. Foster, secretary.

M. J. A. Rockwell, from the committee appointed at a former meeting to collect and furnish facts connected with the subject, presented a full report. This report contains a mass of interesting and important matter in relation to the proposed road, which will be laid before the public. Mr. Rockwell read such portions as he judged had the most direct bearing upon the question, from which it appears,

1. That the route of the Norwich and Worcester railroad is a direct route to Worcester by the valleys of rivers, through a country in every respect favorable, with an elevation to be overcome in no point of more than 30 feet per mile, and the average elevation of 11½ feet per mile, and that the materials of construction are at hand, and the expense would be unusually small.

2. That within five miles of the route there are 75 cotton manufactories, 27 woolen mills, about 100 stores, and numerous mills for the manufacture of iron, paper, &c. That the number of cotton spindles employed in the two counties in Connecticut through which this railroad passes, is officially ascertained to be 100,229, being more than three fourths of the entire cotton manufactories in this state; and that there is probably nearly an equal amount in the county of Worcester, and that there is not in any part of this country a region so abounding in manufactories as on the borders of this route.

3. That the present amount of transportation to market from towns very near, and on the borders of this route, is at least equal to thirty thousand tons annually transported through the entire route, and would be greatly increased by transportation on the borders of the Boston and Worcester Railroad, from Boston, and from the country north of Worcester.

4. That there is unoccupied water power on and near the borders of this route, ascertained by actual surveys to be not less than sufficient to carry 1,000,000 spindles.

5. That there are in various places on and near the route, valuable stone quarries, for building; and in the town of Killingly inexhaustible quarries of flagging stone, pronounced by Professor Mather superior to any flagging stone now in use in this country.

6. That the railroad from Norwich to Worcester, and from Worcester to Boston, passes through the most populous part of this country; and that the counties through

which these railroads will pass, exclusive of the county embraced by Boston, contained in 1830 a population of 273,606, and that there is a population north of Worcester, and of the railroad from Boston to Worcester, which would find this the most direct route to New-York, not less than 250,000, exclusive of Boston.

7. That the route by railroad from Boston to Worcester and Norwich, and thence by steamboat to New-York, is 100 miles by railroad, and 130 by steamboat; and when completed, the passage may be made in 16 hours, and is the best existing route between Boston and New-York, being the easiest, cheapest, most direct, and rapid.

8. That the route from Boston to Worcester may be readily reduced to 88 miles; that Norwich is within three miles as near New-York as Stonington, and the route from Boston by the way of Norwich, to New-York, would be as near as by way of Stonington.

9. If a railroad is constructed on Long Island, the distance from Norwich to its termination is 28 miles, and from Stonington 25 miles—enabling the Norwich and Worcester railroad to avail themselves equally well of the Long Island railroad.

10. That a railroad constructed on the borders of Long Island Sound would accommodate the long travel, it being estimated that the number of passengers annually passing in the steamboats between New-York and the towns on the borders of the Sound is not less than 300,000; and that the distance from Norwich to New-York is 130 miles, and from Stonington to New-York, including two ferries, is 122 miles.

11. That by the extension of the Railroad communication to Lowell, and thence farther north and east, every part of the chain is benefitted, and this route greatly improved.

12. That the extension of the Boston and Worcester Railroad to Springfield, and thence to Albany, by opening the valley of the Connecticut, and affording a railroad communication with the interior of New-York and the west will add to the revenue of this railroad.

The following resolutions were offered by Mr. C. W. Rockwell, and unanimously adopted:

1. Resolved, That this meeting consider the valleys of the French and Quinebaug rivers as affording the natural and most inviting route for a railroad from Worcester to Long Island Sound.

2. Resolved, That inasmuch as the survey of this road is entirely through a valley, crosses no hills, and abounds with the best materials, the construction of a railroad can be effected at an expense much below any other route.

3. Resolved, That since the contemplated route for a railroad from Norwich by Worcester to Boston, is through a section of country the most populous of any in the Union, there must be a support for passengers on the borders of this route, unequalled by any road now in operation or contemplated.

4. Resolved, That the amount of transportation and travel, from upwards of one hundred cotton and woolen manufactories, and from one hundred stores on the line of the road, make it certain that ample remuneration will follow the immediate construction of it.

5. Resolved, That the unemployed water power on and near the line of this road, (equal to the operation of at least five hundred thousand spindles,) the almost inexhaustible supply of ship timber, the quarries of building and flagging stone, present

additional inducements that urge most strongly to the early completion of the work.

6. Resolved, That since, by a branch not exceeding 5 miles, to the Boston and Worcester Railroad (at Millburg), Boston will be brought within about 88 miles of Norwich (the same distance as Stonington,) this route between New-York and Boston, is within three miles as near as by Stonington and Providence, and is at least equally favorable, since it avoids that part of Long Island sound which is often boisterous.

Resolved, That the construction of a railroad upon Long Island will benefit the road from Norwich to Worcester, to the same extent as the Providence and Stonington route, since from Greenport, the eastern termination of the Long Island road, the distance to Norwich is only three miles greater than to Stonington, and to counterbalance this, the distance in the Sound is 10 miles less.

8. Resolved, That as charters of the most favorable character have been granted for this route by Connecticut and Massachusetts, it is important that measures be immediately adopted to prosecute this great enterprise.

9. Resolved, That it be recommended, that a convention of delegates from the towns on the borders of the route be held at Norwich on Wednesday the 10th of June next, for the promotion of this object, and that a committee be appointed to make arrangements for the same.

The following gentlemen compose that committee: C. W. Rockwell, W. C. Gilman, James L. Ripley, John Breed, and Asa Child.

The meeting was addressed by Messrs. J. A. Rockwell, W. C. Gilman, P. Lanman, C. W. Rockwell, John Breed, W. P. Eaton, and H. Fiske.

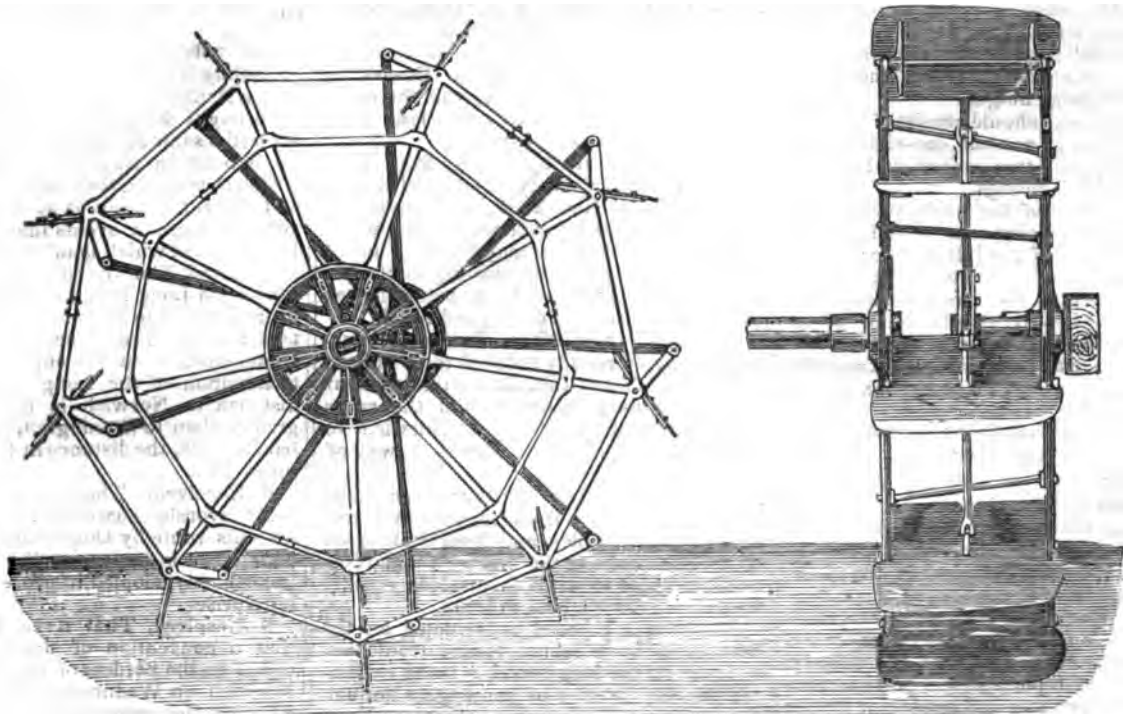
The following were appointed as delegates to attend the convention to be held at Worcester on the 2d of July next: Messrs. Calvin Goddard, Nathaniel Shipman, D. Ripley, Wm. P. Greene, Jno. L. Buswell, Chas. P. Huntington, Elisha Tracy, Sam'l. Tyler, John Breed, Asa Child, Wm. C. Gilman, J. A. Rockwell, Thos. Robinson, C. W. Rockwell, Wm. Williams, Jr. Jed. Huntington, Geo. L. Perkins, Amos H. Hubbard, J. G. W. Trumbull, J. W. Kinney, Jas. L. Ripley, Leonard Perkins, Charles Coit, Jno. T. Adams, Edward Whiting, Samuel Story, Gurdon Chapman, Jos. Backus, E. C. Chapman, Jos. Spalding, Andrew J. Clark, L. F. S. Foster, Erastus Coit, Geo. B. Ripley, W. P. Eaton, Simeon Thomas, Gurdon A. Jones, and Gurdon Pendleton.

Colonel Long has been appointed by the Secretary of War to survey the route of a railroad from Portland to the Canada Line. Lord Aylmer, Governor of Lower Canada, expresses himself highly in favor of the project of connecting that province with Maine, by the proposed railroad, and has appointed a gentleman to survey the route in connection with Col. Long.

Amount of Produce received at Cincinnati, by the Miami Canal, between the 1st of January, and the 1st of April, 1835, during which time the Canal was closed about 6 weeks.

Flour,	15,612	Bbls.
Whiskey,	10,163	"
Pork,	5860	"
Lard,	270	"
"	14,039	Kgs.
Bacon,	483	Hds.
Bacon and B. Pork,	2,600,937	Lbs.
Beef,	130	Bbls.
L. Seed Oil,	120	"
Corn,	4,425	Bush.
Clover Seed,	193	"

Amount of Flour inspected, from the 1st of January up to the present date, 8161 bbls.—[Cincinnati Gazette.]



[From the London Mechanics' Magazine.]
Morgan's Paddle-Wheel in its Latest and Most Approved Form.

The paddle-wheel now commonly known by the name of *Morgan's*, was originally invented by Mr. Elijah Galloway, and patented by him in 1829. The first trial made of it was on board a steam vessel, of which Mr. Wm. Morgan was the principal and acting owner, who was so much pleased with its performance that he became by purchase the proprietor of the patent. The Commissioners of the Admiralty were afterwards induced to order that a pair of these wheels should be fitted by Mr. Morgan to H. M.'s steam vessel *Confiance*. On the 9th of September, 1830, Commodore Warren, accompanied by Mr. Lang, of the Dock-yard, Woolwich, proceeded down the Thames in the *Confiance*, on an official trial of the wheels. The Report made by the Commodore to the Admiralty, was, "That with 23½ revolutions of the engine, (24 to 25 revolutions being their regulated speed,) the vessel had improved in speed (as far as could be collected from so limited a trial) from 1 to 1½ knot an hour; that although the floats, in leaving at such rapidity, must necessarily disturb the water, so perfectly were the ill effects of the back-water obviated, that when the vessel was going at her utmost speed, he had caused a wherry, which was being towed astern, to be hauled up along-side, and close up to the paddle-box, without the slightest inconvenience, or without her shipping even a spray; and finally, that the previous vibration suffered from the action of the wheels was so reduced as to be barely sensible on the paddle-box itself."

On the 11th of September, Admiral Sir Geo. Cockburn embarked on board H. M.'s steam yacht, the *Lightning*, to

proceed to the channel on an experimental cruise. H. M.'s steam vessels, the *Confiance* and *Echo*, being ordered to proceed in company. These three vessels were all fitted with engines of equal power, namely, 100-horse power each. The *Lightning*, however, having been originally laid down for a steamer, is fifteen feet longer, three feet narrower, and draws nearly two feet less water than either of the other two vessels, and from her superior swiftness and other qualities, was selected for H. M.'s steam yacht. The *Confiance* and *Echo* are in every respect sister vessels, were laid down from the same drawing, and were originally intended for gun brigs. The three vessels were started abreast by signal from the Vice-Admiral. The improvement in the *Confiance* was evident from the first starting, as she was enabled to keep even pace with the *Lightning*, whenever the revolutions of her engines reached 23, and to pass her whenever they exceeded that velocity. In this way they ran together to the Downs, where they anchored. The *Echo*, although previously of equal speed with the *Confiance*, fell back so rapidly, that at the expiration of the first hour, the Vice-Admiral made her signal to return, she being then two long miles astern. Hitherto the weather had been calm, and the water smooth.

On the 12th September the two vessels, *Lightning* and *Confiance*, were ordered to weigh, and to stand to the S. W., wind fresh, and sea rough ahead, circumstances in which the previous superiority of the *Lightning* had been most remarkable. The lead was now, however, very decidedly taken by the *Confiance*, whose gain over her competitor, under these circumstances, was about a half knot on seven miles per hour, that being the speed at which the *Lightning* was driven.

The following day the *Confiance* was ordered to New-Haven, and accordingly started at 8½ A. M., wind strong, and heavy sea from W. S. W. At 4 P. M., off Beachy Head, she passed H. M.'s steamer *Carron*, (which vessel had left the Downs five hours before her,) making the best of her way to Plymouth on service. The behavior of the wheels, stated "that vice. Having performed the service required of her, the *Confiance* was ordered back to Woolwich, where she anchored September 14. The commander, Lieut. Belson, having been ordered to report on the improvement in the vessel's speed was proportionately greater in a sea-way than in smooth water; that the action of the wheels was no way impeded by that of the waves, since the variation in the velocity of the engines did not exceed one to two revolutions; that the vessel's way was never stopped; and that there was no sensible increase of vibration on the paddle-boxes during the gale, over the very slight tremor felt in smooth water."

The commanders of H. M.'s steam vessels *Carron* and *Confiance* having received orders to proceed on a further experimental cruise to Cape Clear, and thence round the Fastnet Rock back to Plymouth, these vessels, similar in every respect, excepting in their wheels, started from the Breakwater by signal from the Port-Admiral on the 1st of October, wind strong, and a rough sea from the W. S. W. In five hours the *Carron* was hull down astern. The *Confiance* anchored at Hamoaze on the 4th of October, and the *Carron* on the 5th. The *Confiance* performed in 54 hours the distance which occupied the sister vessel, the *Carron*, 84 hours in running. Independently of the great saving of fuel effected, namely, 10 bushels per hour on the time saved in running the same distance as the sister

vessel, viz., 30 hours, other advantages have been secured by the modification in question, as may be collected from the reports officially made, jointly and separately, by Lieut. Potbury, then commanding the *Confiance*, and Lieut. Lapidge, in command of the *Carron*. In reply to the questions put to them by the Admiral commanding at Plymouth, in virtue of directions from the Commissioners of the Admiralty, these officers stated, "that the *Confiance* had, on a comparison of their respective logs, gained by the alteration in her wheels an increase of speed of 2 knots on 7 in smooth water, and 2½ knots on 4 to 4½ knots in rough weather; that the action of the paddles did not bring up the engines or retard their velocity in a head sea; that in rolling, their action assisted in righting the vessel, and that the wear and strain, as well on the vessel as on the engines, was materially reduced."

The superiority of the new wheel was considered to be so decisively established by these trials with the *Confiance*, that Mr. Morgan was subsequently employed by the Lords of the Admiralty to apply it to the other government steamers—the *Flamer*, the *Firebrand*, the *Columbia*, the *Spitfire*, and the *Lightning*. We extract the following particulars respecting the performances of these vessels, from the evidence lately given on the subject by Mr. Morgan, before the select committee on Steam Navigation to India, and from the official reports of their respective commanders to the Admiralty:

The *Flamer* displaces 590 tons (including 120 for engines, 140 for coals, and 30 for stores); her cylinders are of 42 inches diameter, and 4 feet stroke; and her wheels 18 feet in diameter, and 5 feet 6 inches wide. When the vessel is deep, her wheels revolve from 14 to 20 times per minute in rough water, and 26 times per minute in smooth. When the vessel is light, the speed of the wheels is increased from 18 to 22 revolutions in rough water, and from 26 to 26½ in smooth. The commander of the *Flamer*, Lieut. Bastard, in report of 23d January, 1834, says of the wheels, "in six weeks of most tempestuous weather, found them to act remarkably well, without even a single float being shifted."

The *Firebrand* was built on the same lines, and is of the same scantlings, as the *Flamer*, with the exception of having 9 inches more depth; she had also originally 20 horses more steam power. Her paddle-wheels were at first of the common sort, and then her velocity was three quarters of a mile less than that of the sister vessel, with wheels of Mr. Morgan's construction. But since the *Firebrand* has been supplied with Morgan's wheels, she has attained nearly the same speed as the *Flamer*; and this though her old engines have been replaced by a new pair, of no greater power than those of the *Flamer*—namely, two sixty's.

The *Columbia*, as originally constructed, displaced altogether 480 tons; her engines were of 120-horse power, and her wheels (of the common sort) 16 feet

6 inches in diameter, and 8 feet wide. Her performance was then from 14 to 16 revolutions per minute, when she was deep; and from 24 to 26 revolutions per minute when light; the weather in both cases favorable. Being afterwards supplied with a pair of Morgan's wheels, 17 feet in diameter, and 5 feet 2 inches wide, with a new pair of engines of only 100-horse power, and with 30 tons more of coal, making her total displacement 40 tons more than before, the wheels performed, in similar weather, from 20 to 25 revolutions per minute when she was deep, and from 26½ to 28 when light. "She obtains," says Lieut. Ede, her commander, "greater speed than with the superior power she had before and the old wheel. The new wheels save the engines."

The *Spitfire*, with engines, coals, &c. displaces 715 tons; her engines are of 140-horse power, and her wheels 20 feet in diameter, and 4 feet 9 inches wide. Number of revolutions when light, and in smooth water, 23 per minute. Lieutenant Kennedy, the commander of the *Spitfire*, in his report, of date 3d December, 1834, says, "Had put to sea with the wheels in weather in which it would have been madness to attempt in any vessel with the common wheel, but that she had gone over it 4½ knots an hour, without scarcely feeling the wheels moved. With the old wheels would have been

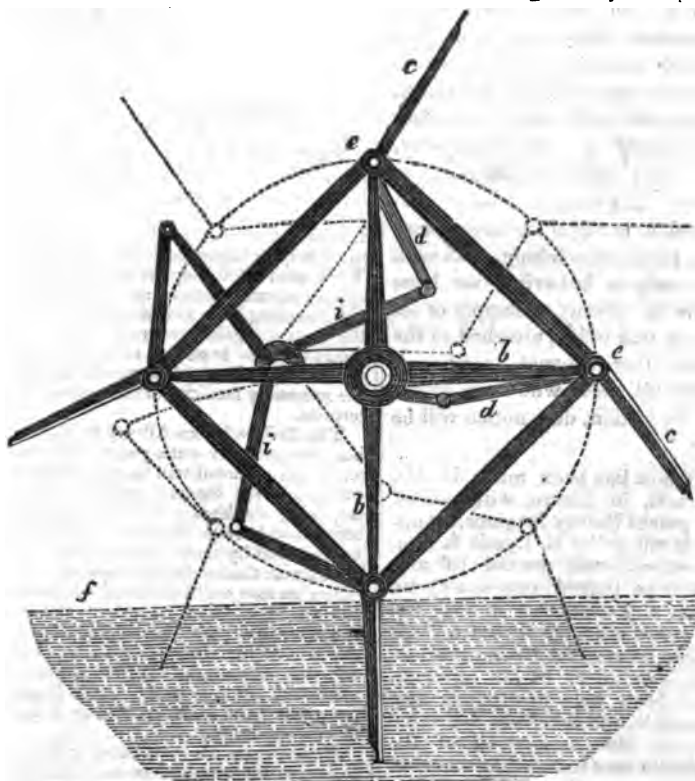
forced to put back, but had with these (Morgan's) made his passage from Gibraltar to Falmouth against a heavy gale nearly the whole way."

The *Lightning* has been before described. Her commander, Mr. Allen, in reporting on the effect produced on her rate of going, by the adoption of Mr. Morgan's wheels, says that "the speed was much improved in heavy weather," and "the vibration nearly done away with."

The wheels of the *Medea*, the largest war-steamer yet constructed by the British Government, the *Tartarus*, and *Blazer*, are also on Mr. Morgan's plan.

During the last summer, Mr. Morgan was employed to fit a pair of his wheels to his Sardinian Majesty's steam-vessel *Gulnare*; and it is from these wheels, the latest (we believe) manufactured by Mr. M., that the drawings have been made.

The wheel, as now constructed by Mr. M., embraces a good many improvements on the original design of Mr. E. Galloway. The most prominent difference is an increase in the number of radial arms and paddles, from four to nine. To show how much the wheel has gained from the successive modifications which experience has suggested, we here annex an engraving and description of it in its original form, as given by Mr. Galloway himself, in his "History and Progress of the Steam-Engine":



"The object of this wheel is to provide a remedy for the loss of power, and other inconveniences arising from the oblique position in which the float-boards of the common paddle-wheels enter and leave the water. This the inventor purposes to effect by causing each float-board to turn, or rather vibrate, on an axis at its edge next the centre of the paddle-

wheel, through the medium of projecting levers, firmly fixed to the float-boards, at their axis of motion, and connecting rods proceeding from the extremities of these levers to the extremity of a fixed crank, adjustable at a given distance from the centre of motion of the paddle-wheel, which consists of four radiating arms, connected at their extremities by strength-

ening braces; *b b* represent the four arms of the wheel, and *cc* the strengthening braces; *cc* are the paddles, firmly fixed to which are the levers *dd*, forming angles of about 120 degrees with each other, and turning together on axes at *ee*; *f* represents the water-line; *g* is the crank, fixed centrally to the axis of the wheel, but so as not to revolve with it; this crank is alterable at pleasure, by means of a set screw, which causes the paddles, through the medium of the connecting rods *ii*, to take such an angle with the water-line as may be deemed most desirable for propelling; the rods *i*, however, are connected to a revolving collar on the crank, which allows of free rotary motion, while it draws the paddles uniformly into the positions shown in the engraving, when the arm of the crank is set in a horizontal position, as represented. The dotted lines show the position the paddles assume in the intermediate parts of their revolution, or the relative position they would take if there were eight paddles attached to the wheel."

AVERY'S ROTARY ENGINE proves, we are much pleased to be able to state, (as we do on good authority,) to be peculiarly adapted to milling purposes. The following statement, which we take from the Syracuse Constitutionalist, confirms fully the anticipations of those who have been familiar with its operations for more than two years; and other instances might be cited, if necessary—one especially, at the south, in which it performs to the entire satisfaction of those using it. Its simplicity, however, and entire safety, cause many to doubt its power, until they witness its performances—which, in some instances, may be said to be truly astonishing. As with many, *seeing* only is believing, we hope soon to be able to exhibit a sample of its performances in this office, attached to the press on which this Journal is printed, that will satisfy all those who may doubt. When it is in operation, due notice will be given.

"An experiment has been made in Mr. N. Felt's sawmill, in Cicero, with one of Wm. Avery's patent Rotary Engines, manufactured in this village by E. Lynds & Son, which has satisfactorily proved (if any further proof was indeed necessary) its superiority over any other now in use. Mr. F. some four years since procured a High Pressure Piston Engine for the purpose of propelling the machinery of his sawmill, but has never been able to produce any satisfactory results, and therefore discarded it entirely. At the suggestion of the Messrs. Lynds, he was induced to make an experiment with one of the Rotary Engines—one of which was accordingly attached to the same boiler used for the other engine, and put in operation. The experiment proved eminently successful, and those who witnessed its performances are well satisfied of its great utility in propelling machinery of every description, and also of its superiority to the engines in common use.

"The following statement of Mr. Lewis, who is deemed one of the first millwrights and mechanics in the state, sustained as it

is by the opinions of a number of others well qualified to judge, will go to show in what estimation the invention of Mr. Avery is held by those who have experience in such matters:

"To the Public.—Having been requested by Messrs. Elam Lynds & Son, to examine a Rotary Steam Engine, manufactured at their foundry, (of Wm. Avery's invention,) now in Mr. N. Felt's Sawmill, and in which I am informed they have had a common Piston Engine, with which they were unable to operate their mill successfully,—being much pleased with the operation of the Rotary Engine, although it was laboring under great disadvantages, I embrace this opportunity of saying to the public, that I am satisfied that there is abundant power to operate a mill successfully, and I consider them far preferable to any other Steam Engine now in use for milling purposes. —ISAAC LEWIS.

"Syracuse, April 20, 1835.

"We were present at the above exhibition of the power of the Rotary Steam Engine, and fully concur with Mr. Lewis in his statement, from what we saw of the operation of the Engine, and from our confidence in him as a millwright and a practical mechanic.

ROSSELL HINMAN,
THOMAS SPENCER,
M. D. BURNETT,
M. S. MARSH,
DANIEL ELLIOTT,
L. H. REDFIELD,
ASHBEL KELLOGG,
J. G. FORBES,
P. D. MICKLES,
V. W. SMITH,
J. M. PATTERSON,
E. K. SMITH."

FOR THE NEW-YORK AMERICAN.

The 11th inst. is the day fixed upon by the Legislature for adjournment. In the confusion arising from the multiplicity of matters which will be pressed forward with the ardor of private interest, it is to be feared that matters of great public moment may be neglected. Are the citizens of New-York aware that they are deeply interested in the speedy accomplishment of a continuous Railroad line, reaching from the tide waters of the Hudson to the great navigable waters of the western world? And that this is on the eve of accomplishment, provided the Legislature can be induced to afford the necessary facilities to the action of private enterprise.

The Railroad from Albany to Schenectady has been in operation some years. The Schenectady and Utica Railroad will be completed so as to accommodate the Summer travel of 1836. The enterprising stockholders of the Syracuse and Auburn Road have put Engineers upon that line, who are followed by their agent ready to make contracts, with the intention to have their road in operation as soon as the road shall be finished to Utica, and the road from Rochester to Batavia is far advanced. It requires then to complete a Railroad throughfare from the Hudson River to Lake Erie, only the connecting link from Utica to Syracuse, about fifty miles, from Auburn to Rochester about sixty miles, and from Batavia or Utica to Buffalo about forty miles.

Applications are now pending for Charters to construct these several connecting links; companies are ready to take the stock, and proceed with the work immediately; and if they are allowed to proceed, there is every reason to believe, that this whole line will be completed and in operation within two years. The most important of these connecting links, are the two from Auburn and Rochester, and from Batavia to Buffalo—the long level of the Canal, without a lock between Utica and Syracuse, will, for a time, be a good substitute. Can New Yorkers fail to see the importance to this city, of opening without delay, this avenue, and using it, till more favorable State councils shall yield to what we consider the just rights of the south-western counties and the claims of this city?—

Should there not be a loud call upon the attention of the Legislature to this matter, during the few remaining days of the session? X.

CANAL TOLLS.—There has been received for canal tolls, at the Albany collector's office, from the 15th to the 30th of April, both days inclusive, the sum of \$42,015 65. This is by far the greatest amount received for tolls during the month of April in any one year since the canals were constructed. It exceeds last year, when the canal opened 3 days later, by the sum of \$22,000; and it exceeds 1833, by the sum of nearly \$18,000, when the tolls on merchandise were 25 per cent. higher; although in 1833 the canal opened several days later than in 1835.

The Erie canal was navigable in its whole extent on the 15th of April; and although the season was unusually backward and unfavorable, the navigation has been maintained without interruption. There will be no hesitation, after this experiment, about the practicability of opening the canal as early as the middle of April.

The N. Y. American has been filled with alarms about the diversion of the trade of the west, and its editor, at times, has seemed almost ready to exclaim with Mr. Ewing, "the canal is a solitude." To all who desire to know the truth on this subject, we offer the single fact, that there has passed up the Erie canal, during the month of April, 1835, at least twice as much merchandise as passed up during the same month in either of the three preceding years. Is this evidence that the early trade has been diverted from the canal?

The above article from the Albany Argus, has been excluded for two or three days past by the press of Foreign news. We now insert it, with all the satisfaction at the prosperity of the Erie canal, which it records, that can possibly be felt, by the Argus, or any party, directly and personally interested—which we are not—in the region to which the canal, dispenses, in its course, such substantial benefits.

But the Albany Argus seems incapable, or unwilling, to look at the question of public improvement, in any but one light—or to believe, that off, or beyond, the line of the Erie Canal, and the Railroads parallel with, or following, its course—there can be any just claim for legislative aid and countenance.

According to our view, this is neither honest nor patriotic. We think—and in forming our opinion in this matter, we are as absolutely without any personal interest, as in reference to the region affected by the Erie canal—that no man who seriously means the good of the State, and is not biassed by conflicting—or what he may suppose to be a conflicting—interest, can look at what is doing in Pennsylvania towards securing the trade of the Mississippi Valley, and at the unquestionable claims of our south-western counties, to some aid from the State, towards enabling them to compete with these efforts of Pennsylvania—without feeling, that the rejection by the present Assembly of the application of the New York and Erie Railroad Company, was, to those counties a wrong and an injury, and a grave error, as a mere matter of State interest and pride.

It was a want of just patriotism then—restricting on this occasion the use of that word to a paramount regard for one's own State,—not to have lent a willing and liberal hand towards the construction of the Erie Railroad.

As to the amount of tolls on the Canal in April, it proves nothing in regard to the main question, that of the early spring supply to the far West. The truth is, that the creative influence of the Canal, upon the Country through which it passes, has been such, that it can scarcely suffice for the transportation of the merchandize needed, and the produce raised, within the Counties contiguous to it. The recent vote for doubling the Canal may be

adduced in proof. It is the home demand, we venture to say, and not that for other States, which has pressed forward so rapidly. The Lake too at Buffalo was yet fast—and likely to remain fast, at the latest dates, with ice—while at Dunkirk and Portland, the proposed terminations of the Erie Road, the navigation has been open for weeks past. Moreover, as to the fact of much early trade to the Mississippi valley having been diverted from this city to Philadelphia—and through Philadelphia—we speak from personal knowledge.

With this fact, then, in view—with the spirited efforts we are daily witnessing on the part of Pennsylvania, to assure her superiority over us as carriers of the trade of the West—and with the knowledge of how difficult it is to change the channels of trade, when once worn deep—we repeat, that we consider the rejection of the prayer of the *New York and Erie Railroad Co.* a mistake in policy, and an injury and wrong to this city, and to the great Counties of the Southwest.

A REBUKE NOT UNMERITED.—The Philadelphia Inquirer of yesterday has this paragraph.

Within the last fortnight, the stocks of the Pennsylvania and Ohio Canal; of the Sandusky and Beaver Canal; and of the Portsmouth and Harrisburg Rail Road, all works of internal improvement, and designed to facilitate the intercourse between this city and the great West, have been readily disposed of in this city; and our capitalists are ready for any other movement calculated to advance the prosperity of Philadelphia. Contrast this commendable spirit of enterprise with that which has been manifested by the New Yorkers, in the case of the Erie Railroad, and no Philadelphian can fail to cherish a just and laudable degree of pride for the spirit and liberality of our merchants and capitalists generally.

Important and interesting Mission.—The Senate of the United States, at its last session, passed a resolution, requesting the President to consider of the expediency of entering into negotiations with the South American States, for the purpose of securing for our commerce and people, a safe passage across the Isthmus, from the Atlantic to the Pacific Ocean. In compliance with this recommendation of the Senate, we understand, the President has appointed Colonel Charles Biddle, of Tennessee, to conduct the negotiation, and that he is about to visit the Southern Continent, in prosecution of the objects in view.—[Pennsylvanian.]

On Providence.

From the Sonnets of *Millicent*.

"Qual madre i figli con pietoso affetto"—

Even as a mother o'er her children bending
Years with maternal love: her fond embraces
And gentle kiss to each in turn extending,
One at her feet, one on her knees, she places,
And from their eyes, and voice, and speaking faces,
Their various wants and wishes comprehending,
To once a look, to one a word addresses,
Even with her frowns, a mother's fondness blinding.
So o'er us watches Providence on high,
And hope to some, and help to others lends,
And yields alike to all an open ear,
And when she seems her favors to deny,
She for our prayers alone the boon suspends.
Or seeming to deny, she grants the prayer.

PRICES OF RAILROAD STOCKS,

At the New-York Stock and Exchange Board,
MAY 8, 1835.

	Par.	Ask.	Offer.
Mohawk and Hudson.....	100	127	127
Paterson	50	110	—
Ithaca and Owego	—	—	—
Saratoga	—	190½	190
Harlem	—	110	—
Boston and Providence....	100	121	120½
New-York and Albany....	—	—	—
New-Jersey Railroad and Transportation Line....	100	124	120
Camden and Amboy.....	100	147	—
Providence and Stonington.	100	108	107
Boston and Worcester.....	—	107½	106½
Philadelphia and Trenton..	100	107	106
Utica and Schenectady....	100	—	—
Jamaica.....	—	—	—
Saratoga and Washington..	—	119	112

THE MICHIGAN WAR.—An extra from the office of the Buffalo Whig, dated Monday last, furnishes the following intelligence, copied from the Detroit Free Press of the 29th of April.

We stop the press to announce the intelligence that the first blow has been struck in the Border War between Michigan and Ohio. In violation of his oath to support the Constitution of the United States, and of the sacred obligations of his State to the Union; trampling upon the laws of that Union, and upon both its rights and the rights of Michigan, the Governor of Ohio, in pursuance of an unconstitutional act of the Legislature of that State, and regardless of the admonitions he has received from the General Government, perseveres in his efforts to extend the jurisdiction of Ohio over a part of the Territory of Michigan. For that purpose, early last week, he sent the Commissioners of that state, escorted by an armed force, to the west end of our Territory, adjoining Indiana, to retrace and run the boundary line through Michigan, illegally claimed by Ohio.

A penal law of Michigan, which is a law of the United States until repealed by Congress, provides for the arrest and punishment of any person accepting or exercising within our Territory, any office or authority, unless derived from the government of Michigan, or of the United States. This law has been pronounced valid by the Attorney General of the United States.

In virtue of this act, information having been received on Saturday last, that the Ohio Commissioners, protected by an armed escort, were engaged in running the boundary line through Hillsdale and Lenawee counties, and affidavit of the facts having been made before Charles Hewett, Esq., of Tecumseh, that magistrate issued his warrant for the apprehension of Patterson, Taylor and Seely, the aforesaid Commissioners, and other persons engaged in violating the laws of the Territory. With this warrant, the Sheriff of Lenawee, summoning a posse of thirty or forty persons, the most respectable citizens of that county, proceeded on Saturday evening to Adrian, and on Sunday morning directed his deputies to go on with the posse, about fourteen miles due south of that place, where they understood the trespassers and violators of our laws were then probably stationed.

With the knowledge that those Ohio people were armed, it became an imperative duty to arm our posse. On arriving near the house of Phillips, 7 miles within the Michigan line, they found nine or ten armed men, ascertained to be a portion of the Ohio party. Two of the deputy sheriffs, leaving the posse thirty yards distant, immediately proceeded towards the house, advised the party that they had a warrant for their arrest, and demanded their surrender.

The Ohio men refused to surrender, raised and levelled their arms at the Sheriffs, and threatened to shoot them. Not daunted, those officers urged forward, and came within a few steps of the enemy. It became by this time evident, that they meant to run; and orders were given to fire over their heads, and bring them to, if they did run. As was expected, they took to their heels, but were chased, and captured. They had been instructed and they had threatened not to be taken alive.—Col. Hawkins, the Ohio Surveyor, and seven armed persons, nine in all, were made prisoners, and brought to Tecumseh for examination on Monday morning.

The Commissioners happened to be at another house, about 200 yards from the house of Phillips, at the time the above persons were captured.—They ran into the woods, were pursued, but could not be overtaken. Gen. Taylor, one of them, made a hasty retreat, to Maumee, about 30 miles, never stopping until he arrived there. The other Commissioners subsequently followed him.

The Governor of Ohio, who has a force of about 500 troops collected at Maumee, has issued orders for the raising and marching of 10,000 men to that point, declaring that he will never recross the Maumee Swamp until he runs the boundary line and extends the jurisdiction of Ohio over that part of our territory claimed by her. All this he proclaims he will effect, in despite of Michigan and any assistance which the U. States may afford her. If this threat should be attempted to be executed; if the Governor of Ohio should invade Michigan with an army, he and they will commit treason against the U. States, and be dealt with accordingly. One thing, at least is certain: Michigan will

never submit to be invaded, nor to have the jurisdiction of Ohio extended over any part of her territory. We presume that an invasion will be promptly repelled, not by a posse, but by all the force that can be raised. Our militia law amply provides for the emergency.

We have no doubt, however, that the President, as soon as informed of the present state of things, will promptly interpose with effect against Ohio. The authorities of that State have inflicted a blow upon the Union of these States far more dangerous and destructive to it, than the Nullifiers of South Carolina aimed at it. Indeed, we are told that Gov. Lucas admits that his conduct amounts to Nullification.

[FOR THE NEW YORK AMERICAN.]

Weyer's Cave.

I hope I shall be pardoned for encroaching upon your territory of Politics and Internal Improvements, and making a few remarks upon the great and magnificent wonder of nature above mentioned. It cannot be said too often, that we Americans, are sadly insensible to the beauties which nature has scattered over this noble continent. It is a reproach which ought to be wiped away from amongst us, and to that end our sense of shame cannot be mortified too often, or too severely. The means of travelling are so greatly improved, our national character is becoming so exalted, that it is a perfect outrage, that our Irving and Hoffmans should be able to present to our eyes, a terra incognita within our borders. Americans should know more about their own country from personal observation, and instead of visiting Europe almost exclusively, to marvel at rivers and mountains, should bring to light the almost hidden treasures of nature, which have been lavished upon their native land.

Weyer's Cave is a natural curiosity which takes rank with the wonders of the universe—with the Falls of Niagara, with the Natural Bridge, and the far famed Grotto of Antiparos—and yet, out of Virginia, it is hardly known to exist. Those who have never seen it, can hardly form a conjecture of its sombre grandeur and splendor. Its silent chambers, buried many feet beneath the surface of the earth, extend nearly half a mile in length. The light of day never penetrates these solemn caverns—the "blessed sun" never reveals the treasures of nature which lie entombed within them. But when torch-light breaks the gloom which overhangs them, the brilliancy and grandeur of the scene is beyond all conception. The bright star, in a hundred different shapes, gleams all around, while the stupendous formations, and the grotesque imagery which meet the eye, make one doubt if he have not passed into a new state of being. The mind is carried back to the distant period when this silent labor of nature began—it contemplates the ages and ages which have rolled away, the empires which have fallen, while the little water-drop has silently and surely performed its office, regardless of the conflicts of nations, and heedless of the angry elements. But a newspaper is not the place to indulge in these reflections. I will make a few matter-of-fact suggestions, and then conclude this notice.

Weyer's Cave is situated in Augusta County, Virginia, in the Valley of the Shenandoah, and about seven miles from the Blue Ridge. It is perfectly accessible, and may be conveniently taken on the way to the Natural Bridge and the Sulphur Springs. The communication from this and the other Northern cities to Fredericksburg, is nearly the whole distance by steam—thence to Charlottesville the roads are very good. The Cave is only about 32 miles from the latter town, and the route one of the most picturesque in the whole state. With such facilities, our travelling community should not delay to make a visit to Weyer's Cave, and those who really love to look upon the works of nature, will not fail to go there. As a further inducement, I would remark, that the proprietor of the Cave, and all who are connected with it, are among the most intelligent and hospitable persons within the knowledge of

A TRAVELLER.

NEW-YORK AMERICAN.

MAY 2-8, 1835.

LITERARY NOTICES.

HISTORY OF NEW-YORK. 2 vols. By *Uncle Philip*. Comprising vols. XXIII. and IV. of the *Boys' and Girls' Family Library*. New-York—HARPER AND BROTHERS.—We repeat, on this occasion, what we have more than once said before in reference to Uncle Philip's admirable contributions to the cause of education, that though professing to be addressed to young minds, his books will, for the most part, afford instruction and amusement, to all of more advanced years, who have not had time, or opportunity, for much study.

In the volume now before us, the History of our own State is plainly and agreeably written—beginning with the discovery by Hudson, and brought down to the revolution.

We published, some days ago, and warmly commended the object of, a law recently passed by our Legislature, authorizing the inhabitants of school districts to levy a small annual tax for the purchase of a District Library. These books of Uncle Philip's are peculiarly of a character fitted for such libraries; for they are pure in sentiment, correct in style, and accurate in information.

We commend them, accordingly, to the attention of the Trustees of the School Districts, and of parents and instructors generally.

THE RISE AND PROGRESS OF RELIGION IN THE SOUL—In a Series of Practical Addresses, by P. DODDRIDGE, D.D., with an Introductory Essay by JOHN FOSTER, author of *Essays on Decision of Character, &c.* 1. vol. New York. D. APPLETON & Co.

This is a republication of an old and much approved book, written with a studious regard to plainness of style and statement, so as to be level to all capacities.

Its bulk is nearly doubled by the preliminary essay of Mr. Foster, written in his accustomed style of vigorous eloquence.

JOURNAL, by FRANCES ANNE BUTLER. 2 vols. Philadelphia: CAREY, LEA, AND BLANCHARD.—The long note of preparation which has preceded the appearance of this Journal, and the stolen fragments from it, which appeared originally in a Boston paper, and were thence transferred to many others, have combined to excite curiosity and interest to a degree, that we cannot but consider—without meaning to be ungallant—ridiculous. This nation—this great nation, as we are wont to consider ourselves—is on tiptoe, so to speak, to know what is thought and said of them, by a very clever young lady, whom necessity, and not her will or choice, made an actress.

The hour of suspense is past—the curtain is lifted, and without preface or explanation, “the Journal” is before the world. That it is a faithful transcript, so far as it goes, of the record made at the time, seems to us clear, from internal evidence.—How far the facts omitted—and to judge from the numerous asterisks, there are many such—might qualify what is retained, it concerns us not to inquire; for the book must be judged by what it is, not by what any one may choose to fancy it would have been, if all had been told.

Adopting this standard then, we may say, that “the Journal” is sprightly, amusing, careless, often vulgar, occasionally flippant—and then again fervid with taste, eloquence, and po-

etry: the opinions, incidentally expressed, concerning the habits and manners of this country, the tone of its society, the nature and tendency of its political institutions, are such as every one is, and should be, at full liberty to express, if they are entertained; and by the expression of which, we cannot fail to profit—if reason rather than vanity be our counsellor.

There is undoubtedly much in these pages that will shock and mortify individuals, and over sensitive people—very often because of the disagreeable fidelity and truth of the representations given—at other times because of the obvious injustice of these representations. Yet after all—at best and at worst—what does it all amount to? Simply this, that a young, well educated and clever woman, who had been idolized in her own country, and intoxicated by the unstinted breath of popular applause lavished on her theatrical performances—accustomed to a particular mode of life, to certain conventional notions of refinement—and coming among us with all the feelings of European superiority—a sentiment by no means confined to our visitors from England—is sometimes shocked by the display of pretensions that seem to her unfounded and ridiculous, at others, is amused at the sensitiveness which she sees manifested, as to how such a “clever girl” as herself will look upon Americans—and that she describes with a sharp and biting pen the emotions she experiences.—Is there any bar to such freedom of opinion? Is there any breach of hospitality—so long as she does not individualize her pictures—in such a record of first impressions? above all, is there any want of gratitude in so doing? Surely not. On this score of gratitude, by-the-by, there is a capital common sense note in the second volume of the Journal, which sets that matter in its true light. The idea that “gratitude” should be felt by actors, because their performances have been attended by large audiences, is very properly scouted—the whole thing is put upon the footing of a *quid pro quo*: the audience attend because they think the attraction of the performance worth the dollar it costs—and the actors play because they want the dollar of the spectator. When the curtain drops the account is balanced, and both parties are even.

Three times out of four this reasoning is equally true, as applied to the intercourse in private life, to which public personages—whether actors on the real, or the mimic, stage of life—are admitted in this country. They are sought as lions, and quite as much for the gratification of the entertainer's vanity, or love of novelty, as for the sake of obliging strangers. This cannot escape the notice of those so honored!—and the obligation therefore conferred by such advances, is balanced by the *éclat*, which they are made to feel, their presence at a fête will impart.

These remarks are not, it will be perceived, at all applicable to that sort of intercourse with strangers which results from a real admiration of merit and talent—from sympathy with, or respect for, peculiar avocations or pursuits, or from kindred genius and feeling—and accordingly it will be found, we think, throughout this Journal, that, although the necessarily heartless and selfish characteristics of general society, are touched off with a sharp hand, justice is done to the sincere and cordial greetings of more private circles.

Upon the whole, the only party likely to suffer by this publication, is the writer, for it certainly is beneath her reputation as a literary person.

SPEECHES AND FORENSIC ARGUMENTS—By DAN WEBSTER, 2 vols.; Boston, PARSONS, MARTIN & Co.—For sale here by D. APPLETON & Co.—We took occasion some days ago, to quote some of the preliminary remarks in the second volume of these speeches, in which justice was done to the talents and character of Mr. Webster. We had not then seen the publication, which however is now before us, and we recommend it to all readers, as one of enduring value.

We make an extract—not for its novelty—but because, although published before, it cannot be too often referred to, as illustrating the highest traits of Mr. Webster's character as a patriot, and talents as an orator.

It is the conclusion of his celebrated reply to Mr. Hayne, in the Senate of the United States.

Mr. President, I have thus stated the reasons of my dissent to the doctrines which have been advanced and maintained. I am conscious of having detained you and the Senate much too long. I was drawn into the debate, with no previous deliberation such as is suited to the discussion of so grave and important a subject. But it is a subject of which my heart is full, and I have not been willing to suppress the utterance of its spontaneous sentiments. I cannot, even now, persuade myself to relinquish it, without expressing, once more, my deep conviction, that, since it respects nothing less than the union of the States, it is of most vital and essential importance to the public happiness. I profess, sir, in my career, hitherto, to have kept steadily in view the prosperity and honor of the whole country, and the preservation of our federal union. It is to that union we owe our safety at home, and our consideration and dignity abroad. It is to that union we are chiefly indebted for whatever makes us most proud of our country. That union we reached only by the discipline of our virtues in the severe school of adversity. It had its origin in the necessities of disordered finance, prostrate commerce, and ruined credit. Under its benign influences, these great interests immediately awoke, as from the dead, and sprang forth with newness of life. Every year of its duration has teemed with fresh proofs of its utility and its blessings; and, although our territory has stretched out wider and wider, and our population spread farther and farther, they have not outrun its protection or its benefits. It has been to us all a copious fountain of national, social, and personal happiness. I have not allowed myself, sir, to look beyond the union, to see what might lie hidden in the dark recess behind. I have not coolly weighed the chances of preserving liberty when the bonds that unite us together shall be broken asunder. I have not accustomed myself to hang over the precipice of disunion, to see whether, with my short sight, I can fathom the depth of the abyss below; nor could I regard him as a safe counsellor in the affairs of this government, whose thoughts should be mainly bent on considering, not how the union should be best preserved, but how tolerable might be the condition of the people when it shall be broken up and destroyed. While the union lasts, we have high, exciting, gratifying prospects spread out before us, for us and our children. Beyond that I seek not to penetrate the veil. God grant that, in my day, at least, that curtain may not rise. God grant, that on my vision never may be opened what lies behind. When my eyes shall be turned to behold, for the last time, the sun in heaven, may I not see him shining on the broken and dishonored fragments of a once glorious union; on states dismembered, discordant, belligerent; on a land rent with civil feuds, or drenched, it may be, in fraternal blood! Let their last feeble and lingering glance, rather behold the gorgeous ensign of the republic, now known and honored throughout the earth, still full high advanced, its arms and trophies streaming in their original lustre, not a stripe erased or polluted, nor a single star obscured—bearing for its motto, no such miserable interrogatory, as *What is all this worth?* Nor those other words of delusion and folly, *Liberty first, and Union afterwards*—but everywhere, spread all over, the characters of living light, blazing on all its ample folds, as they float over the sea and over the land, and in every wind under the whole heavens; that other sentiment, dear to every true American heart—*Liberty and Union, now and forever, one and inseparable!*

ON THE IMPROVEMENT OF SOCIETY BY THE DIFFUSION OF KNOWLEDGE; VOL. IV. OF DICK'S WORKS—Philadelphia, KEY & BIDDLE.

We have now four volumes completed of the writings of Thomas Dick—all tending to the same great end, the improvement of the moral and intellectual condition of the human race.

The volume now before us is specially designed to illustrate the benefits which would result "from a more general dissemination of rational and scientific information" among all classes. It is well executed and amusingly—a great matter where instruction is concerned.

One great result that may be hoped for, from a more enlightened state of the public mind is thus set forth.

A general diffusion of knowledge would be one general mean of promoting union in the Christian Church.

It is a lamentable fact, that throughout the whole world, there is no system of religion the votaries of which are subdivided into so many sectaries as those who profess an adherence to the Christian faith. Within the limits of Great Britain there are perhaps not much fewer than a hundred different denominations of Christians belonging to the Protestant Church. We have Calvinists, Arminians, Baxterians, Antinomians, Arians, and Unitarians, Episcopalians, Presbyterians, Methodists, Baptists, and Independents,—Seceders, Brownists, Sandemanians, Quakers, Moravians, Swedenborgians, Millenarians, Sabbatarians, Universalists, Sublapsarians, Supralapsarians, Dunkers, Kilhamites, Shakers, &c. Of some of these there are several subdivisions.—Thus, there are three or four denominations of Seceders, four or five of Baptists, three or four of Methodists, and two or three of Glasites or Sandemanians. Most of these denominations recognise the leading truths of divine revelation,—the natural and moral attributes of the Deity,—the fall of man,—the necessity of a Saviour,—the incarnation of Christ,—the indispensable duty of faith in him for the remission of sins,—the necessity of regeneration, and of holiness in principle and practice,—the obligation of the moral law,—the doctrine of a resurrection from the dead, and of a future state of rewards and punishments,—in short, every thing by which Christianity is distinguished from Mohammedanism, pagan idolatry, and all the other systems of religion that prevail in the world. Yet, while agreeing in the leading doctrines of the Christian faith, they continue in a state of separation from each other, as if they had no common bond of union, and as rival sects, are too frequently in a state of alienation, and even of open hostility. The points in which they differ are frequently so minute as to be incapable of being accurately defined, or rendered palpable to an impartial inquirer. Where the difference is most apparent, it consists chiefly in a diversity of opinion respecting such questions as the following: Whether the election of man to eternal life be absolute or conditional,—whether Christ died for the sins of the whole world, or only for a limited number,—whether there be a gradation or an equality among the ministers of the Christian church,—whether every particular society of Christians has power to regulate its own affairs, or ought to be in subjection to higher courts of judicature,—whether the ordinance of the Lord's Supper should be received in the posture of sitting or kneeling,—whether baptism should be administered to infants or adults, or be performed by dipping or sprinkling, &c. Such are some of the points of dispute which have torn the Christian church into a number of shreds, and produced among the different sectaries mutual jealousies, recriminations, and contentions. When we consider the number and the importance of the leading facts and doctrines in which they all agree, it appears somewhat strange, and even absurd, that they should stand aloof from each other, and even assume a hostile attitude, on account of such comparatively trivial differences of opinion, especially when they all profess to be promoting the same grand object, travelling to the same heavenly country, and expect, ere long, to sit down in harmony in the mansions above. The grand principles of hu-

man action, which it is the chief object of Revelation to establish, and the precepts of morality, which ought to govern the affections and conduct of every Christian, are recognised by all; and why then should they separate from each other, and remain at variance on account of matters of "doubtful disputation?"

The evils which flow from such a divided state of Christian society are numerous, and much to be deplored. A sectarian spirit has burst asunder the bonds of Christian love, and prevented that harmonious intercourse among Christians which is one of the chief enjoyments of social religion. It has infused jealousies, fanned the flame of animosity and discord, set friends, brethren, and families at variance, and shattered even civil communities into factions and parties. It has kindled contentions and heart burnings, produced envyings, animosities and hatred of brethren, burst asunder the strongest ties of natural affection, and has led professed Christians to violate the plainest dictates of humanity and of natural justice. It has excited a feverish zeal for the peculiarities of a sectary, while the distinguishing features of Christianity have either been overlooked or trampled under foot. It has wasted money unnecessarily in erecting separate places of worship, which might have been devoted to the promotion of the interests of our common Christianity. It has even corrupted our very prayers, infused into them human passions, and a spirit of party, and confined them to the narrow limits of our own sectary, as if the Omnipotent, whom we profess to adore, were biased by the same prejudices as ourselves, and dispensed his favors according to our contracted views. Could we fly with the swiftness of an angelic messenger through the various assemblages convened on the Christian Sabbath, while they are offering up their prayers to heaven, what a repulsive and discordant scene would present itself, when we beheld the leaders of certain sectaries confining their petitions to their own votaries, imploring a special blessing upon themselves, as if they were the chief favorites of heaven, lamenting the errors of others, throwing out innuendoes against rival sectaries, taking credit to themselves as the chief depositories of gospel truth, and thanking God for their superior attainments in Christian perfection! How unlike the noble, benevolent and expansive spirit which Christianity inculcates!—Nay, the intolerance which the divisions of the Christian church have engendered has established Inquisitions for the purpose of torturing and burning supposed heretics,—has banished, imprisoned, plundered, hanged, and committed to the flames, thousands and ten thousands, on account of their religious opinions; and many eminent characters, illustrious for piety and virtue, have fallen victims to such unchristian barbarities.

In particular, the divisions and contentions of Christians have been one of the chief causes of the progress of infidelity. The truth and excellence of our religion can only be exhibited to the world by its effects. And when, instead of love, union, and harmony among its professors, we behold bitter envyings, schisms, contentions, and animosities, there appears nothing to allure vicious and unthinking minds to examine its evidences, and to give it an impartial hearing.—"First agree among yourselves," infidels reply, "and then we will consider the truth and importance of your opinions." Such a mode of reasoning and conduct is indeed both absurd and unfair, when the genuine doctrines and requisitions of Christianity are clearly stated in its original records, and which they ought to examine for themselves; but it is a circumstance much to be deplored, that Christians, by their sectarian animosities, should throw a stumbling-block in the way of rational investigation into the truths and foundations of religion, and cause thousands to stumble and fall to their destruction. But what is perhaps worst of all, it has greatly retarded, and still retards, the universal propagation of Christianity through the world. Something has been effected, of late years, by various sections of the Christian church, in their separate capacities; but it is not too much to affirm, that, had they acted in combination and in harmony, in the missionary cause, ten times more good would have been effected than has ever yet been accomplished. Besides, in our present mode of propagating the gospel among the heathen, we are, to a certain extent sowing the seeds of those unhappy dissensions which have so long prevailed

among ourselves. And, therefore, till the different religious denominations in this and other Christian lands be brought to a more general and harmonious union, we cannot expect to behold a rapid and extensive propagation of primitive Christianity throughout the pagan world.

Such are some of the evils which a sectarian spirit has produced in the Christian Church.

A PRACTICAL VIEW OF THE PREVAILING RELIGIOUS SYSTEM OF PROFESSED CHRISTIANS, &c. &c. CONTRASTED WITH REAL CHRISTIANITY. By WM. WILBERFORCE; with an introductory essay, by Rev. DANIEL WILSON, Bishop of Calcutta: 1 vol. KEY AND BIDDLE.

The sensation produced by the publication of this religious work by a layman—by one, too, then occupied and connected personally with the most important measures of the national Legislation,—and which was, as the introduction states, "poured out, as it were, in the interval of two sessions of Parliament," was not ephemeral or transitory. The "Practical View" has held and holds its place as one of the most remarkable and influential books ever published—which wins not more by the earnestness and sincerity of its tone, than by the conciliatory style in which it is written. It is any thing but polemical in its temper and expositions.

It was first published in 1797—when a torrent of infidelity seemed to threaten Great Britain—and when, unless the higher and middling classes could be aroused to the duties and responsibilities of "real Christianity"—all the institutions of religion were in danger of being overthrown. It contributed then mainly to arousing the right spirit, and will serve long to keep it up.

A TREATISE ON WATER-WORKS, FOR CONVEYING AND DISTRIBUTING SUPPLIES OF WATER; WITH TABLES AND EXAMPLES. Charles P. STORROW.—Boston.

This is the title of a small work which has recently been issued from the Boston press. The object of the author, in the language of his preface, was "not to produce an original treatise, but to present the theories of the most eminent philosophers and engineers, on the subject of Hydraulics, in such a form as to be easily understood, and to show, in a simple manner, how they should be applied in solving questions which are, or soon will be, of daily occurrence to the engineers of this country." The habits of persevering industry and patient investigation which distinguish the author, and his reputation as a practical engineer, give assurance that he has treated his subject with ability, and accomplished all a which he aimed. We commend his treatise to public attention as a practically useful and reasonable contribution to the cause of science.—[Communicated.]

WORKS OF ROBERT SANDS.—It gives us pleasure to learn and to state, that a second edition of the works of Sand is about to be published by the Messrs. Harpers.

Messrs. Carey, Lea & Blanchard have received from the author, and put to press, the second part of Geoffrey Crayon's Miscellany. As it treats of Abbotsford and Newstead Abbey, we may expect the most authentic and interesting details concerning Scott and Byron.—[Nat. Gaz.]

FOREIGN INTELLIGENCE.

LATER FROM EUROPE.—By the British ship *Arkwright*, from Aberdeen, and the American ship *Joséphine*, from Belfast, dates of 30th March from Aberdeen and Belfast, and 28th from London, are received.

Lord Canterbury, who was about to proceed to Canada, as Commissioner, to inquire into their

grievances, &c. will not now, it is said, owing to some domestic circumstances, come out.

Lord Amherst is appointed Commissioner to Canada in the place of Lord Canterbury.

M. Dumon, as Chairman of the Committee, read the report, which was a detailed analysis of the ground on which the 25,000,000 had been stipulated. It concluded with a bill for the appropriation.

STILL LATER FROM EUROPE.—By the *Poland*, packet ship from Havre, papers of the 10th ult. are received—and the intelligence they bring is every way interesting.

First of our own affairs. The discussion on the American indemnity had commenced. The speech of the Duke of Fitzjames is baldedash from beginning to end, and shows most palpably the weakness of the opposition to the law. The answer of the Minister of the Interior puts the question on the strong ground of justice—and explicitly states moreover, that the measure recommended, is a *Cabinet measure*. As such, strengthened as it was by the avowed support of many members, acting habitually against the cabinet, it could not fail of being carried. It is to be remarked moreover, that the minister refers in his speech to the refusal of the Senate, to grant the President unconditionally, the three millions proposed by the House; so that the closing proceedings of Congress, were known to the Chamber, before the discussion took place—and as there was nothing to follow after, which could affect the solution of the question, it may be considered certain, that the bill has passed.

Of English affairs we speak, we confess, not without solicitude for the future. The defeat and resignation of Sir Robert Peel's ministry, seem to us but the prelude of troubles to come in that country, of which the issue can hardly be for good. Who the successors of the late ministry were to be, was not ascertained at the latest dates—though Lord Melbourne is again talked of as Premier. But he is not equal to the crisis, and could not conduct the country through a single session of Parliament. Perhaps Lord Durham might; but it would only be by yielding to *radicalism* more, than even that anomalous creature, a Democratic Peer, could probably bring his mind to.

Meantime, agitation and uncertainty will prevail in England, and much of the property of the cautious, will probably seek safe investment in this country—a country, happily, which mis-government, however it may disgrace it, cannot ruin.

The death of the youthful husband, of the more youthful Queen of Portugal, is an event that strikes one with the sort of solemn personal interest and regret, always excited by the sudden and mysterious termination of a life eminently brilliant, and full of hope and promise. He died, it would seem, like General Washington, of the croup or quincy, occasioned by taking cold—though, of course, owing to the suddenness of the death, the rumor went forth that he was poisoned.

Of the reported conflict between a Russian squadron and an English ship-of-war, off the Dardanelles, there is no confirmation, and of course, therefore, as the dates by the *Poland* are so much later, it is to be put down, as unfounded.

Havre, 10th April.—The American frigate Constitution of 60 guns, Commodore Elliot, arrived yesterday from New-York in our roads. This morning Com. Elliot landed for the purpose of travelling post to Paris, and receiving there the orders of Mr. Livingston.

The Constitution has been expected for some days. This frigate is employed as is well known for the purpose of carrying the American Ambassador back to New-York in the now very probable event that the vote of 25 millions will be rejected by the Chambers.

A singular coincidence of facts occurred yes-

terday, connected with the question of the American Indemnity.

Yesterday, the American packet ship Albany arrived, bringing back our Ambassador.

In the afternoon of the same day, we learned the arrival in our roads of the American Frigate Constitution, for the purpose of taking home Mr. Livingston, the Ambassador of the United States.

And yesterday, whilst these two diplomatic arrivals, so to say, took place, the Chamber was discussing the question of the American indemnity. The very question which led to this arrival of vessels, and recall of ambassadors.

Superstitious persons will perhaps draw from this singular coincidence of circumstances, a favorable or unfavorable augury as to the difficulties between us and the United States. But for our part, we only see in it another reason that the Chambers should act expeditiously in an affair so embarrassing to commercial business and our political relations.

The French corvette Ceres arrived at Brest from New York, on the 15th March.

PARIS, April 10.—*Resignation of the English Cabinet.*—Sir R. Peel was on Tuesday again left in the minority on the Resolution moved by Lord John Russell for embodying in the Tithe Bill the appropriation principally recognised in the late motion on the Irish Church, the numbers being in favor of the resolution 285, against it 258—majority against Ministers, 27. The Right Hon. Gentleman had declared in the course of a most able speech, in opposition to the motion, that he could not consent to retain office if it carried, and consequently on Wednesday afternoon he placed his resignation of the Ministry in the hands of the King. This was not positively known (as will be seen by our extracts) when the evening papers went to press, but second Editions have reached us, confirming the important fact of the retirement of the Ministers, which we yesterday (exclusively) laid before our readers.

The Duke of Wellington, on the meeting of the House of Lords in the evening, announced that his Grace, with the rest of his colleagues, had tendered their resignations, and only held their offices until the appointment of their successors. In the House of Commons Sir R. Peel took his seat at 10 minutes before five o'clock, and was received with cheers from both sides of the House. He was followed by upwards of 100 members, who were most anxious for seats, but they were obliged to content themselves with standing at the back and places in the gallery, the House being then full. The Speaker went through his daily list of members in turn to present petitions. Amidst the continued anxiety of the House, not a word could be heard until the Right Hon. Minister rose. He expressed his deep reluctance to take the step which he had felt himself compelled to adopt in laying the resignation of the Cabinet at the feet of his majesty, in consequence of the cordial support he had received from the King, and the confidence reposed in his political views by a great party in the House.

But looking to the little progress made in public business since the commencement of the session, and especially to the votes upon the Irish Church, concluding with that of the preceding night, he had felt, and his colleagues unanimously joined him in opinion, that they could not continue to carry on the Government with advantage to the country. The Right Hon. Baronet, in conclusion, recommended an adjournment until Monday, to give time for making new arrangements, which was adopted, with the understanding, that a meeting for an election case should take place on the following day. Sir Robert left the House immediately afterwards, and was received by the assembled crowd with loud cheers. The Right Hon. Gentleman appeared in excellent spirits, and was followed by a vast number of persons to the Home Office, in Downing street, by whom he was repeatedly cheered.—[Galignani.]

LONDON, MARCH 30, 1835.—Lord Elliot left town on Saturday afternoon for the continent, having been charged by his Majesty's government with a special mission to Don Carlos, with a view of preventing for the future those executions of prisoners, which have hitherto too frequently attended the warfare on both sides.

Death of Prince Augustus of Portugal.—The English papers of 6th April, which we just receive, contain the following important intelligence:

Prince Augustus Charles Eugene Napoleon de

Leuchtenberg, consort of the Queen of Portugal, died suddenly on the 28th March.

BEEF ROOT SUGAR.—A Committee of the French Chambers have made recently a long and elaborate report, on the state of their tariff, and the effect of high duties, in the course of which, the article of imported sugars necessarily led to an examination of the quantity of that staple manufactured in France.

The report "enters at great length into the state of the manufacture of beet-root sugar, and brings to light a variety of circumstances respecting that description of sugar hitherto but little known even in France. It appears that this sugar, not being liable to duties in any way proportioned with those levied on the colonial article, has established a competition in the home market which is highly injurious to the importer of and the dealer in the latter. The number of manufactories of beet-root sugar in various parts of France has been increasing rapidly of late years. Land destined for the cultivation of beet-root is let at a higher rent than for any other production. About 18,000,000 kilogrammes, equal to 36,000,000 lbs. or 18,000 tons a year of the article are manufactured, according to the latest estimates, and the profits it yields to the manufacturer are enormous. The committee recommend that beet-root sugar should be taxed in such a way as to be of advantage to the revenue, without being injurious to the interests of the colonial planter and the refiner of colonial sugar."

Lord Brougham on the presentation of a petition for the abolition of stamp duties on newspapers in England observed, "that the number of copies of papers paying stamp duty, and printed in England, amounted in the whole year (including town and country papers) to 30,000,000; being in proportion to the population 1-25th part of the quantity published in America. The people there, wishing to see the proceedings of the Government, and possessing habits and feelings similar to those of the people of this country, purchased from 1-25th to 1-30th more newspapers (taking the population into account) than were called for here, because in America there was no tax upon newspapers."

SALE OF AMERICAN LANDS IN LONDON.—The London Courier of the 26th March, has this announcement.

An important sale of freehold American lands in the state of Virginia took place on Wednesday, in the Auction Mart, which was crowded to excess with a highly respectable company. Mr. George Robins, in an able and elaborate statement, detailed the property, which was illustrated by maps and drawings. It comprehends a portion of 50,000 acres of carefully selected lands, purchased some years since, under advantageous circumstances, out of 1,800,000 acres. The land is almost exempt from taxes, and the State of Virginia unencumbered by any public debt. The Legislature of Virginia has recently passed an Act for a railroad passing through the lands in question. The selected lands were divided into portions of various sizes from 50 to 100 and 200 acres, each of which possesses the best timber suitable for the building of houses, fences, &c. The yearly average produce of an acre of land giving from 60 to 75 bushels of Indian corn, is net in cash from 1*l.* 2*s.* to 1*l.* 5*s.*; and, varying in quality from 40 to 50 bushels, from 16*s.* to 17*s.* 6*d.* The tobacco crops are very productive. The country abounds in iron, lead, and coal mines, and Mr. Robins urged the important benefits to be derived from purchasing largely in this "the Land of Promise." The tithe and poor rates, were unknown in Virginia; wages were comparatively nothing. Upon a farm of 600 acres, the taxes did not exceed six shillings. The fee simple of one hundred acres of the best quality of land, which in this country would consume 5000*l.* or 6000*l.* might at this sale be obtained for less than 300*l.* The lands were submitted in 91 lots—the first division, 7,265 acres in the country of Logan; the second, 2,517 acres on the waters of the Spruce Fork of Little Cole River. The first parcel, containing 600 acres of land, the yearly average of taxes upon which is about 5*s.* a year, was knocked down for 1,450 guineas. The above lot may serve as a criterion for the whole of the 47 that were submitted. The lots unsold Mr. Robins said were open to private contract, amounting to about five thousand acres in various farms, from 50

acres to 500 each, and will be sold by auction in London, on 15th April, in case any of them remain unsold.

SUMMARY.

BALLOONING.—The Cincinnati papers contain the following announcement by Mr. Clayton, whose voyage to the mountains of Virginia, excited much interest for a moment. Its success will, we apprehend, have the effect of spoiling a good mechanic, by making him permanently an adventurer, in a career that leads to nothing:

Grand Aerial Voyage from the Ohio to the Atlantic.—The Aerial Ship, or Star of the West, which lately made a voyage from Cincinnati to the Alleghany Mountains, 350 miles, in 9 1-2 hours, will take her departure from Cincinnati, about the middle of May, and, if the wind permit, proceed to the Atlantic Ocean.

R. Clayton respectfully informs his friends and the public, that he has made several alterations in his Aerial Machine, which will enable him to continue in the atmosphere a greater length of time than he continued on his last voyage, and that he is desirous of making a voyage, if the wind be favorable, from this city to the Atlantic Ocean.

R. C. will be supplied with a Mail Bag, containing the Newspapers of the day, and a number of letters for the East.

He will take his departure from an Amphitheatre on Court street, between Race and Elm street, at 6 o'clock in the evening.

Due notice of the day of ascension will be given. The Baltimore American of yesterday, gives this account of another balloon flight.

The Balloon Flight.—Mr. Mills and the young lady who accompanied him in his balloon excursion on Monday afternoon, returned to this city yesterday, at noon. According to Mr. M's note of the time, he started from Fairmount at 32 minutes after 4 o'clock. The balloon was wafted by the breeze in a northeasterly direction, and its flight was no near the earth, that the aeronauts exchanged salutations with perhaps a hundred persons on the different farms over which they passed. An occasional change in the currents of air, produced corresponding variations from a direct course, and the voyage was prolonged until a quarter after six, when the weather assumed a squally appearance. Mr. M. then determined to alight, but did not succeed in obtaining a secure grapple for his anchor until, having carried away the pannels of several fences, it was firmly fixed in the branches of an apple tree. The aeronauts then landed in safety, and the balloon was afterwards secured without damage. The spot where they descended was in Peach Bottom township, York County Penn., near the banks of the Susquehanna river.

MAN-OF-WAR LAUNCH.—The last Army and Navy Chronicle says—"We understand that considerable progress had been latterly made in preparing the frigate Columbia for launching; this vessel has been several years on the stocks at the Navy Yard in Washington, but no work has been done upon her for a long time until recently.

The Globe states, that owing to the repeated failures of the Eastern Mail to reach Washington, by reason of accidents happening to the engines on the Camden and Amboy Railroad, the Post Office Department "is taking active measures to prevent a recurrence of the evil."

From Hudson's Merchants' News-Room Correspondent.

By the Brig Bourne, 50 days from Monrovia, (Africa,) we learn that a brig and schooner, slave traders, with about 1200 slaves, were captured off Cuba by two British men-of-war, and also, about Feb. 1st, at Little Bassa, the slaves on board of a Spanish schooner, about 60 in number, rose upon the captain, whom they shot, and released themselves from their bondage.

[From the Boston Daily Advertiser.]

THE LATE VOLCANIC ERUPTIONS IN GUATEMALA. We are indebted to a friend for a pamphlet published in Comayagua, in Honduras, by authority of the Supreme Government of the State, containing a collection of reports from various pub-

lic officers of the remarkable volcanic phenomena which appeared in that region on the 21st, 22d and 23d days of January last. The different reports describe the effects and appearance of the eruption at different places. They are of too great length to admit of giving the whole. The following is a translation of one of these documents:

Official communication from the City of Nacaome to the Minister General, of the event from the 20th to the 26th of the present January, being a true copy of the original.

Citizen Minister General of the Supreme Government of the State:—The 20th of the present month, at half-past 6 o'clock in the morning, a port took place as of the discharge of many heavy cannon, twelve minutes after the commencement. It continued until a quarter past 12, when a violent shock took place, which was then the preface of a new eruption; the rumblings now cloud was observed upon the summit called Cosiguina, which arose in a pyramidal form, with so many hues, and of such density, that we immediately presumed it to proceed from a volcanic eruption. At some height it separated into two parts, one spreading over the summit of Conehagua, and the other towards the Peak of Pespire. Up to this time, nothing more was heard than dull subterraneous noises, nor had any trembling been felt. The cloud continued to spread, and the general alarm increased. At half-past ten, there no longer remained a doubt of the malignity of this phenomenon, then extending itself with greater rapidity over this place. At half-past 11, it became necessary to use artificial light, and at 12, we were involved in a general darkness which it is difficult to conceive, nor does any traditions exist of such, in events of this description. Public prayers were immediately determined to be offered up by the inhabitants and their worthy pastor. At half-past 2 in the afternoon, by the light of torches and candles, a supplicating procession moved. A little before, a shower of fine sand had commenced falling. In its course, the wind from the east having greatly increased, precipitated such a quantity of a kind of ashes or calcined dust, (powder,) that many persons found it difficult to follow in the procession, or even to find their own houses, and some shocks now began to be felt. At 5 o'clock in the afternoon, the ground was covered to the depth of three inches with this dust; at 6 o'clock its density was diminishing considerably, leaving the respiration more free. In the midst of great affliction, and in the performance of acts of religion, we passed that memorable night of mourning and alarm. At 11 o'clock on that night, and at four in the morning, there were two violent shocks, and alternately various slight ones, all preceded by rumbling, as well as sharp detonations, which were heard from an early hour in the evening. The 21st, the day dawned serenely, dissipating in some measure our apprehensions. At 8 o'clock in the morning, our hopes were dampened, on finding that the great quantity of volcanic matter with which the atmosphere was charged prevented the passage of the rays of the sun, which, however, for some moments displayed an opaque and sulphurous surface. On this day, the dust fell in less quantity, and much finer. In the same manner the shocks continued strong and slight. During the night of the same, the noises and reports which have been already mentioned, continued. At the dawn of day, the shower of dust was abundant. We had arrived break of day on the 22d, without our sad situation having been ameliorated; on the contrary, the opacity was greater. The noises and shocks continued. The neighborhood of this city, its square (or citadel) and streets, were covered with four or five inches of the exhalations mentioned, and so fine that at the least breath of air they would rise, filling the organs of respiration; the trees in the fields, the roofs of houses were the same, and the rivers were infected by a baneful stench.

In this situation, this municipality, with the concurrence of their pastor, thought proper to assemble the inhabitants for the purpose of adopting suitable measures for the exigency. The only ones which have occurred until now, is to endeavor to wet the dust, which we believe to be most injurious to health, and to supply the people

with provisions. In both which the inhabitants have assisted with promptness, as well by their personal services, as pecuniary, considering in the meantime what other measures of policy and salubrity they might adopt. On this day, the horizon was observed to become clear, and the atmosphere freer. From time to time slight shocks and rumblings were experienced. The evening twilight was clear; the stars were soon discovered; the sky became considerably clear, and at 12 o'clock at night praises and thanksgiving to the Supreme Being were heard, for the now ascertained improvement of our critical situation. But at this very hour, a rumbling noise was heard, which continued increasing without interruption until a violent rain continued with some intervals of a frightful silence. A dark column was seen to ascend anew from Cosiguina, covering this place, concealing the stars and filling our hearts with mourning and affliction, now terrified by the incessant noise for a quarter of an hour of the dreadful reports and shocks. At 5 o'clock on the morning of the 23d, day broke without witnessing any increase in the clearing of the atmosphere, which however was sufficient to discover the cloud and new eruption which threatened us. Prayers and supplications to the Omnipotent God began; each quarter of an hour augmented the general terror; this reached its greatest height at half past 8, when the darkness considerably decreased the little clearness of the twilight. This whole population believing that their last hour had now arrived, was assembling every moment in groups of persons of all sexes and all classes at the house of our venerable pastor, and with lamentations and sobs begged for absolution from their sins. The latter, who unfortunately was quite ill, absolved them in part, until notwithstanding his painful situation, he repaired to the square, that he might be the better able to excite them to contrition, to absolve them as he could in such terrible circumstances. At 9 o'clock all terminated, and a scene more terrible than any preceding began. The dreadful rumblings were repeated, the sky, notwithstanding the darkness, displayed reddened glares, which excited fears of the atmosphere being enkindled. At half past 10, thunders were heard in various directions, with sharp lightnings, caused by the combustible matter floating about in our atmosphere; the same effects, without any difference, which the most violent tempest causes in the most rainy months of winter. In short, Senor Minister, every description falls short of giving an idea of this memorable event, no expressions can be found to convey it. The darkness continued the whole of the day, the noise and rumblings began to subside at two o'clock in the afternoon, the dust with which the cloud was impregnated fell abundantly, accompanied by fine sand; night arrived, which was passed in the deepest consternation, awaiting the day-break to disperse the darkness which had continued uninterrupted, except for a very short time, for the space of 36 hours. On the 24th at day-break, although somewhat clear, the atmosphere was loaded with vapors like whirlwinds of dust, which the slightest wind raised, and it was considerably obscured. The 25th and 26th continued in the same manner. Our grounds and buildings are covered to the depth of seven or eight inches with the pulverized matter mentioned, in which are found birds of all kinds suffocated. Some quadrupeds from the forest have sought for shelter in this town, and the rivers filled with the same substance have cast upon their shores an innumerable quantity of fishes in a torpid state, and some dead.

This body in drawing up the preceding relation does not pretend to give an exact picture of an event so frightful, but with the greatest care and circumspection it can scarcely be sketched, all minds being too much overwhelmed in consternation to describe it in any other way. We intend nothing more than to lay before the Supreme Government the notice of so fatal a catastrophe, sufficient to enable it to give promptly adequate orders for the remedy of our disaster.

Be pleased, Citizen Minister, to communicate this to the Supreme Government, and accept the assurances of esteem and respect to which this corporation has the honor of subscribing.

NACAOME, January 26, 1835.—Placido Jacquin, J. M. Boquin, Antonio Alecano, Jacinto Boijas, Antonio Gutierrez, J. Domingo Castillo, Juan Mojia, Francisco Dias, Secretary.

PHYSICAL EDUCATION.—From a discourse on "the Dangerous tendency to Innovations and Extremes in Education," by the Rev. H. Winslow, the following remarks on what is called "physical education," are entitled to attentive consideration:

Temperate and judicious exhibitions of the nature and importance of physical culture, are timely and important; but the ultra notions are becoming prevalent, that large physical development and high toned physical energy constitute the substratum of mind, and are essential to the loftiest intellectual achievements. Hence the abundance of declamation and loose remark upon the importance of gymnastic exercise. At some of our schools and colleges, gymnasia are constructed for the express purpose, it would seem, of educating the muscles. Other literary institutions embrace a system of manual labor, laying under demand a considerable portion of their pupils' time. As though great strength, agility and magnitude of the physical system were essential to the student's object, the doctrine is becoming popular, and he who would aspire to long life and intellectual eminence, must make a large sacrifice of time and attention to the same kind of discipline with those whose employment for life is to be physical labor.

As far forth as systems of manual labor in connexion with literary institutions can subserve needed pecuniary ends, they have their importance; but their ultimate and prolonged success is questionable. That so much of the exercise and strength of the laborer should be put upon the student, as the modern doctrine teaches, seems to be against both nature and experience. Even *a priori* reasoning would teach us, that if God has intended a division of labor, he has so constituted the human system that it may be trained to different pursuits. All mankind are destined to some degree of mental cultivation; but he who is to be professionally engaged for life in intellectual pursuits, must be as far as possible *totus in illis*, and must therefore train himself to the least physical necessities and to the greatest and most continued intellectual effort practicable, leaving the more special cultivation of sinews and muscles to those who have a more special use for them.

The calling of the laborer is as honorable, useful and important as is that of the student, but these two callings do not require the same kind of training, either physically or intellectually; nor is the physical system of the student to be kept in the same condition with that of the laborer, any more than the intellectual system of the laborer is to be kept in the same state with that of the student. Man was not designed to be a *factotum*. Let so much of his time, thoughts, and feelings be expended upon his physical cultivation as is requisite to develop all his physical powers in their utmost strength and luxuriance, and so much goes to the animal that ordinarily little goes to the intellectual. That physical perfection is not essential to mental eminence, is evident from the fact that men of the most distinguished minds have even usually had a thorn in the flesh.

Exercise and recreation are important to the student, but they should be such as to improve and interest his mind, while they benefit his body. Botanical, mineralogical and geological excursions; exploring the curiosities of nature; occasionally unbending with music and the fine arts; a morning walk with Thompson, and a little of the elixir of good living society, with strict temperance and a cheerful temper, may usually serve him the double purpose of at once sustaining his health and enriching his mind. The great evil is, that most students in our schools and colleges are totally ignorant of the laws of life, and know not how to regulate their diet, to graduate their exercise and to form their habits as students ought to. Were half the time and expense bestowed upon gymnasia and workshops given to support an experienced, scientific, wise lecturer, who should visit our literary institutions and instruct their pupils *how to live*, it is confidently believed that we should have more scholarship and less dyspepsia.

We are no advocates for asceticism and a studied corporal attenuation, and certainly we would not wittingly insert or cultivate thorns in the flesh;—they usually come fast enough of themselves. We would rather so bring the body into subjection, as to render them unnecessary. We care not how

comfortable the student's accommodations, how spacious and airy his room, how commodious his desk, whether he sit upon a naked bench or a cushion; we would only have him avoid notions and extremes, think as little of his body as possible, and adopt the simple style of living appropriate to his calling. As to that all important organ, the stomach, the seat of life and sensibility, the source of so much joy and sorrow to man while man is mortal, we consider it a blessed ignorance if no symptoms shall ever admonish him that he has one.

But public attention is now directed from the stomach to the head. The craniological fever is on, and will have its run. Blessed is the man now, who has a fine skull! Any novice, who has just taken a peep into anatomy and physiology and their vital connexion with mental science, who has read Bichat, Broussais and Combe, but especially Gall and Spurzheim—can determine the intrinsic phenomena of his neighbor's mind, with the place and manner of its growth; and, by ocular and sensible demonstration, can reveal its character and size, with an assurance which will surprise a future generation. The venerable doctrine of heathen India, that the intellectual and moral fate of every man is written in the sutures of his skull, is springing up among us with the pretended charms of novelty, though somewhat disrobed of its oriental beauty. Phrenology, thoroughly studied and understood, unfolds some interesting general facts, but the present charms of its details are adapted to fascinate animalized minds of fanciful temperament, rather than minds of a severely intellectual and scientific character.

Allowing brain to be the organ of intellectual operations and membrane of sensibilities and moral affections, which we believe to be sound doctrine, or admitting the more popular doctrine, that all the operations of the soul have pitched their tent together in the head, is not the quality and condition of brain as important as the quantity and shape? The vigor of the hepatic secretions does not depend so much upon the shape and size of the liver, or of the ductus choledochus, as upon its quality, its healthfulness, its right condition in point of adaptedness to other related organs. So of all the physical organs and functions, in their relations both to the body and to the mind. So many facts and circumstances, not obvious to external inspection, are connected with their vigorous or feeble operations, that we are slow to forestall our judgement of men by the appearance of their heads, or any other external marks. With becoming deference therefore to the sublimely important and interesting sciences of craniology, ophthalmoscopy, nosology, physiognomy, gastronomy, dermoidology and myonology, all of which have found their advocates and are entitled to their day, which afford amusement, and help the confident to know and the wise to guess, we must still be allowed, when we would sit in sober judgement upon men, to adhere to the good old fashion, and judge every man mainly according to his deeds; and not by the volume or protuberances of his cranium and the height and majesty of his forehead; or by the shape, magnitude and polish of his eye; or by the contour, elongation and luxuriance of his nose; or by the configuration and cast of his face; or by the periphery, diameter and longitude of his perigastrium; or by the complexion and texture of his epidermis; or by the strength and rigidity, or the feebleness and beauty of his muscle.

The Supreme Power.

[From an eloquent article in the *North American Review*, by Edward Everett.]

"It has been as beautifully as truly said, that the undevout astronomer is mad." The same remark might with equal force and justice be applied to the undevout geologist.—Of all the absurdities ever started, none more extravagant can be named, than that the grand and far-reaching researches and discoveries of geology are hostile to the spirit of religion. They seem to us, on the very contrary, to lead the inquirer, step by step into the more immediate presence of that tremendous Power, which could alone produce and can alone account for the primitive convulsions of the globe, of which the proofs are graven in eternal characters, on the side of its bare and cloud-piercing mountains, or wrought into the very substance of the strata that compose its surface, and which are also day by day, and hour by hour, at work, to feed the fires of the volcano, to pour forth its molten tides, or to com-

pound the salubrious elements of the mineral fountains, which spring in a thousand valleys. In gazing at the starry heavens, all glorious as they are, we sink under the awe of their magnitude, the mystery of their secret and reciprocal influences, the bewildering conceptions of their distances.—Sense and science are at war.—The sparkling gem, that glitters on the brow of night, is converted by science into a mighty orb,—the sources of light and heat, the centre of attraction, the sun of a system like our own. The beautiful planet, which lingers in the western sky, when the sun has gone down, or heralds the approach of morning,—whose mild and lovely beams seem to shed a spirit of tranquillity, not unmixed with sadness nor far removed from devotion, into the very heart of him who wanders forth in solitude to behold it—is in the contemplation of science, a cloud wrapt sphere; a world of rugged mountains and stormy deeps. We study, we reason, we calculate. We climb the giddy scaffold of induction up to the very stars. We borrow the wings of the boldest analysis and flee to the uppermost parts of creation, and then shutting our eyes on the radiant points that twinkle in the vault of night, the well instructed mind sees opening before it, in mental vision, the stupendous mechanism of the heavens. Its planets swell into worlds. Its crowded stars recede, expand, become central suns, and we hear the rush of the mighty orbs that circle round them. The bands of Orion are loosed, and the sparkling rays, which cross each other on his belt, are resolved into floods of light, streaming from system to system, across the illimitable pathway of the outer heavens. The conclusions which we reach, are oppressively grand and sublime; the imagination sinks under them; the truth is too vast, too remote from the premises, from which it is deducted; and man, poor frail man, sinks back to the earth, and sighs to worship again, with the innocence of a child or Chaldean shepherd, the quiet and beautiful stars, as he sees them in the simplicity of sense.

But in the province of geology, there are some subjects, in which the senses seem, as it were, led up into the laboratory of divine power. Let a man fix his eyes upon one of the marble columns in the Capitol at Washington. He sees there a condition of the earth's surface, when the pebbles of every size, and form, and material, which compose this singular species of stone, were held suspended in the medium, in which they are now imbedded, then a liquid sea of marble, which has hardened into the solid, lustrous, and variegated mass before his eye, in the very substance of which he beholds the record of a convulsion of the globe. Let him go and stand upon the sides of the crater of Vesuvius, in the ordinary state of its eruptions, and contemplate the lazy stream of molten rocks, that oozes quietly at his feet, encasing the surface of the mountain as it cools with a most black and stygian crust, or lighting up its sides at night with streaks of lurid fire. Let him consider the volcanic island, which arose a few years since in the neighborhood of Malta, spouting flames from the depth of the sea;—or accompany one of our own navigators from Nantucket to the Antarctic ocean, who finding the centre of a small island, to which he was in the habit of resorting, sunk in the interval of two of his voyages, sailed through an opening in its sides where the ocean had found its way, and moored his ship in the smouldering crater of a recent extinguished volcano. Or, finally, let him survey the striking phenomenon which our author has described, and which has led us to this train of remark, a mineral fountain of salubrious qualities, of a temperature greatly above that of the surface of the earth in the region where it is found, compounded of numerous ingredients in a constant proportion, and known to have been flowing from its secret springs, as at the present day, at least for eight hundred years, unchanged, unexhausted. The religious sense of the elder world, in an early stage of civilization, placed a genius or a divinity by the side of every spring that gushed from the rocks, or flowed from the bosom of the earth. Surley it would be no weakness for a thoughtful man, who should resort, for the renovation of a wasted frame, to one of those salubrious mineral fountains, if he drank in their healing waters as a gift from the outstretched, though invisible hand, of an every-where present and benignant Power.

From "The Memoirs of celebrated Women," recently republished among us, we take a notice to-day of one, whose youth, loveliness, extraordinary acquirements, and early fate, appeal with great force to the heart and the imagination.

Lady Jane Gray.

[From *Memoirs of Celebrated Women of All Countries*. By Madame Junot.]

Ambition punished, seldom excites pity; but can a tribute of commiseration be refused to a beautiful woman, only seventeen years of age, who laid her head upon the block to expiate the ambition of another? Such was the fate of Lady Jane Gray! A crown had no attractions for her—she had no desire to reign! It seemed as if this unfortunate and lovely young creature felt her feet slip on the very steps of that throne which the Duke of Northumberland forced her to ascend. A warning presentiment told her that a life of quiet seclusion was the only means she had of escaping a violent death. She long resisted the fatal counsel of her father-in-law; but she was dragged on by her evil destiny.

Lady Jane Gray, born in 1537, was the granddaughter of Mary Tudor, sister of Henry VIII. This princess, being left a widow by the death of her husband, Louis XII. King of France, and having no children by this marriage, returned to England and married Brandon, Duke of Suffolk, whom she had long loved, and who was Lady Jane's grandfather. The subject of this memoir, when she was scarcely sixteen, married Lord Guildford Dudley, fourth son of John Dudley, Duke of Northumberland. Lady Jane Gray was beyond measure lovely: her features were beautifully regular, and her large and mild eyes were the reflection of a pure and energetic soul, tho' peaceful and unambitious. She had a strong passion for study, especially that of abstruse science. Though young, she had acquired vast learning, and was deeply read in the ancients: she was very familiar with Greek, and extremely partial to Plato. Living at one of her country seats, she divided her time between her books and her husband, until political events of high importance troubled her peaceful life and destroyed her happiness.

Edward Seymour, Duke of Somerset, Protector of England, exercised over that country a despotic sway to which the nobles would no longer submit. The latter, equally disgusted with the pride of Thomas Lord Seymour, the Protector's brother, applauded the Duke of Northumberland when he succeeded in successively removing these two favorites from the king's person; and Northumberland thought himself popular, when he was only loved on account of his hatred to the Seymours. Edward VI., a weak and sickly child, who could ill bear the weight of the crown that enricled his pallid brow, always bestowed his favor upon those near his person, and Northumberland succeeded Somerset. But the new favorite, fearing, and with good reason, that he should not long retain this station, as the King might die, and was indeed then dying, though only sixteen years of age, employed, with considerable address, the prejudices of religion to gain his ends. He described to Edward, in hideous colors, the character of his sister, Mary the Catholic; and represented in an equally unfavorable light, Elizabeth, daughter of that Anna Boleyn who was condemned and executed for adultery. Could then the crown of England, he asked, be placed upon a dishonored brow, or the welfare of the English nation be entrusted to an intolerant fanatic? Northumberland was a man of ability: he shook the timid conscience of Edward, who, fearing Mary's violence, and prejudiced against Elizabeth, changed the order of succession, and designated as his successor, Jane Gray, the eldest daughter of Henry Gray. On the King's death, Lady Jane was, through the exertions of Northumberland, proclaimed Queen. In vain did the lovely young creature entreat her father-in-law to allow her to retain her freedom: the obstinate Duke, always at the head of intrigues, determined to gain his point with her whom he deemed a child. "Shall it be for nothing," said he, "that I have caused the daughters of two queens to be declared illegitimate in order to place the crown upon the head of my daughter-in-law? No indeed!"—The ambitious old man sent for the princesses Mary and Elizabeth to London, without informing them of the King's death, which he kept con-

cealed. But Mary, being acquainted with Northumberland's projects, escaped the snare; and steel made her triumph over the obstacles which he placed between the throne and herself.—Steel!—steel, flames, and scaffolds, were about to constitute the laws of Mary the Catholic—of Mary the bloodthirsty!

She soon entered London, with prayers on her tongue and vengeance in her heart. In vain did Northumberland resist her: he was vanquished, deserted by every one, and together with Lady Jane Gray and his son, Lord Guildford Dudley, imprisoned in the Tower.

Poor Jane Gray!—she had resisted her father-in-law's wishes only to yield to them and die after a reign of nine days!—for the unfortunate and lovely woman reigned no longer. Scarcely had she placed upon her head that crown so fatal to the touch—which falls but to drag the heads of kings along with it—ere she was shut up in a dungeon soon to lay her head upon the block! Alas! she had a presentiment of her fate, when she refused to exchange her diadem of flowers for the regal crown of England.

Meanwhile, Mary considered that the death of Northumberland alone was sufficient to appease her vengeance and secure her peaceful possession of the throne. Lady Jane Gray and her husband were confined in the tower of London;—in the same place as that Elizabeth, who was destined at a later period to show the world that a woman may become a great sovereign. For a time, Mary suffered Lady Jane Gray to live, because she thought that, being queen of England both by right and force, she might reign in future without taking away the lives of her enemies. But such are the dreadful consequences of violence, that, when once adopted, the only road left open is one of bloodshed; and to deviate from it then is impossible.

Mary was a Catholic and a bigot; and being betrothed to Philip of Spain, she was anxious to offer a nuptial present worthy of him who was one day to become the father of Don Carlos. She therefore commanded that all her subjects throughout England should submit to the See of Rome; and as the English then professed the Reformed religion, and were attached to it, Mary directed also that scaffolds should be erected, and piles of fagots raised for burning heretics. On the issuing of these orders, insurrections broke out in every part of the kingdom. The Queen shuddered whenever she heard the names of her sister and her cousin; she stormed with rage at the people who called for Lady Jane Gray; and to silence them—to answer their call—she threw them the head of that unhappy lady!

Poor Jane! Thou wert dragged from thy peaceful retirement to be placed against thy will upon a throne, and to fall from it into a dungeon! The ministers of vengeance and fanaticism are now come to drag thee from thy prison, and force thee upon a scaffold!

Mary was alarmed at the cries of sedition uttered by the people. Lady Jane and her husband were brought before an iniquitous council, who condemned them both to die; and the Mayor of London having begged that a public example might be made, obtained that Lord Guildford Dudley should be executed in public. The unfortunate nobleman, on his sentence being communicated to him, requested an interview with his wife. She refused to see him, but wrote him a letter to the following purport:

"Do not let us meet, Guildford—we must see each other no more until we are united in a better world. We must forget our joys so sweet, Guildford, our loves so tender and so happy.—You must now devote yourself to none but serious thoughts. No more love, no more happiness here upon earth!—we must now think of nothing but death! Remember, my Guildford, that the people are waiting for you, to see how a man can die. Show no weakness as you approach the scaffold; your fortitude would be overcome, perhaps, were you to see me. You could not quit your poor Jane without tears; and tears and weakness must be left to us women. Adieu, my Guildford, adieu! be a man—be firm at the last hour—let me be proud of you."

Guildford died like a hero, and Jane was proud of him. Ah! it was not from weakness that this noble minded creature refused the crown;—she was happy with her books, her affection, and her beloved husband, under her own abours of

flowers. It was the absence of happiness, in a crown, not its weight that alarmed her.

She saw her husband leave the Tower and proceed to the place of execution. She prayed a long time for him; her own turn then came, and she prepared for death. Mary, desirous of increasing her sufferings, pretended to convert her, and offered to pardon her if she would abjure the reformed religion. But with a sweet smile of sadness, she refused. For at that time what was life to her?—nothing but a vast solitude through which she should have to wander alone and deserted. She preferred death!

For three days she was assailed by the importunities of Catholic priests, who thought they had shaken her faith. Jane made them no reply, but continued her prayers. Having written a last letter of adieu to her sister, the Countess of Pembroke, she took off her mourning, dressed herself in white, had her long and beautiful hair cut off by her female attendants, and walked boldly to the place of execution. When, however, she saw the sparkling of the steel axe, she turned pale. She knelt, prayed again, lifted up her eyes and looked at the heavens!—then placing her head upon the block, she received the stroke that conferred upon her a crown of which no human passions could deprive her—the crown of martyrdom!

This was the third time in London, within a period of twenty years, that the blood of a queen had stained the scaffold. The reign of Elizabeth was to present a fourth act of the same tragedy.

Catherine Gray, Countess of Pembroke, was more to be pitied than her sister Jane; for, after all, what is death to any one who has lost every thing that makes life valuable! But Catherine, separated from a world in which the man she loved still lived, must often have prayed to God to give her the sleep of the grave.

Catherine Gray had married the Earl of Pembroke; but their union was so unhappy that both demanded a separation, and their marriage was dissolved by a judicial act. She then became the wife of the Earl of Hertford, who set out for France, leaving her pregnant. Catherine Gray being of the royal blood of Tudor, her marriage without the consent of her sovereign was imputed to her as a crime; and on ascending the throne, Mary, as happy in having to inflict punishment as another would have been to show clemency, condemned her to imprisonment for life. The Earl of Hertford on his return from France, was also sentenced to imprisonment, and the Archbishop of Canterbury declared the marriage null and void. Nevertheless the Earl protested against the sentence of the Archbishop, as well as against that of his other judges. He loved Catherine with the tenderest affection; and still looking upon her as his wife, bribed the keeper of the tower and obtained access to her prison. Catherine became a mother a second time; and Mary persecuted the Earl of Hertford with all the vindictive hatred of a Queen whose authority is despised, and of a woman already past the age of inspiring love, who cannot forgive young people for their superiority in this respect. The Earl's accusation consisted of three counts: First, of having seduced a princess of the royal blood; secondly, of having violated a state prison; and thirdly, of having approached a woman from whom the law had separated him. He was condemned to a fine of five thousand pounds sterling for each offence. He paid the fifteen thousand pounds, and after a long confinement consented to sign a voluntary act of separation from Catherine; but not till after a long struggle, and a resistance which bore ample testimony of the strength of his attachment.

The unfortunate Catherine Gray died in prison, in 1562, after a long and painful captivity. Like her sister Jane, she was learned and fond of study. Both were young and lovely, and the fate of both showed that royal birth is no security against misfortune. Tears are shed in the palaces of kings as well as the peasant's hovel; and arms loaded with jewels often bear the chains of captivity. Poison is sometimes drunk in a cup of gold, and the crowned head severed by the executioner's axe!

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This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, in ADVANCE. Previous volumes \$2.50 each.

THE APPRENTICE'S COMPANION—

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* * All letters must be postage paid. Eleven numbers sent to one address for \$3,—and TWENTY-THREE for \$10. D. K. M.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
35 Wall street, New-York.

DELAWARE AND ATLANTIC RAILROAD.—Notice is hereby given, that the books for receiving subscriptions to the residue of the Stock of the Delaware and Atlantic Railroad, under the Supplementary Act, granting the Company the privilege of continuing their Road from its present termination at New Lisbon, to a point on the Atlantic between Barnegat and Tuckerton, will be opened on Wednesday, the 20th inst., from 10 to 3 o'clock, at the Merchants' Exchange, in the City of Philadelphia; on Friday, the 22d, from 2 to 5 o'clock, at the house of Wm. Arnel, in the Borough of Bordentown; and on Tuesday, the 26th inst., from 10 to 6 o'clock, at Falkenberg's Hotel, in the Town of Manahawking, Monmouth Co. Subscribers to the above Stock will acquire equal rights with the present Stockholders, to that part of the Road already completed and now in successful operation, extending a distance of 14 miles from the Delaware River to New Lisbon. The sum of \$5 on each Share is required to be paid at the time of subscribing.

JOHN CHAMBERS,
JAMES NEWBOLD,
THOMAS HAINES,
JOSEPH SMITH,
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Commissioners.
Springfield, Burlington Co., N. J., May 1, 1835.

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No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

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THOS. J. ECKLEY, Treas' &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, April 21, 1835.

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Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Bloeker street,
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The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 8 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

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All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

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P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J15 3am

H. BURDEN.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

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Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

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RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
800 do. 3 do. do.	of 45 degrees, with spli-
800 do. 3 1/2 do. do.	cing plates and nails to
	suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 32, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, 4, and 4 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

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The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy; also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLE, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

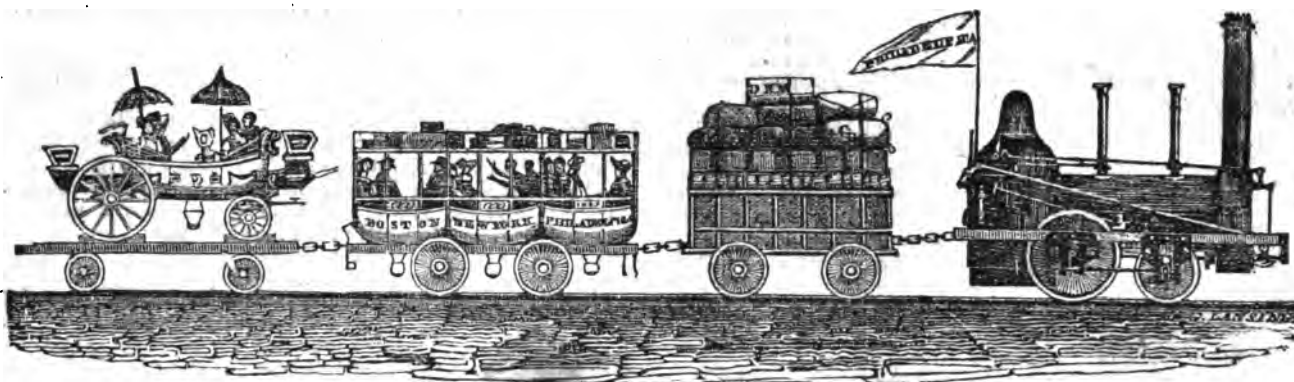
Germantown, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

and 1y Germant. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. E. MINOR, Editor.]

SATURDAY, MAY 16, 1835.

[VOLUME IV.—No. 19.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 16, 1835.

CANALS AND RAILROADS.—We commence in this number the Report made to the Canal Commissioners of this State, by John B. Jervis, Holmes Hutchinson, and Frederick C. Mills, Esqrs., Civil Engineers, upon the relative cost of, and cost of transportation on, Railroads and Canals. It contains much useful information, and should be read with care by those interested in such works.

It does not require a very close examination to discover the kind of improvement preferred by the gentlemen who made the Report. They appear to entertain, as many other very intelligent men do, the opinion that Railroads cannot compete successfully with Canals.

Of the correctness of this opinion, as it relates to transportation of heavy articles, we are not disposed at present to object; but for purposes of travel, light freight and the mails, Railroads must, we think, supersede all other modes now in use. We ask for this report an attentive perusal by Engineers, and offer the columns of the Journal for a proper discussion of the subject by those who have the leisure and disposition to enter into it—neither of which, nor the ability, is possessed by us.

The Pittsburg Gazette, advertising to the benefit which, what are called "the cross-cut canals"—viz. those that will connect the great Pennsylv-

nia Canal at Pittsburg with Lake Erie at Cleveland by the route of the Ohio Canal—will confer on Pennsylvania, and Pittsburg in particular, ex-claims—

"Pennsylvania, Philadelphia, and Pittsburg are truly in the full tide of successful experiment—their destinies are rapidly unfolding themselves. When these junction canals are completed, New York will have to execute a release of claim upon the trade of Ohio."

New-York will not, we trust, much longer pursue the suicidal course in relation to the Trade of the West, which has marked her late legislation. She will never, never "execute a release." She merely rests her claims for a time, to witness the eagerness with which her neighbors labor for the prize.

WEVERTON MANUFACTURING COMPANY is the title of a company formed in Maryland, for the purpose of carrying on the manufacturing business in its various branches. The situation selected for its operations is on the Potomac, about three miles below Harper's Ferry, and immediately on "the lines of the Baltimore and Ohio Railroad, Chesapeake and Ohio Canal, and Frederick and Harper's Ferry turnpike road. At Harper's Ferry these three great avenues of communication separate, and embrace in their respective ranges, a very extensive, fertile, and populous country. Immediately below, the turnpike road leaves the river, and crossing a most productive country reaches the city of Frederick in a distance of sixteen miles. Nine miles below, at the Point of Rocks, the canal and railroad separate, the latter passing on to the city of Baltimore, and the former running to the three cities in the District of Columbia. A railroad to diverge from the Baltimore and Ohio Railroad at Weverton, and to run to Hagerstown, Maryland, and Chambersburg, Pennsylvania, is contemplated, and no doubt will be soon constructed."

Thus we see the effects of the system of internal improvements adopted, and with so much zeal carried on, in this country—villages, towns, and cities, springing up in every part of the country, where, but for

such improvements, the click of the hammer would never be heard.

"The power proposed to be employed by the Weverton Manufacturing Company, is the water of the Potomac river. The fall which may be commanded without an artificial dam, is upwards of eight feet, but three or four feet more could be obtained by the construction of a dam on the ledge of rocks which now forms a natural dam."

A company is formed for the purpose of improving the advantages of the place. Col. Mauldy, a gentleman of high respectability, is now in this city for the purpose of receiving subscriptions to the stock. He has left with us copies of the charter, and a description of the place, which may be seen by those who desire information upon the subject.

A Friend to Canals and Railroads will find in the Railroad Journal, if he uses it, the most extensive, and probably the most careful investigation of the subject of canal navigation, that has been published. He will find, however, that according to these experiments, broad canals are not considered by Mr. Macneill as best adapted for speed.

To the Editor of the Mechanics' Magazine:

In the valuable letter of Gerald Balston, in your last number, he speaks of General Mercer truly as the "advocate of broad and deep canals for transportation." He also advocates, and has long endeavored to draw the attention of those interested in canals, to the use of the Paisley passage boats. The principle on which their success has depended has not yet been demonstrated. But those on which he has advocated the superiority of wide and deep canals for transportation have been long known, and their truth admitted. An exemplification is given in the difference of strain on the horses on the Schuylkill canal; on the narrow canals it is hard, on the pools, easy.

You could not better serve the cause of internal communication, than by accepting the offer of Mr. Balston, and request him to give all the information which his time and opportunities will permit on the subject of these swift canal boats.

A FRIEND OF CANALS AND RAILROADS.

Report of John B. Jervis, Holmes Hutchinson, and Frederick C. Mills, to the honorable the Canal Commissioners of the State of New-York:

GENTLEMEN: We have examined the question you submitted to our consideration, in relation to the relative cost of construction and repairs of canals and railroads, and also the relative expense of transportation, and present in the following report the facts and views we have been able to obtain. The importance of the subject compels us to regret that more time could not consistently have been taken, to obtain further facts, and allowed us to carry the investigation into greater detail. We have felt compelled, in a great degree, to confine ourselves to an exposition of prominent features, in the two methods of facilitating internal communication. We believe, however, the facts presented, and the exposition of the bearing of those facts, will be found useful, in leading to correct conclusions in regard to the question under consideration.

RAILROADS.

The utility of railroads is materially, and in some respects, peculiarly affected by the ascent and descent that is overcome, and the relative amount of trade requiring transport in opposite directions. For instance, a railroad requiring transport only in one direction, would be most favorable with such a declivity in the direction of the freight, as would require the same power to move the loaded wagons, as would be necessary to return with the empty ones: and this declivity would decrease in cases requiring transport in both directions, and become level when the freight was equal.

In this country, it rarely occurs that freight is equal in both directions; more frequently it is 2, 3, and 4 to 1. To obtain the most favorable graduation to the trade to be accommodated, it is essential that it be uniform, or nearly so; which the route would not often admit without too great expense, and in some cases would be impracticable. On important lines for general trade that have any considerable extent, there will, from the character of the country, often require a level, and sometimes a small ascent, in the direction of the greatest trade; and it would be a favorable compromise to exchange all acclivities and declivities for a level road. Though there would be exceptions, still it is believed a level road would afford a fair standard in determining the general question of utility.

Below will be found a statement of the cost of several railroads, and in some cases the cost of transportation.

It is to be regretted that more authentic information of a practical character is not in our possession. The authorities, as well as the facts, are stated to show the weight which they are entitled to. In some important cases they are authentic; and these will be adopted as the basis of our conclusions.

Baltimore and Ohio Railroad.

From Baltimore to Point of Rocks, 67½ miles, by report of chief engineer, (October, 1832,) this section was stated to be nearly complete, and the cost \$29,193 per mile. In a document of second session 22d Congress, No. 93, it is asserted this road had then cost nearly \$34,000 per mile. We have examined the subsequent reports of the directors and their officers, and find nothing to change the statement of \$29,193 per mile.

The grading of this road is done in a substantial and durable manner; over ¾ of

the superstructure is timber sills and rails, capped with an iron plate; ¼ (or ⅓) is stone rails capped with iron plates; and ⅓ is timber rails on light stone blocks.

The cost of transportation for the year ending 31st September, 1834, as per report of superintendent of transportation, was for motive power and all other charges, (excluding repairs of road,) except interest and fund for renewal of wagons, \$62,348 57

Superintendent of machinery reports 1,000 wagons on the road; their cost is not given. They probably cost from \$150 to \$200 each; if on steel springs, the latter, otherwise the former: they may be estimated at \$150 each, which for 1,000 is \$150,000, interest on their cost, and to provide a fund for renewal, is believed should be at 25 per cent., which is, 37,500 00

Total cost of transportation, exclusive of tolls or profit, for 56,190 tons, is, 99,848 57

The average charge of the company, per said report, is within a small fraction 4½ cents per ton per mile, produces the sum of 116,254 79

The ratio of receipts to expenditures is 1 to 0.85, and $4.66 \div 0.85 = 3.96$ cents per ton per mile, as the expenses.

The expenses the previous year are stated by same report to have been higher: but as we have not the detailed statement, we cannot give the exact difference.

This railroad has ascents, descents, and curves, which affect the economy of transportation.

In regard to curves, this road may be considered as having more than is usual on railroads, designed mainly for general trade.

All lines of railroad, of any considerable extent, will be curved more or less, according to the character of the country through which they are constructed. It is the first object to have it straight, and next, the lightest curvature the country will admit: the minimum will therefore, be determined by local circumstances. While it is considered this road has more curvature than will occur as a general average, it is obviously impracticable to determine what this average may be. The chief engineer, J. Knight, of this (Baltimore and Ohio) railroad, made experiments on the increased resistance produced by curves, which led him to the conclusion, that in a curve having a radius of 400 feet, the traction was increased 50 per cent. If locomotive engines were used, then loads would be regulated by the greatest resistance they had to overcome, on any part of the route; but a horse can increase his effort, for a short distance, which enables him, on a road that has occasionally sharp curves or ascents for moderate distances, to perform a greater average of useful effect than can be obtained from locomotive steam power. The freight business for this road is performed by horse power. The sharpest curves generally occur in short distances, intervening between straight lines and larger curves, and will not, therefore, affect the cost of transportation to so great a degree as if locomotive steam power was used. If we assume 10 per cent. of the resistance on a level and straight line, as the excess over a general average arising from extra curvature on this road, and apply it to the section between Parr Ridge and Baltimore, we shall not probably be far

from its true influence on the cost of transportation.

The next and most important question that affects the cost of this transportation is the ascent and descent. The character of this road in relation to its elevations, seems to indicate the propriety of dividing it into sections, and applying on each the power necessary, without regard to the other. The following divisions have therefore been made, to wit:

1st. From Baltimore to Parr Ridge, foot of 1st inclined plane—length, 40½ miles; ascent westward, 590 feet; descent, 23 feet; total, 613 feet; ascent averages 14.75 feet per mile.

2d. Embraces the 4 inclined planes that pass Parr Ridge, 1.94 miles; ascent and descent, 429 feet, viz.:

No. 1, 2,150 feet, rise $\frac{1}{18.75} = 80$ feet: No. 2, 3,000 feet, rise $\frac{1}{30.12} = 99$ feet. Total ascent, 179 feet.

No. 3, 3,800 feet, fall $\frac{1}{23.05} = 160$ feet: No. 4, 1,900 feet, fall $\frac{1}{23.05} = 81$ feet. Total descent, 241 feet. Whole amount 420 feet.

Intermediate level, about 3½ miles.

3d. From foot of plane No. 4, to end of continuous declivity westward, 11½ miles; total descent, 235 feet; average, say 25 feet per mile.

4th. The remainder of road, to Point of Rocks and branch to Frederick, a fraction over 16 miles; descent westward, 160 feet; average 10.56 feet per mile; ascent westward, 131 feet. Total rise and fall, 300 feet.

The ascent westward, for the 4 divisions, is 900 feet, The descent westward, for do. 718 "

Total ascent and descent, 1,618 "

By the report referred to, it appears the ratio of freight moving eastward to that moving westward, was nearly as 2 to 1; for calculation we therefore adopt this ratio.

It has been shown that the 1st division has an average ascent of 14.75 feet per mile. This ascent, however, is not uniform; in several places for short distances it descends westward, some portions are level, and the ascents are at rates varying between 2.64 and 37.48 feet per mile, excepting a short piece near the foot of inclined plane. They seldom much exceed 20 feet, except for short distances. The length of grades at the higher rates of ascent is generally less than one mile, and alternate with those of medium rate; except near the inclined plane. In view of the character of this division, it is believed animal power will allow such variations as to accommodate the varying resistance, with nearly as much economy as on a uniform ascent. If we calculate on a uniform ascent of 18 feet per mile, we shall not probably vary essentially from the true economy of the case.

It has been observed, the freight is as 2 to 1 in the opposite direction, being least westward. The weight of the wagons will probably be ¼ of the gross load; and for computation, we may assume the wagon to weigh one ton; and consequently the freight eastward will be 2 tons and that westward 1 ton.

The resistance from friction is taken at ⅓ of the gross load, the velocity being low. On a level this will require nearly 9 pounds per ton, on an ascent of 18 feet per mile gravity will be ⅓ of the load, or 7.64 pound per ton. The wagon and its freight going westward makes a gross load of 3 tons; the resistance will there-

fore be $9+7.64 \times 2 = 33.28$ lbs. To carry on a level road, a load which including wagons would be 3 tons, the resistance would be $9 \times 3 = 27$ lbs. The road, with a few exceptions, descends eastward or is level. The ascents are small and so near the eastern termination, that, in the average, less power would be required than on a level; but we require 33.28 lbs. to move westward, after providing for varied effort by the animal. Now, as a general result, we would not expect a more equal ratio of freight in the two opposite directions than in this case, and if 27 lbs. is required on a level, we have an excess of power to provide for the load moving westward, of $33.28 - 27 = 6.28$ lbs., and as this will return with the opposite load, we have extra power for the two directions $= 12.56$ lbs. more than required for a level road, or 23 per cent. extra. This added to the extra curvature of 10 per cent., raises the extra traction to 32 per cent. on this section. The cost of the moving power is nearly $\frac{1}{2}$ of the total expense, and $32 \times .40 = 14.80$, say 15 per cent., the cost of transportation over a level road; and $40.25 \times .15 = 6.03$, or equal an increase in the length of this division of 6 miles.

2d division. The total ascent westward is on the inclined planes Nos. 1 and 2; their total length is 5,150 feet, and ascend at an average rate of one in twenty-eight and three-fourths. It is obvious, the load moving westward will determine the expense of power, as that in the opposite direction on these planes will descend by its own gravity, requiring only the expense of brakemen to control its descent within a safe velocity, which may be done by a part of the drivers, whose teams could be led back by others. In moving up this ascent, a horse would require 95 per cent. of his power to overcome the gravitating force of his body; but as he would be loaded only in one direction, and the length of either plane but little exceeding half a mile, it is believed to be a fair estimate to compute, in this case, the useful effort of his power as equal what it would be on a level. We have one ton of goods and one ton of wagon, making a gross load of 2 tons moving westward. The total resistance up the plane will be 173 lbs., or 5.4 times greater than the load in the opposite direction, (3 tons gross,) would be on a level. The two planes are together 0.97 miles in length. The ascent will make the extra resistance equal $5.25 \times .4 = 2.09$ miles.

The 3d and 4th planes descend westward; their total length is 5,100 feet, and descend at an average rate of $\frac{1}{31.73}$. For these planes, we must compute the power required to ascend them with the load moving eastward, which is 3 tons including wagon. The horse will require 47 per cent. of his power to overcome the gravitating force of his body up the plane; and though he will, as in the case of the other planes, be loaded only in one direction, still it is believed that 10 per cent. should be taken from his average useful effect in ascending Nos. 3 and 4. The resistance of 3 tons up these planes will be 344 lbs., equal 11.73 times greater than on a level, or including the loss in the effective power of the horse, equal 13.13 times greater. The two planes are .96 miles $\times 13.12 \times .4 = 4.3$ miles extra length of transportation. The influence of the planes on this division increases the moving power equal to what would be required for 17 miles of level road, and taking the moving power at 40 per cent. of the total expense of freight, a fraction over 63 miles, entire cost of transportation.

3d division. Ascends eastward at the average rate of 25 feet per mile, varying from 9.76 to 52.80. The grades that have the higher rates of ascent are short, and in view of the small amount of labor required of the horses in the opposite direction, it will probably not vary materially from the truth, to compute the power at the average rate of ascent, or $\frac{1}{31.7}$. A load eastward is 3 tons, including wagons; and the resistance will be 58 lbs., equal 2.14 times that on a level; or for 11.25 miles, requiring extra moving power, equal what would be required for 12.82 miles on a level, or equal the total expense of transportation for 51 miles.

4th division. Is quite of an undulating character; the ascent is greatest in the aggregate in the direction of the greatest trade, but the grades have a less rate of ascent than in the opposite direction. The average ascent in the direction of the greatest trade will be a fair basis of computation for the section: This is $\frac{1}{31.7}$, and the resistance for 3 tons, (as before,) is 40.44 lbs. or 50 per cent. greater than a level. For 16 miles the extra moving power is equal 8 miles on a level, or equal the total cost of transportation for 34 miles nearly.

In the first division we have extra equal	6 miles.
In the second division we have extra equal	54 "
In the third division we have extra equal	51 "
In the fourth division we have extra equal	34 "
	214 "
Total length of road is	71
	—92.12

The actual cost of transportation has been shown to be 3.96 cts. per ton per mile. To reduce this to our standard, we have the cost of transportation, exclusive of toll or profits, 3.05 cts. per ton per mile, with freight as two to one in the different directions.

By report of superintendent, the moving power cost 1.06 cts. per ton per mile.

Repairs.

Year, ending October, 1833, \$444 per mile.
" " " 1834, \$321 " "

Average for 2 years, \$382.50.
A road constructed mostly of timber will vary much in the cost of repairs for different years, and several are therefore necessary to obtain a proper average.

Cost of transporting passengers per mile, 1.98 cts. as stated in Hazard's Register of Pennsylvania, v. 15, p. 112.

Liverpool and Manchester Railway.

In a statement published by Mr. Booth, the treasurer of the company, dated June 30, 1830, the expenditure up to that time, including an estimate, (the road was at this time nearly completed,) to finish some unimportant items of work, it appears the construction of the railway, exclusive of warehouses, wharfs, offices, engines, wagons, and other items not connected with the construction of the road, cost 694,595l. for 31 miles, equal $22,406l. \times 4.80 = \$100,748$ per mile. There have, subsequently, been heavy expenditures, not embraced in the account of repairs, but we are not sufficiently advised of their object to say whether, or not, any part of it belonged to the amount of the original construction of the road.

It appears from four semi-annual reports of the directors, the expense of repairs have been as follows, to wit:

Report of July, 1832, 1st January to 30th June,	£27,351 0 6
Report of January, 1833, 1st June to 31st Dec.,	6,878 4 3
Report of July, 1833, 1st January to 30th June,	6,714 9 3
Report of January, 1834, 1st July to 31st Dec.,	6,425 14 8

Total for 2 years, £27,349 8 8

Equal, for 31 miles, $882 \times 4.80 = \$4,233$ per mile, which, for one year, is equal \$2,116 per mile, commencing about a year after the road was opened for business.

A table is given of the general expenses in the six months previous to that reported in July, 1832, in which the expenses of repairs is included with some other items. This aggregate sum is very nearly the same as reported in detail, showing there had been no material variation in repairs for the six months previous to that particularly reported.

[To be continued.]

THE STEAM CARRIAGE COMPANY OF SCOTLAND have brought an action of damages against the Trustees of the turnpike road between Glasgow and Paisley, for having compelled them to give up running on that road (after doing so with great success for several weeks continuously) by "wantonly, wrongfully, and maliciously accumulating masses of metal, stones, and rubbish, on the aforesaid road, in order to create such annoyance, hazard, and obstruction, as might impede, overturn, or destroy the steam-coaches belonging to the pursuers (plaintiffs)." The summons or declaration states, that the hostility of the defendants was carried to such a pitch, that they made the road not only impassable for steam-carriages, but nearly so for carriages of every description. "The ordinary horse-carriages running upon the road were also much injured, and the heavy carts and waggons usually plying between Glasgow and Paisley were obliged to desert the said road, and to go round by a different and a longer route." The damages are laid at £30,000!

CEMENTS.—Mortar made of good lime and clean sharp sand may be successfully employed for the same purposes as Roman cement, provided it be allowed sufficient time to dry before water is permitted to rest upon it. This was mentioned many years ago by Arthur Young, in his "Agricultural Survey of Lincolnshire," and we have seen it proved in a variety of instances. In stuccoing the front of a house in or about London, for example, no builder need ever have recourse to any of the metallic cements, (including under this term Roman cement, Parker's cement, Hamblin's mastic, and all other quick-setting cements, which are only quick-setting in consequence of their containing some metallic oxide,) provided he can procure the best stone lime from Dorling or Aberthau. For our own parts, we should have more confidence in the durability of stucco so formed than in that of any of the cements. —[Mr. Loudon, Archit. Mag.]

[For the American Railroad Journal.]

Remarks on the Substitution of Locks for Inclined Planes on Railways.

The disuse of stationary steam power on railways has long been an object whose attainment has been anxiously desired, but hardly expected. Attention to this subject is daily increasing, as its importance is continually growing more apparent.

The efforts of ingenuity have heretofore been generally directed to improvements in the locomotive engine, by which it would be enabled to move up very considerable ascents by its own unassisted strength. In a late number of the Railroad Journal, I find an extract from a Baltimore paper, stating that an engine had been fabricated in that city able to rise on an elevation of two hundred and sixty feet in a mile, or one foot in twenty; and the belief is expressed, that the same species of engine would be capable of carrying one hundred passengers in a train of cars, up an acclivity of one hundred feet in a mile, at the rate of ten miles an hour.

This may perhaps be all accomplished, but still I have doubts as to the substantial utility of such an achievement. For the attainment of the greatest degree of economy, all the power of the engine, which may be safely exerted, should be constantly employed. But if sufficient energy is provided to rise such steep acclivities, there must be an immense superabundance and waste throughout all the other portions of the route.

In a report of the commissioners of the Liverpool and Manchester Railway, made to the House of Commons a few years since, it is stated, as the result of experiment, that an engine capable of moving thirty tons over a level track could raise no more than seven tons on an elevation of one foot in a hundred, or about fifty-two in a mile. If this be true, the same engine would be unable to draw more than three tons at the utmost, where the ascent was a hundred feet in a mile, since the load capable of being propelled would have to be diminished much faster than in a direct proportion to the degree of acclivity; and since the engine and its appurtenances occasion almost the sole expense of transportation, the cost of carrying three tons over such an undulating road would be nearly equal to the freight, on thirty tons upon a level way. The whole load which an engine can transport will be limited by what it can move over the most difficult part of the way. Now, I do not doubt but that engines may be constructed capable of raising a load on an elevation of one hundred feet in a mile; but would it not be wiser to construct the road more nearly level, so that the same engine might carry a load several times as large? Where the transportation of passengers is alone concerned, economy being of little consequence in comparison with speed, such a waste of power may be justified; but where intended principally for the carriage of freight—where the diminution of expense is the principal object, there are

very strong objections to an arrangement by which a large proportion of the propelling power lies waste and idle during the greater part of the journey, to be exerted only on the ascent of eminences.

In England, where there is much more experience than in this country, not only in the construction, but also in the operation of railroads, it is considered unwise to attempt the ascents of more than fifty feet in a mile by the sole power of the locomotive.

But it is not merely a want of power which fixes a limit to the degree of ascent practicable on railways. No matter what the ability of the engine, if the adhesion of the wheels to the rail is not sufficient to prevent them from sliding round in their places, the load cannot be moved; and this it is which, more than any thing else, renders rapid ascents impracticable. Experiments made when the wheels and rails are new, and not yet worn smooth by use, are not satisfactory upon this point, especially when it is recollected that those rails may not unfrequently be rendered slippery by ice or snow. The importance, therefore, of resorting to some other substitute for inclined planes, beside those hitherto contrived, is sufficiently evident.

An expedient of such a nature has lately received some notice, not only in the columns of this Journal, but also in those of several other public prints of this city. I refer to the railroad lock invented by Colonel Taylor. An attentive examination will, I think, convince any one, that its operation is founded upon well established principles of mechanical philosophy, and that it must prove successful.

The great object of the lock in question is to enable the locomotive engine to raise itself and all its train by its own unassisted strength, over any elevation, no matter how high, or how steep. This object is attained by a recourse to that universal mechanical principle, that what a power wants in intensity may be made up for in distance; that if it is only the half of what would be required to move a given weight on a direct application, such machinery must be interposed as that the distance through which the power moves may be twice as great as that through which the weight is raised. The merit of the invention in question consists in this: That when an ascent is to be overcome, and the power ordinarily required becomes insufficient, a provision is made by which the distance traversed by it may be any number of times greater than that ascended by the weight, so that no additional force is called for to assist the locomotive in any emergency.

This is accomplished by the agency of screws, which being moved by the power of the locomotive itself, elevate the engine and all its train perpendicularly from one reach to another. It will be readily perceived that such machinery may be interposed between the power and the load, that the distance traversed by the former, that is to say, the space through which the piston moves, shall bear any necessary proportion to that ascended by

the latter, and thus success be rendered certain.

As has been already observed, the great object to be attained in order to secure the strictest economy in transportation, is such an arrangement that the power required to propel the load may be the same throughout every portion of the route. Now suppose the road to be perfectly horizontal, and all changes of level between one reach and another to be effected by the locks in question; and suppose the machinery of those locks to be so constructed and proportioned that the same power which propels the load upon the rails should be just sufficient to raise it upon the locks, the object desired is completely attained. Not one ounce of power would lie idle throughout any portion of the route—not an ounce would be wanting. There would be neither loss nor deficiency, and the system, so far as economy of transportation was concerned, would be perfect.

Such a state of exactness would not, however, be necessary or advisable. The increased expense of grading would more than counterbalance the advantage to be gained from a perfectly level road. The power of a steam engine is not fixed and invariable. It may to a certain extent be increased without detriment, so as to enable it to rise over moderate elevations. Still it is sufficiently evident, that although it may not be practicable to carry the proposed system to a degree of absolute perfection, yet that state may without difficulty be so nearly approached as to secure the greatest advantages.

I have at this time paid no regard to the superior excellence of the lock in question, so far as safety, convenience, and economy of construction, were concerned. This might be readily shown, and in many respects will be at once perceived, without further explanation. There is every probability, therefore, that success will crown this endeavor to improve the construction of railways, and will, I trust, become an important era in the history of internal improvements.

M.

Report of John B. Jervis, Holmes Hutchinson, and Frederick C. Mills, to the honorable the Canal Commissioners of the State of New-York:

(Continued from the preceding page.)

Transportation.

The reports above referred to, embrace 4 semi-annual accounts for transportation, and one tabular view of transportation for 6 months previous, from which the following table is made.

The report of July, 1852, contains a statement of transportation for the two semi-annual terms preceding.

In the tabular account of given by the directors, the maintenance of way and rate, taxes and omnibusses are charged to transportation; but in the following table these are not included, as it is the design to exhibit the cost of transportation separate from other expenses; these items are given in the table of directors' reports, with others, but are separate in the general account.

Report on the Progress and Present State of our Knowledge of Hydraulics as a Branch of Engineering. By GEORGE RENNIE, Esq., F. R. S., &c. &c. Part I.

(Continued from number 3.)

In the year 1801, M. Eytelwein, a gentleman well known to the public by his translation of M. Dubuat's work into German, (with important additions of his own,) published a valuable compendium of hydraulics, entitled "*Handbuch der Mechanik und der Hydraulik*," in which he lays down the following rules:

1. That when water flows from a notch made in the side of a dam, its velocity is as the square of the height of the head of the water; that is, that the pressure and consequent height are as the square of the velocity, the proportional velocities being nearly the same as those of Bossut.
2. That the contraction of the fluid vein from a simple orifice in a thin plate is reduced to 0.64.
3. For additional pipes, the coefficient is 0.65.
4. For a conical tube, similar to the curve of contraction, 0.66.
5. For the whole velocity due to the height, the coefficient by its square must be multiplied by 5.0458.
6. For an orifice, the coefficient must be multiplied by 7.8.
7. For wide openings in bridges, sluices, &c., by 6.9.
8. For short pipes, 6.6.
9. For openings in sluices without side walls, 5.1.

Of the twenty-four chapters into which M. Eytelwein's work* is divided, the seventh is the most important. The late Dr. Thomas Young, in commenting upon this chapter, says:

"The simple theorem by which the velocity of a river is determined, appears to be the most valuable of M. Eytelwein's improvements, although the reasoning from which it is deduced is somewhat exceptionable. The friction is nearly as the square of the velocity, not because a number of particles proportional to the velocity is torn asunder in a time proportionally short—for, according to the analogy of solid bodies, no more force is destroyed by friction when the motion is rapid, than when slow—but because, when a body is moving in lines of a given curvature, the deflecting forces are as the squares of the velocities; and the particles of water in contact with the sides and bottom must be deflected, in consequence of the minute irregularities of the surfaces on which they slide, nearly in the same curvilinear path, whatever their velocity may be. At any rate, (he continues,) we may safely set out with this hypothesis, that the principal part of the friction is as the square of the velocity, and the friction is nearly the same at all depths; for Professor Robison found that the time of oscillation of the fluid in a bent tube was not increased by increasing the pressure against the sides, being nearly the same when the principal part was situated horizontally, as when vertically. The friction will, however, vary, according to the surface of the fluid which is in contact with the solid, in proportion to the whole quantity of the fluid; that is, the friction for any given quantity of water will be as the surface of the bottom and sides of a river directly,

and as the whole quantity in the river inversely; or, supposing the whole quantity of water to be spread on a horizontal surface equal to the bottom and sides, the friction is inversely as the height at which the river would then stand, which is called the hydraulic mean depth."† It is, therefore, calculated that the velocities will be a mean proportional between the hydraulic mean depth and the fall, or $\frac{1}{11}$ ths of the velocity per second.

Professor Robison informs us, that by the experiments of Mr. Watt on a canal eighteen feet wide at the top, seven feet at the bottom, and four feet deep, having a fall of four inches per mile, the velocities were seventeen inches per second at the surface, fourteen inches per second in the middle, and ten inches per second at the bottom, making a mean velocity of fourteen inches per second; then finding the hydraulic mean depth, and dividing the area of the section by the perimeter, we have $\frac{50}{20.6}$, or 29.13 inches; and the fall in

two miles being eight inches, we have $\sqrt{8 \times 29.13} = 15.26$, for the mean proportional $\frac{1}{11}$ ths, or 13.9 inches, which agrees very nearly with Mr. Watt's velocity.

The Professor has, however, deduced from Dubuat's elaborate theories, 12.568 inches. But this simple theorem applies only to the straight and equable channels of a river. In a curved channel, the theorem becomes more complicated; and, from observations made in the Po, Arno, Rhine, and other rivers, there appears to be no general rule for the decrease of velocity going downwards. M. Eytelwein directs us to deduct, from the superficial velocity, $\frac{1}{11}$ for every foot of the whole depth. Dr. Young thinks $\frac{1}{10}$ ths of the superficial velocity sufficient. According to Major Rennell, the windings of the river Ganges, in a length of sixty miles, are so numerous as to reduce the declivity of the bed to four inches per mile, the medium rate of motion being about three miles per hour, so that a mean hydraulic depth of thirty feet, as stated to be $\frac{1}{3}$ ds of the velocity per second, will be 4.47 feet, or three miles per hour. Again, the river, when full, has thrice the volume of water in it, and its motion is also accelerated in the proportion of 5 to 3; and, assuming the hydraulic mean depth to be doubled at the time of the inundation, the velocity will be increased in the ratio of 7 to 5; but the inclination of the surface is probably increased also, and consequently produces a further velocity of from 1.4 to 1.7. M. Eytelwein agrees with Gennete,† that a river may absorb the whole of the water of another river, equal in magnitude to itself, without producing any sensible elevation in its surface. This apparent paradox Gennete pretends to prove by experiments, from observing that the Danube absorbs the Inn, and the Rhine the Mayne, rivers; but the author evidently has not attended to the fact, as may be witnessed in the junction of rivers in marshes and fenny countries—the various rivers which run through the Pontine, and other marshes, in Italy, and in Cambridgeshire and Lincolnshire, in this country; hence, the familiar expression of the waters being overriden, is founded in facts continually observed in these districts. We have also the experiments of Brunings, in the "*Architecture Hydraulique Generale de Wiebeking*," Wasmann's "*Memoires sur l'Art de construire*

les Canaux," and Fank "*Sur l'Architecture Hydraulique Generale*," which are sufficient to determine the coefficients under different circumstances, from velocities of $\frac{1}{3}$ ths to 74 feet, and of transverse sections, from 1 to 19135 square feet. The experiments of Dubuat were made on the canal of Jard, and the river Hayne; those of Brunings, in the Rhine, the Wasl, and Ifrel; and those of Wasmann, in the drains near Cuxhaven.

M. Eytelwein's paper contains formulae for the contraction of fluid veins through orifices,* and the resistances of fluids passing through pipes, and beds of canals and rivers, according to the experiments of Couplet, Michelotti, Bossut, Venturi, Dubuat, Wasmann, Brunings, Funk, and Bidone.

In the ninth chapter of the "*Handbuch*," the author has endeavored to simplify, nearly in the same manner as the motion of rivers, the theory of the motion of water in pipes, observing that the head of water may be divided into two parts, one to produce velocity, the other to overcome the friction; and that the height must be as the length and circumference of the section of the pipe directly, or as the diameter, and inversely as the area of the section, or as the square of the diameter.

In the allowance for flexure, the product of its square, multiplied by the sum of the sines of the several angles of inflection, and then by .0038, will give the degree of pressure employed in overcoming the resistance occasioned by the angles, and deducting this height from the height corresponding to the velocity, will give the corrected velocity.†

M. Eytelwein investigates, both theoretically and experimentally, the discharge of water by compound pipes, the motions of jets, and their impulses against plane and oblique surfaces, as in water wheels, in which it is shown that the hydraulic pressure must be twice the weight of the generating column, as deduced from the experiments of Bossut and Langedorf; and in the case of oblique surfaces, the effect is stated to vary as the square of the sine of the angle of incidence; but for motions in open water, about $\frac{1}{3}$ ths of the difference of the sine from the radius must be added to this square.

The author is evidently wrong in calculating upon impulse as forming part of the motion of overshot wheels; but his theory, that the perimeter of a water wheel should move with half the velocity of a given stream, to produce a maximum effect, agrees perfectly with the experiments of Smeaton, and others.‡

* "*Recherches sur le Mouvement de l'Eau, en ayant egard a la Contraction qui a lieu au Passage par Divers Orifices, et a la Resistance qui retarde le Mouvement, le long des Parois des Vases*," par M. Eytelwein. — *Memoires de l'Academie de Berlin*, 1814 and 1815.

† Hence, if f denote the height due to the friction, d = the diameter of the pipe, W = a constant quantity, WW

we shall have, $f = V^2 \frac{a}{d}$ and $V^2 = \frac{f d}{a}$. But the height employed in overcoming the friction corresponds to the difference between the actual velocity and the actual height; that is, $f = h - \frac{V^2}{2g}$, where b is the coefficient for finding the velocity from the height.

Hence we have, $V^2 = \frac{b^2 d h - d V^2}{a b^2 l}$ and $V = \sqrt{\frac{b^2 d h}{a b^2 l + d}}$.

Now Dubuat found b to be 6.6, and $a b^2$ was found to be 0.0211, particularly when the velocity is between six and twenty-four inches per second. Hence we have,

$V = \frac{43.6 d h}{0.0211 l + d}$, or $V = 45.5 \sqrt{\frac{d h}{l + 47 d}}$, or more accurately, $V = 50 \sqrt{\frac{d h}{l + 50 d}}$.

‡ The author of this paper has made a great many experiments on the maximum effect of water wheels;

* See Nicholson's translation of Eytelwein's work. † See my "*Experiments on the Friction and Resistance of Fluids*," *Philosophical Transactions* for 1821.

* See Nicholson's Journal for 1802, vol. iii., p. 31.

† *Experiences sur le Cours des Fleuves*, on Lettre a un Magistrat Hollandais, par M. Gennete. Paris, 1760.

The author concludes his highly interesting work by examining the effects of air, as far as they relate to hydraulic machines, including its impulse against plane surfaces, on syphons and pumps of different descriptions, horizontal and inclined helices, bucket wheels, throwing wheels, and, lastly, on instruments for measuring the velocity of streams of water. A very detailed account of the work was given in the *Journal of the Royal Institution*, by the late Dr. Young. But it is due to MM. Dubuat and Prony to state, that M. Eytelwein has exactly followed the steps of these gentlemen, in his "Theory of the Motion of Water in Open Channels."

[To be continued.]

[From the London Mechanics' Magazine.]

Gun with a Revolving Breech—Simple Mode of Increasing the Tractive Power on Roads—Relief-wheels for Common Road Steam-Carriages.

Sir: The following matters are submitted for insertion in your truly valuable publication, should you deem them deserving a place in it.

I am, Sir, your obedient servant,

ROBERT CAREY,
Rector of Donoughmore.

1. The first invention to which I would call your attention is a gun with a revolving breech, containing seven chambers, brought in succession into position, by the single movement of elevating the hammer. I sent it to the exhibition of Irish Manufactures and Inventions, held at the Royal Dublin Society, in May, 1834, where it still remains. It is thus described in the Dublin Evening Packet, of the 22d of May: "In our last notice of this exhibition we described a gun with a revolving breech, capable of being discharged seven successive times within a space of from 25 to 30 seconds; we have just learned that the inventor is a clergyman, living in the county of Tipperary, and that the gun was manufactured in the town of Clonmell." I would here observe, that it has been suggested to me by military persons that the principle of the above invention would apply with great effect to cannon.*

2. I would in the next place submit a project directed to the increase of power applied to draught.

The means which I would suggest for the attainment of this object are a new formation of road, by which wheels of any diameter, that it may be found convenient to use, are rendered applicable to draught, without destroying the proper direction of the line of traction. I propose to give what I shall term the power-road (or that on which the power moves, whether it be steam or otherwise,) an elevation above the waggon-road (or that on which the train of carriages moves,) proportioned to the magnitude of the

but the recent experiments of the Franklin Institution, made on a more magnificent scale, and now in the course of trial, eclipse every thing that has yet been effected on this subject. See also Poncelet, "Memoire sur les Roues Hydrauliques," and "Anbes Courbes par dessous, &c." 1837.

* We should be glad to receive from our worthy correspondent a more particular description of this ingenious invention. A drawing is also very desirable.—[Ed. M. M.]

wheels which it may be found most advantageous to use. Assuming that the power attained from the application of wheels of different magnitudes, moving on ordinary roads, varies in the direct ratio of their semi-diameters, an elevation of three feet in the power-road would double the power, inasmuch as it would render applicable wheels of double the diameter that would apply with effect on an ordinary road. I am aware the advantage obtained on a railroad, by the application of this principle, is not so considerable; I calculate that the comparative powers of wheels of different magnitude, on a railroad, vary as the square roots of the semi-diameter of the wheels. An obvious advantage, exclusive of the increase of power, resulting from the above construction of road, would be its rendering an upset impossible.

3. The next project I would submit is directed to obviate an inconvenience (much dwelt on in a late number of your publication,) resulting to carriages impelled by steam, and moving on common turnpike-roads, from the inequalities or ruts of unavoidable occasional occurrence in roads composed of ordinary materials. I would have each axle furnished with two wheels additional, and exterior to the main wheels, and of somewhat smaller diameter. These additional I shall term relief-wheels. The effect of this contrivance must, I conceive it is obvious, be, to relieve the carriage from any shock from inequalities in the road, except when a depression or rut presents itself at the same moment to a main wheel and corresponding relief-wheel, which, it is obvious, except on roads in total disrepair, would be of extremely rare occurrence.

I beg to apologise for the extent to which this communication reaches, and am, Sir, your obedient servant,

R. C.

Donoughmore Glebe, Clonmell,
25th Jan., 1835.

[From the Journal of the Franklin Institute.]

List of American Patents which issued in September, 1834.

1. For a Perpetual Shoe Bench; Samuel Haynes, Malden, Middlesex county, Massachusetts, September 1.
2. For an improvement in navigation, called the Cylinder Boat; Amos Kendall, city of Washington, District of Columbia, September 2.
3. For a Thrashing Machine; Israel Lukens, Upper Dublin, Montgomery county, Pennsylvania, September 2.
4. For an improvement in the application of steam to the purpose of cooking, called the Steam Baker; Charles F. Wilcox, Springfield, Hampden county, Massachusetts, September 3.
5. For machinery for Cutting Crackers; Lucius Kirtland, New Haven, New Haven county, Connecticut, September 4.
6. For an improved press, for Pressing Cheese; Elijah Barnes, North Brookfield, Worcester county, Massachusetts, September 5.

7. For a machine for Hulling Barley; Henry Handschey, Bridgeville, Muskingum county, Ohio, September 5.

8. For Wheels for Carriages, &c.; Barney Ruggles, Warsaw, Genesee county, New-York, September 8.

9. For a Shoe for Mill Cans; James Dennis, Providence, Rhode Island, September 8.

10. For a Circular Saw Mill; John Penman, Charlotte, Muhlenburg county, North Carolina, September 9.

11. For Lessening Friction, by friction rollers; Isaac Clowes, Norfolk, Norfolk county, Virginia, September 9.

12. For improvements in Locomotive Engines and Cars, for Railroads; Matthias W. Baldwin, Engineer, Philadelphia, September 10.

13. For a Brick Machine; Cyrus Chaney, North Prospect, Waldo county, Maine, September 11.

14. For a Stove; James Wilson, city of New-York, September 12.

15. For an improvement in the Horse Collar Block; Dyer Cleaveland, Owego, Tioga county, New-York, September 13.

16. For a Relief Bedstead, for the use of invalids; David Anthony, Adams, Berkshire county, Massachusetts, September 13.

17. For a new Material for Stuffing Mattresses; Elias Howe, Cambridge, Middlesex county, Massachusetts, September 13.

18. For an improvement in the construction of Water Cisterns; Obadiah Parker, Syracuse, Onondaga county, New-York, September 15.

19. For an improved Re-action Water Wheel; John L. St. John, Canajoharie, Montgomery county, New-York, September 16.

20. For a Handling Machine, to be used in the manufacturing of Leather; William G. Waterman, Sullivan, Madison county, New-York, September 16.

21. For an improvement in the form and construction of Gridirons; Fenner Bush, and Linus Pratt, Meriden, New-Haven county, Connecticut. First patented July 21st, 1832. Patent surrendered, and re-issued upon an amended specification, September 17.

22. For a Straw Cutter; Nimrod Murphy, Nashville, Davidson county, Tennessee, September 17.

23. For Sun Dials of Cast Iron; Herman M'Cluer, Hamburg, Erie county, New-York, September 17.

24. For a Horse Power; Sewall Gleason, Westville, Franklin county, New-York, September 18.

25. For a Rotary Steam Engine; William Sutton, Geneva, Ontario county, New-York, September 18.

26. For a Churn; Adna L. Norcross, Hallowell, Kennebec county, Maine, September 19.

27. For Shears for Cutting Metal; George Christian, Mentz, Cayuga county, New-York, September 20.

28. For an improvement in the Forcing Pump; James D. Egbert, Lansing, Tompkins county, New-York, September 22.

29. For a Horse Power; Silvanus

Leonard, Hampton, Penobscot county, Maine, September 23.

30. For an improvement in the Cast Iron Fireplace; Ansel Hayward, Easton, Bristol county, Massachusetts, September 25.

31. For an improvement in the Dress of Mill Stones; Isaac W. Elmore, Lyons, Wayne county, New-York, September 25.

32. For a machine for Thrashing and Cleaning Grain, and for Shelling Corn; David Knauer, East Nantmeal, Chester county, Pennsylvania, September 25.

33. For a Centripetal Power Press; Eliphalet S. Scripture, Cazenovia, Madison county, New-York, September 26. [See page 157, vol. viii., of the New-York Farmer.]

34. For Water Wheels; Garet H. Heermance, Coxsackie, Greene county, New-York, September 30.

35. For an improvement in Stoves for Burning Anthracite; William A. Hopkins, city of New-York, September 30.

36. For a Tin Baker; Josiah St. John, Hudson, Columbia county, New-York, September 30.

ROTARY STEAM ENGINE.

The following inquiries have been addressed to Mr. N. Felt, who has recently substituted one of Avery's Rotaries, for a common high pressure piston engine, in his saw-mill, in Clay, to which the answer annexed has been furnished. We recommend the correspondence to the attention of machinists.

We extract the inquiries from a letter to Mr. F. from E. Lynds & Son.

"1st. Have you made any alterations in your boiler, in any form or manner, since putting the rotary in use, so as to afford more steam with less fuel?"

"2d. Is there any difference in the amount of fuel required to perform an equal amount of labor with either of the engines? If so, which requires the least, and what is the difference in the quantity used?"

"3d. Does the rotary engine do more or less work, in the same time, than the piston engine? What is the amount of difference?"

"4th. Which engine do you conceive to be the most simple in its construction, and in its application to any mechanical purpose the most natural? Also, which is kept in repair with the least expense?"

"5th. If you were to put another mill into operation, which engine would you prefer; and which do you think the most valuable for any mechanical purposes?"

From Mr. Felt, to Messrs. Lynds.

Clay, May 1, 1835.

"GENTLEMEN,—It is with pleasure I comply with your request in giving my opinion (founded upon practice and short experience,) in relation to the difference between the former High Pressure and Avery's Patent Rotary Engine, which I now have in operation in my saw-mill.

"In answer to your first question, I would say I have made no alteration in my boilers or arches.

"2d. As to the amount of fuel required, I am not able to answer precisely, but am sure the rotary does not require more than two-thirds the quantity to put it in operation the piston engine required.

"As to the amount of business performed, the rotary will do double the amount of the piston engine in the same time. So far as I

am acquainted with the two engines, I consider the rotary the most simple in its construction and application to mechanical purposes, and I think is kept in order with the least expense. With the experience I have with the two engines, I should prefer the rotary for any mechanical purposes whatever.

"Respectfully yours,

"NORRIS FELT.

"Elam Lynds & Son."

BROOKLYN—Our Sister City.—The Brooklyn Evening Advertiser contains the following remarks:—

The public exercises of the Brooklyn Lyceum were closed for the season on Friday evening. A lecture on the *Improvement of Brooklyn*, was given by Major Douglass, in which were set forth the advantages with which we have been favored by nature and circumstances, especially as to location, prospect, &c.—advantages which, if early improved, and on an enlarged and liberal scale, would make this the most splendid and attractive city in the country, if not in the world; but which, if neglected, may compel us to take the place of humble mediocrity, or perhaps debasement. Several particulars were enumerated, which deserved immediate attention; among which was a proper arrangement of the City Plot. On this, the lecturer said depended convenience, health, and beauty. A brief view of the original plan, subsequent alterations, and present arrangement of some of the European cities was given, particularly Paris, which at first occupied only the island upon which the Cathedral now stands; and it was thence argued that a predetermined plan, if properly matured, was preferable, even on the score of economy, to one that should be subjected to the particular interests or caprice that might prevail at different periods; and it was intimated that the same exercise of authority and amount of expenditure which were required to bring the plan of Paris to its present state of perfection, would hardly be submitted to in this country. A fixed adherence to straight lines, it was contended, was opposed to convenience, economy and good taste. The city of Philadelphia was instanced; a part of Market street was the great centre of business, with respect to which, Fairmount and Kensington were situated diagonally. Suppose, according to the present rectangular arrangements of the streets, 300 horses are required to be employed in transportation between the centre of business and the two places named, one third of the number might be dispensed with if the communication were correct. The preservation of elevations and depressions was urged as indispensable both to health and beauty. The present dead level of the city of New York was often spoken of by foreigners and others as a great defect, and they could hardly be made to believe that elevations once existed, and that they were all given to the destroyer. The proper graduation of streets, the laying out sites for the public buildings and public walks, the necessary damage, &c., were successively touched upon, and due attention to them urged. The improvements of the Heights, which had become almost as noted as the famed Cliffs of Dover, or (the lecturer was about to say) the Peak of Teneriffe, was considered the first object in the embellishment of the city; all the projected plans for regulating and beautifying these grounds, to which reference was made in this paper a few days since, was briefly explained. Our external intercourse was next adverted to. A direct communication, with Boston, by means of a railroad across the Island, and with Philadelphia, by means of steamboats, &c., was deemed feasible and of much importance. The intercourse with New York it was thought, would soon render necessary some other facilities of passage than the ferries afforded. It was even now often rendered difficult, if not dangerous, to the ladies and to the aged, by the crowded state of the boats, and of the avenues leading to them. A bridge across the river had been at one time in contemplation, but (the lecturer said) from the attention which he had given to the subject, he was convinced, that though such a project might not be impracticable, it could not be undertaken to any good purpose. He had no hesitation in saying, however, that a safe and easy communication, by means of an arch, or tunnel (if we mistake not,) was not only possible, but perfectly feasible.

THE ERIE CANAL.—The following important act was passed by the late Legislature, and a meeting of the Canal Board, with reference to the gigantic work therein contemplated, is advertised for the 30th June:—

An Act in relation to the Erie Canal, passed May 11, 1835.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The canal commissioners are hereby authorized and required to enlarge and improve the Erie Canal, and construct a double set of locks therein, as soon as the canal board may be of opinion that the public interest requires such improvement.

§ 2. The dimensions to which the canal and locks shall be enlarged shall be determined by the canal board.

§ 3. In passing cities or villages and at other places, an independent canal may be constructed instead of enlarging the present works, if the canal board shall decide that the public interests will be thereby promoted. In all cases, regard shall be had in the location, to the relinquishment of damages, and to gifts, grants and donations; but nothing in this section shall authorize the board to abandon the present canal through cities or villages, where an independent canal may be deemed advisable.

§ 4. It shall be the duty of the canal commissioners to alter and arrange the present feeders, and to construct such additional feeders and other works as they may deem necessary for supplying the enlarged canal with water.

§ 5. In the construction of the several works authorized by this act, the canal commissioners shall have and exercise all the powers and privileges granted to them by the ninth title of chapter ninth of the first part of the revised statutes: And the said ninth title, so far as it may be applicable, shall apply to the works hereby authorized.

§ 6. The cost of constructing, completing, and maintaining the works authorized by this act, shall be paid by the commissioners of the canal fund out of any moneys which may be on hand belonging to the Erie and Champlain canal fund; but the accounts and expenditures under this act shall be kept separate and distinct from the accounts and expenditures for the ordinary repair and maintenance of the Erie canal.

§ 7. The eighth section of the act entitled "an act to provide for the improvement of the canals of this state," passed May 6, 1834, is hereby repealed.

§ 8. The commissioners shall report to the legislature their proceedings under this act, within thirty days after the commencement of each session.

§ 9. After the year one thousand eight hundred and thirty-seven, the expenditures by virtue of this act shall be so limited as to leave from the canal revenues without reference to auction and salt duties, an annual income to the State of at least three hundred thousand dollars, over and above all ordinary repairs and expenditures on the Erie and Champlain canals.

§ 10. No further expenditures shall be made pursuant to the provisions of this act than are necessary to construct the additional locks and works connected therewith, to enlarge the canal in the vicinity of said locks, so far as may be necessary to facilitate the passage of boats through the same, and for the purchase of such lands and the extinguishment of such claims for damages, as the commissioners may deem it expedient to secure and extinguish, until a sufficient sum shall have been collected and invested from the canal revenues fully to discharge the Erie and Champlain canal debt.

§ 11. This act shall take effect on the passage thereof.

[From the Albany Journal of last evening.]

CANAL BOAT SUNK.—A canal boat belonging to the Troy and Erie line, with thirty-five tons of merchandise, was last week, by an unavoidable accident, sunk, a few miles west of Schenectady. Much of the freight being of a perishable character, the loss, we regret to learn, will be considerable. It is fortunate, however, for those who owned the goods, that the proprietors of the line which shipped them, are abundantly responsible, and will pay the entire loss as soon as the amount shall have been ascertained.

LONG ISLAND RAILROAD.—We learn that nearly two millions of Dollars were subscribed for the Stock of this Company, being an excess of half a million over the capital. The books were also opened in Kings, Queens and Suffolk counties, where it is supposed that upwards of half a million more of Stock will be subscribed. It is certain therefore, we presume, that this work will be speedily completed.

AUBURN AND SYRACUSE RAILROAD.—Extract of a letter from Auburn, dated May 6:—

"Yesterday the Engineer, Mr. Johnson, returned here, and is very favorably impressed from the experiment made in running the first line. He made the distance 26 1-8 miles—at no place a declivity of more than 31 feet to the mile. The ground is feasible and the surface favorable the whole distance, and the work can be accomplished at a less expense per mile, than the Utica and Schenectady Railroad. You are aware that this is necessarily a part of the great railroad which will be continued from Utica to Lake Erie, but you may not know, that the charter confers the privilege of transporting goods, as well as passengers."

BUFFALO AND DUNKIRK.—On the 8th of April, Dunkirk, the proposed termination of the New York and Erie Railroad, was free from ice. On the 8th of May only, as will be seen by the annexed article from the Buffalo Evening Advertiser of that date, was the Buffalo harbor free from ice. A difference of one month!

[From the Buffalo Commercial Advertiser.]

Our Marine List affords a gratifying evidence, that the siege has at last been raised which has for months so effectually embargoed our steamboats, brigs, schooners, &c. Last evening, the steamboat Ohio made a demonstration against the besieging enemy, and ascertained the practicability of a passage, and this forenoon a gallant squadron of between thirty and forty sail, left port in fine style, before an easterly breeze.

Several arrivals have already been made, and we may expect a fleet of the canvassed winged messengers of commerce, with the first favorable wind.

Erie Canal.—We understand that about two hundred boats have been detained for a day or so, at a section of the Canal about eight miles east of Lockport, in consequence of the water having been drawn off from that portion for the purpose of making repairs at a spot where a breach was apprehended. We are informed by a gentleman arrived this morning from Lockport, that the Superintendent stated the repairs would be completed to-night, and the water again be let in to-morrow morning.

[From the Buffalo Commercial Advertiser, May 7th.]

The steamboat Sandusky, which started from the landing at Black Rock yesterday, on her return trip to Detroit, was surrounded by the floating ice in the river, and finding herself unable to force her way against the overwhelming power of the descending masses, was carried down as far as the head of Grand Island, where she brought up, with the loss of both anchors. She last evening proceeded on her way up the Lake.

A Bull Fight with Steam.—A few days since, as the locomotive steam engine was passing along the Columbia Railroad, the engineer espied a noble bull driving across the field, apparently to give battle to the machine. He was coming at the top of his speed, his tail stuck right into the air, and his head down, as if for immediate attack. As the bull errant rushed onward, the director checked the car, and received the blow upon the front wheel.—The animal recoiled several steps—the puffing of the steam pipe seemed to challenge him to a second onset, and on he came, bellowing and tearing up the earth, while his eyes seemed to shoot forth baneful fire. The engineer thought that his safety consisted in moving—he therefore put on the whole head of the accumulated steam, and the car started like the wind. The enraged beast struck short of his aim, he missed his footing, and rolled down a high embankment, to the infinite gratification of those who had watched his behaviour, and to the glory of the engineer.—[U. S. Gazette.]

Steam Engines.—Among the contracts which Mr. Philips, one of our Engine builders, is now filling, (says the Wheeling Gazette) is one from Cheraw, South Carolina, for an engine to be used on the Pee Dee river. What a train of thought is here opened to the mind;—a town in the West, which a few years ago contained but a handful of inhabitants, now furnishing steam engines to the southernmost parts of this wide union! The one spoken of can be sent to its place of destination either by way of New Orleans or Baltimore. If by the former, the freight will be half a cent per pound—insurance one per cent, on the cost; if by Baltimore, it will be taken from here in wagons on the national road, at a charge of one cent per pound—no insurance. The whole cost of delivering it in Cheraw, it is supposed, will be 400 dollars, making the cost of the engine there about four thousand, and saving to its owners from 500 to 1000 dollars over one obtained from the Atlantic workshops.

Steamers to New York.—We understand that Dr. Church, of this town, has recently proceeded to Liverpool with models of his engine and boiler, for the purpose of submitting them to several eminent practical engineers of that place; and we are informed that so decided is the opinion there of their applicability to marine purposes, that a company is in course of formation to establish a line of steam packets, to be worked by them between that port and New York, and that it is confidently expected the passage will be made in ten or twelve days.—[Birmingham Gaz.]

Improvements in Greece.—An iron Railway has been contracted for, by the Greek government, with the banker Feraldi, to run from Athens to the Piræus. Shade of Themistocles, look down!

New Invention.—Capt. E. Larkin of St. John, has invented a machinery, simple in its construction, and that can at a very small expense, be attached to the rudder of any vessel, that will on a dial at the rudder head, show the distance the ship has sailed and only the actual distance, for if the ship should at any time go astern, the distance so gone astern is taken off the dial, and the true distance gone ahead only is shown. Should it answer the purpose anticipated, it will be a great benefit gained in navigation, as at times it is of the greatest importance to know the distance sailed; for instance, having a given distance to run in a fog at night, it may be done with safety—this machinery giving the true and absolute distance, which has not yet been ascertained with certainty by any method, with the simplicity of this invention; as much depends in the usual method on judgment, the steadiness of the wind, and the state of the atmosphere acting on canvass having in ordinary cases great effect on the rate of sailing, in both of which cases the judgment is very liable to error; this machinery invented and exposed to the action of the wind, instead of the water, would at any time with equal accuracy give the velocity of the wind; the neatness and compact state of the invention, does much credit to Capt. LARKIN'S ingenuity and mechanical talent.—[St. John. N. B. Courier.]

[From the New-England Farmer.]

Manufacture of Axes by New Modes.

Mr. Fessenden,

Dear Sir: If you think it an object, as I do, to show the ingenuity of Yankees in competing with foreign nations by their inventions and labor-saving machines, the following is at your service. It will afford new evidence of the onward march of improvement.

WILLIAM KENNICK.

Being lately at Douglas, Mass., I was invited by my friend, Griffin Clark, Esq. of that place, to visit the Manufactory of Axes, belonging to Messrs. Hunt & Co. At this establishment, about 500 axes and hatchets are manufactured in a day, of all descriptions, and of the most beautiful and perfect workmanship, and chiefly by a new mode. Besides adzes, and a variety of other species of edge tools, I noticed the Pittsburg broad-axe; it is not deep, but the broadest of all I have ever seen; the edge straight, and about sixteen inches in its width; its form resembles the ship-carpenter's axe,

The Kentucky axes differ from our chopping axes, only in being heavier, and having a very long bit. The chopping axes and all of larger size are formed in the usual way by doubling the iron; but all of a smaller description are formed by a new and more expeditious mode. Bars of cold iron, about an inch thick and four inches wide, more or less, according to the size of the intended axe, or hatchet, are cut into suitable lengths with ponderous shears.

These pieces being cast into the forge and brought to the required heat, are cleft at one end, and into this cleft a tongue of cast steel is inserted; then being again heated, the complete union of the iron and steel is effected with the hammer. These being subjected anew to the fire, are laid on edge in a mould, and a single and powerful blow, or pressure of an engine, completes the profile of the small broad-axe or hatchet, and this blow being repeated a second time, renders the outline still more perfect. They are next transferred to another engine, furnished with a die; in this the axe is laid, and a heavy weight of iron similar in size to those employed in driving piles, being drawn up suddenly by water power, completes the form of the axe by its fall.

Another engine is about going into use, which will give to the rough and oblong section of a bar of iron the form of a perfect and beautiful axe or hatchet at a single and instantaneous operation. Thus are these instruments formed; but the eye for the insertion of the handle is made by boring through the cold and solid iron. The axe being fixed in a firm position above, a vertical drill of species of auger perforates them from below. This auger has a three-fold motion. First, a revolving motion on its own centre. Second, it moves in an orbit, which is that of a very eccentric ellipsis, corresponding with the form of the eye. Third, a vertical or upward motion at intervals, and at each time it has completed a revolution in its orbit.

An axe is bored in about twenty minutes; and one man will attend to twenty-five augers or axes; and another man is sufficient to sharpen the drills or instruments for the same.

Respectfully, your friend and obedient servant,
W. K.

WHEAT CROPS DESTROYED BY FIELD-MICE IN FRANCE.—From Angerville, it is stated that the ten bad crops which have occurred during the last fifteen years have almost ruined our cultivators, and have caused many farms to be tenantless, the occupiers returning them on the hands of the landlords as the leases fall in. One proprietor alone in this district, has now five or six farms in this predicament. The cause of all this distress is attributed to the field mice. They devastate every spot, and this year they have invaded fresh districts, and some growers have delayed sowing their wheat till spring, there being no chance of protecting it from these vermin; and in such cases the mice have forsaken the fields where they could not find subsistence, to prey on the seed in situations where such precaution had not been used.

VALUE OF HOPS IN DISEASES OF THE SKIN.—One of the best external applications for many eruptive diseases of the skin is a strong decoction of Hops, in which the limbs or other affected parts are to be bathed several times a day. The decoction should not be used until it has become perfectly cold. In bad ulcers of the leg, the most satisfactory results have been repeatedly realized from this simple preparation.—[Med. Intel.]

[From the Journal of the Franklin Institute.]

DETECTION OF ADULTERATIONS IN FLOUR.

M. Dubuc, senior, of Rouen, has applied himself with success to the detection of farinaceous mixtures in wheaten flour. The principal substances with which flour is adulterated are potato starch, a fecula; beans, barley, chalk, plaster of Paris, &c. An extract from his memoir is published in the last Bulletin of the Society of Encouragement, from which the following is taken.

There are two methods of detecting adulterated flour, mechanical and chemical. In France the adulteration is principally with potato starch, as it renders the bread whiter and heavier. If there be more than ten per cent. of potato starch, it may be detected by the naked eye, or with the aid of a magnifying glass; the fecula is whiter, the particles are angular, and reflect the rays of light, like minute crystals. To render the discovery more easy, M. Dubuc dries the suspected flour in a sand bath, at 100° to 110° of Fahrenheit; and then, with a good magnifying glass, so small an adulteration as five per cent. may easily be detected.

But if the miller has been cunning enough to grind the potato starch with the wheat, other means of detection must be had recourse to.

The first is, from the great difference between the specific gravity of wheat flour and potato starch.

The second is, that flour contains a certain per centage of *gluten*, and the starch does not contain an atom of gluten.

First Method.—A vessel that will contain one pound of flour, gently pressed down, will contain a pound and a half of *fecula*; from these data the relative portions of flour and fecula, in any parcel of flour, may be easily ascertained very near the truth.

Second Method.—The best flour contains about twenty per cent. of gluten, and, as we have stated, the starch not an atom.

Experiment.—Take five ounces of pure wheat flour, and two ounces and a half of warm water; mix and work it well for about ten minutes; the paste will be firm and elastic. Let a little warm water fall continually upon it, while you continue to knead it; by this means, all the starch and saccharine mucilage will be extracted. The operation is finished when the water flowing from it ceases to be white; what remains is gluten, the weight of which will be about one ounce. If the flour be adulterated, the paste will be more liquid, less cohesive, and less elastic, and an intelligent baker will soon be able to discover to what extent the flour has been adulterated, from the appearance of the paste, &c.

Such are the mechanical means that may be employed with success.

Employment of Chemical Agents to discover Frauds in Flour.—It will be well to begin with, that wheat flour is an animal matter, (*matiere animale azotee*), and that, on the contrary, fecula, or the starch extracted, pure from cere-

als, is entirely of a vegetable nature: from this difference results the varied effects of the re-agents employed.

The three chemical tests which have been found best for general use, are nitric and muriatic acid, and the liquid nitrate of mercury, (*deuto nitrate*.) Their chemical effects on flour and fecula are as follows:

1. Nitric acid has the property of coloring wheat flour of a fine orange yellow, whereas it neither affects the color of fecula nor starch.

2. Pure muriatic acid colors good wheat flour of a deep violet, but dissolves fecula and starch, and forms with it a light, colorless, viscous fluid, decomposable by alkalis.

Experiments with Nitric Acid of 40°.—Take 100 grains of pure wheat flour, pour on it 100 grains of nitric acid, (aqua fortis,) in a small earthen or China cup, stirring it with a glass tube, it will heat a little, and in a few hours it will change color from yellow to a fine orange color.

Take 100 grains of fecula, and pour on it 100 grains of nitric acid; heat it in every respect the same as above, but no caloric will be evolved, and the mixture will not change color.

Take of flour 80 grains, and of fecula 20 grains, and of acid 100 grains; mix well; the color will now be much paler, and of a light citron color. Take 50 grains of flour, and 50 grains of fecula, and 100 grains of acid; mix well; the color is now much paler than before, so that, with a little practice, the quantity of fecula may be detected by the greater or less intensity of colors.

Experiments with Muriatic Acid of 21 Degrees of Strength.—Take of wheat flour and acid, each 100 grains; mix well; the color will become at first red, then violet, and finish by becoming of a beautiful indigo color. This operation is accelerated if a gentle heat be applied.

Take 100 grains of fecula, and 100 grains of acid; the mixture is at first of the consistency of paste, and then becomes liquid; the fecula is dissolved, and the solution *colorless*.

On varying the proportions of flour and fecula, we shall soon be able to ascertain the quantity of fecula in a sample of suspected flour.

Experiment in the Liquid Nitrate of Mercury.—Take of flour and nitrate each 100 grains; mix well with a glass tube or rod. The paste will at first be of a pale citron, then reddish, and in three hours will become a full red. The color is permanent.

Take 100 grains each of fecula and nitrate; they will not combine, nor will the color of the fecula or starch be acted upon.

By mixing flour and fecula in different proportions, and observing the colors, we may soon be able to detect the proportions in which flour is adulterated by fecula or starch.

It may also be observed, that fecula absorbs less water than flour, which affords a ready means of detection.

The adulteration with bean or pea flour may be detected by pouring boiling water upon it, which develops the peculiar smell of these two substances.

We may add, that the adulteration with chalk, or gypsum, may be detected by pouring a diluted acid on the suspected flour, as an effervescence will take place, and carbonic acid gas be disengaged.

Experiments in Assaying.

To the Editor of the Mechanics' Magazine:

SIR,—I am engaged in the iron trade, and had an intention to erect a blast furnace a few years since for smelting iron from the ore of a new bed, and was naturally desirous, before doing so, to ascertain as nearly as possible what were its qualities. I therefore commenced assaying it and some other ores found in the neighborhood; but I soon concluded that the methods described in the books, which direct the use of "calcined borax, pounded bottle glass, chalk, &c." were not suited to the object which I had in view, namely, to ascertain what kind and quantity of iron might be expected from the ore when used in the large way in the blast furnace. I therefore laid those articles aside, and continued my experiments with the same materials which I expected to use when working the furnace; and the following memoranda show some of the results obtained.

December 2.—Roasted 3 specimens of brown hematite ore:

No. 1	lost in weight	16.01	per cent.
2	do.	18.52	do.
3	do.	14.58	do.

Assayed 2	14	3	of the above ore with
	8	0	of limestone,
	8	0	of clay,
	10	0	of pounded charcoal.

The above, after being three hours in the furnace, produced 1 oz. 9 dwts. 9 grs. of metallic iron, equal to 54.27 per cent. The iron was tough, like the iron from a blooming fire.

Note—This experiment was not very satisfactory, on account of the iron not forming a good button at the bottom of the crucible.

No. 5. Assayed—

1	15	0	of roasted ore, with
	5	12	of clay limestone,
	5	12	of clay,
	7	6	of pounded charcoal,
	13	4	metallic iron.

The above produced, after 3 hours' heating, 1 oz. 13 dwts. of iron, which, after deducting the 13 dwts. of metallic iron added to the charge, left 19 dwts. 20 grs. for the produce of the ore, equal to 56.66 per cent. The slug was rather tough and infusible; the specific gravity of the iron, 7.238.

The foregoing, I dare say, is as much as you will desire at one time. Should yourself, or any of your readers, desire more, I shall be happy to furnish you with further extracts, and remain,

Your obedient servant,

J. D. W.

Vergennes, April 13, 1835.

NEW-YORK AMERICAN.

MAY 9-15, 1835.

LITERARY NOTICES.

THE WORKS OF MRS. SHERWOOD, vol. IX., uniform edition. New York, HARPER & BROTHERS.—We have in this volume the commencement of the *Lady of the Manor*—the well known series of conversations on the subject of Confirmation—printed with all the accuracy of the preceding volumes.

THE NATIONAL CALENDAR AND ANNUAL OF THE UNITED STATES, for 1835: vol. XIII. Washington, PETER FORCE.—This annual becomes every year more valuable, and more explanatory of the progress of the government, in the creation of offices, if nothing else. It has almost all the information contained in the famous "blue book"—which is only for members of Congress—besides the annual reports from the public departments, the tariff, &c. &c. Americans who interest themselves in public affairs, and all Americans going abroad, should have this Calendar.

THE ELEMENTS OF GREEK GRAMMAR, by R. VALPEY, D.D. F. A. S., with additions by C. ANTHON, Jay Professor of languages in Columbia College.—New York, W. E. DEAN. This is the tenth edition of this Grammar—a symptom that amid the march of mind projects, which sometimes threaten to overthrow the classics, the study of Greek yet holds its way.—The first edition was published about five years ago.

THE FLOWER GARDEN OR MONTHLY CALENDAR OF PRACTICAL DIRECTIONS FOR THE CULTURE OF FLOWERS, by MARTIN DOYLE, author of "Hints to small Farmers," "Practical Gardening," &c.—1st American edition, adapted to the climate of the United States, with notes, &c., by L. D. GALE, M.D. Prof. of Chemistry, &c.; New-York MOORE & PAYNE. This is a pretty, and as far as we can judge, a useful and judicious guide to those who love Flowers, and have the taste to cultivate them. It is plainly and perspicuously written, and adopts the form of a calendar, giving under each month the duties of that month, and the flowers to which care should be given.

THE NORTH AMERICAN ARITHMETIC.—Part third—for advanced scholars—by FRED. EMERSON, late Principal in the department of arithmetic of the Boylston School, Boston. Boston, RUSSELL, ODIERNE & METCALF. J. F., COLLINS & HANWAY.—The testimony borne to the excellence of this treatise, by those most competent to form a right judgment, the Professors of various colleges—and teachers of schools—who unite in praising its perspicuous arrangement, and clear elucidations—dispense us from saying any thing further than to express our full assent, so far as we have found leisure to examine the work, to those praises. It should be added, that the public School Committee of Boston, upon the application of the masters of the schools, have discontinued the books on arithmetic previously in use, and substituted these—viz: parts I., II. and III. of Emerson.

THE ALEXANDRIAN, Nos. 1 to 15;—price 6 1-4 cents each, being a republication of valuable Literary and Scientific works; New York, WM. PEARSON.—Assuredly, if readers do not multiply in these days, it is not from want of temptation, or opportunity, for the best works are thrown, as it were, at their feet, for comparatively a song. Here, for instance, we have bound up in a handsome volume, of some 450 pp. double columns and small type, fourteen numbers of the Alexandrian, containing both series of Dr. Israeli's Curiousities of Literature, and his Essay on Literary Character;

the whole for the sum—in numbers—of eighty-eight cents! In No. 15 *Combe's* capital book on the Constitution of Man, &c., is commenced.

NEW YORK AS IT IS IN 1835. New York. J. DISTURNELL.—A pretty little volume, containing a notice of all the institutions, literary and commercial, of this great city—a general description of the city and its environs, with maps, &c.—making a useful pocket companion and book of reference.

TOUGH YARNS, a series of Naval Tales and Sketches, by THE OLD SAILOR—author of *Greenwich Hospital*, &c. 2 vols. Philadelphia. E. L. CAREY & A. HART.—Our taste does not lie this way it may be—or perhaps because it has been over exercised by the multiplicity of sailor stories—but the fact is, we do not much admire these "tough yarns," though they are faithful delineations enough, we dare say, of the life and incident^s they purport to describe. They lack interest, however, after Capt. Marryatt's stories.

THE HIGHLAND SMUGGLERS. By the Author of the *Kussibesh*, &c. 3 vols. Philadelphia—E. L. CAREY & HART.—This is a change of scene, though scarcely of incident, for this writer; for it is still of wild mountain regions and lawless tribes that he writes—though the circumstances of climate and country, where the scene is laid, divest these volumes of the gorgeous accompaniments of his Eastern stories. The Highlands of Scotland, their scenery, manners and wild denizens including man, are delineated with the author's practised hand in these pages—which, from a hasty glance, at them, will not fail, we apprehend, to interest.

DOMESTIC HAPPINESS PORTRAYED: OR, A REPOSITORY FOR THOSE WHO ARE AND THOSE WHO ARE NOT MARRIED; 1 vol. New York, CHARLES HUSBELL.—This is mainly a republication of an old book, with however some prize Essays written for the present volume, and several other original papers, now published for the first time.

It is a compilation from writers of acknowledged merit, in honor of the married state, and laying down rules and inculcating precepts for better assuring the happiness of that state. It is consequently a book that interests, as it is adapted to, both those who are, and those who hope to be, married.

MECHANICS' MAGAZINE AND REGISTER OF INVENTIONS, &c., for May. By D. K. MINOR, N. Y. THE APPRENTICES' COMPANION; No. 2. By D. K. MINOR.

Both these publications address themselves so immediately to the interests as well as the intelligence of the mechanics, that we have only to repeat the high estimate we put both upon the design and the execution of these periodicals.

STANDARD WORKS OF THE SOCIETY FOR THE DIFFUSION OF CHRISTIAN KNOWLEDGE; Nos. I., II., III., IV., V., VI., and VII. Price 6 1-4 cents, New York, ISRAEL POST, agent, 80 BOWERY.—On the appearance of the first number of this cheap and most laudable publication, we expressed our hearty concurrence in its object, which is—mainly—to put into the hands, or at least within the reach, of all, the best and most approved treatises in vindication of the authority and truth of the Bible; and to do so in the same cheap and accessible form, in which so much infidel poison is circulated; the bane and antidote being thus before the public, they are free to choose, and the peril of a wrong choice, none can absolve them from. The first six numbers comprise Bishop Watson's Apology for the Bible, in letters originally addressed to Thomas Paine, in refutation of the second part of his *Age of Reason*, and the Apology for Christianity, addressed in like manner to the historian Gibbon, in reply to the

famous chapters xv. and xvi. of his *Decline and Fall*, purporting to be "a candid but rational inquiry into the progress and establishment of Christianity." The general assent yielded to the arguments and eloquence of these two "Apologies" abundantly justify their selection, to head the list of "Standard Works."

No. VII. is devoted to a more modern, but not less admirable tract—that of Archbishop Whately, entitled "Historic Doubts relative to Napoleon Bonaparte." The happy idea of taking the arguments of philosophical doubters, such as Hume, and using them to disprove an acknowledged existence—like that of Napoleon—in order to show the fallacy of such arguments when arrayed against the Bible—is most happily carried out in this publication: and he who will read it, and then compare it, with Hume's essays, will admit we apprehend, that the fact of such a personage as Napoleon having lived and acted in our day, is to say the least, as questionable, as the authenticity of the Bible or of the miracles it records.

BACHELER'S RELIGIOUS MAGAZINE, &c. Vol. I. No. II. By ORIGEN BACHELER, New York.—After a considerable interval, we are glad to find this second No. published; since we are well assured, that, the more light is thrown upon the subject of the idolatries and false religions of other days, and other lands, the firmer will be the conviction of the truth of the Christian dispensation, which enlightens and improves, our own.

SUMMARY.

We relate the following circumstance without fear of being accused of merely telling a *snake story*, knowing the facts from the most unquestionable authority. A few days since, but a few miles distance in Jersey, a large hawk, seemingly in great hunger, was discovered hovering over the barn yard of a cottage, eagerly watching his opportunity to pounce upon the poultry below. After repeating his visits for a few days, he was fired at, but being missed, did not afterwards make his appearance. In the course of a few days the gentleman who made the shot was walking over the neighboring grounds, when he discovered a dead hawk, apparently but a short time deprived of life. Upon examination, the cause of the hawk's death was discovered to have been the swallow of a living rattlesnake, which had eaten out of the stomach of the bird, and nearly through the skin near the craw. The snake was about eleven inches long. The hawk was no doubt the same that eagerly watched the poultry, but fearing to return, and becoming famished for want of food, was obliged to eat his snakeship. The stomach of the hawk contained no food—it was stuffed, and now graces the private collection of a naturalist.—[Gazette.]

[From the Journal of Commerce.]

FROM BERMUDA.—By the schr. Brilliant we have Bermuda papers to April 28th, and a letter of the 29th.

The Colonial Legislature met on the 27th. The Acting Governor, in his speech at the opening of the session, said, "It affords me much gratification to be able to state that the great measure of granting unqualified emancipation to the slaves, which engaged the attention of the Legislature during its last session, has been followed by no interruption of the public tranquillity. Since the abolition of slavery, there has been no perceptible increase either of crime or vagrancy in this community, and I confidently hope that the liberal course so unanimously adopted by the Legislature of Bermuda, will tend to the general prosperity of the Colony." Correspondence of the Journal of Commerce.

Hamilton, Bermuda, April 29, 1835.

The ship Henry from Liverpool bound to Mobile, came into St. George's yesterday, having in tow the barque Americ, from Matanzas bound to Hamburg, laden with coffee and sugar, which vessel she fell in with in a sinking state. Report says that the master of the America promised the master of the Henry one half the value of the vessel and cargo—if he should succeed in getting her into port. The agents have however put them into the Admiralty Court. I cannot at present give further particulars, as my messenger of to-day has not yet reached her.

Perhaps at no time from the earliest history of the United States, has every branch of industry been so prosperous as at this moment. The merchant, mechanic, and farmer, is each enjoying unusual prosperity. Real estate is rapidly advancing, not only in our large cities, but in all our towns and villages, and the ability to produce, and consume, all the necessities of life, is increasing at a rapid rate. What can be the meaning of all this? We think we can name one of the causes. The wonderful change in respect to the use of intoxicating drinks throughout the whole Union, is operating on its prosperity, to an almost incalculable extent.—The farmer has discovered that stimulating drinks are not necessary to the culture of his farm; he has discovered that to produce grain for the brewery, or distillery, is a dead loss to the community. Just in proportion as the use of intoxicating drinks diminishes, the riches of the country increase.—If, therefore, our men of wealth desire to have their property confirmed and raised in value,—if they wish to see their warehouses filled with the products of the farmer, and their country unchecked in its prosperity,—let them use every proper means to disseminate, through the press or otherwise, the great principles of Temperance, so that every family in the Union may hear and know its health and wealth-giving power. From calculations, which we believe entitled to full credit, it is found, that on an average, each of the 2,000,000 of families, in the country, have been consuming to the extent of \$50 per year, in strong drink; and it has been supposed that the consumption in this way of one dollar, occasions in some way, the loss of another, so that the yearly loss to the nation, by its consumption of intoxicating drinks, has amounted to about 200,000,000—a mighty sum indeed, a sum totally lost to the country, and expended without receiving any equivalent benefit.

At this time, (such is the intelligence of the mass of the people) nothing is wanting to induce them to adopt the principles of the Temperance reform, and save all this enormous, and useless, expenditure of time, and money, and of suffering not to be estimated, but facts and sound argument—such facts and arguments as may be commanded and spread far and wide, by means of the Press—if that Press is only supported by the wealthy and the influential. It is believed that every dollar thus far expended to scatter information on the subject of temperance, has saved a thousand to the nation, and will continue to save at the same rate for years to come.—[Communicated.]

FLOUR.—The price of this article, which had risen recently, is said now to be pausing. Some accounts from Rochester to-day, however, which we have seen, quote wheat there as from 9s. to 9s. 6d. per bushel, which does not look like a fall in the price of flour. The supply, it is said, will not by any means equal that of last year.

The remains of Gen. Leavenworth are on board the ship Yazoo, under charge of Major Belknap, and are to be taken to Delhi, N. Y., for interment.

[From the N. Y. Daily Advertiser.]

The New York Sunday School Union held their nineteenth anniversary on Monday. In the forenoon the Schools assembled at their various churches and in the afternoon assembled in the Park, where Hymns of Praise were offered up. They were addressed by the Rev. Mr. Cox, of London, and the exercises were closed by a Prayer from the Rev. Dr. Milnor. In the evening the Society held their meeting in the Chatham street Chapel.

E. Lord, Esq., was called on to preside. The Rev. Amos Sutton, opened the meeting with prayer. Mr. Horace Holden then read the report of the last year's proceedings, by which it appeared that the number of scholars had considerably increased. After the report was read, the meeting was addressed by the Rev. E. W. Baldwin, the Rev. R. W. Dickenson, the Rev. T. M. Krebs, Mr. T. A. Packard, Secretary of the American

School Union, and the Rev. Dr. Milnor. The Rev. Dr. Matthews, then closed the meeting with prayer and it separated about 10 o'clock.

For the annexed abstract of the annual Report we are indebted to the Editors of the Observer:

The Sabbath school system was introduced into New York in 1816. The number of schools under the care of this society is now 67, conducted by 965 male and 1,030 female teachers; total, 1,995, of whom 1,633 are professors of religion, 626 have been pupils, and 101 have professed religion since the last report.

The number of pupils is 13,303, viz.	
4,401 white boys.	5,542 white girls.
382 col'd boys.	478 col'd girls.
131 col'd adults.	273 col'd adults.

5,916	7,393
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Of the pupils, 142 have made a profession of religion since the last report. Thirty teachers and eight pupils have commenced preparations for the ministry during the year. Sixteen teachers and 88 scholars have died during the year. Sixty-three libraries contain 21,874 volumes.

The 104 teachers and 142 pupils who have united with the church, added to the former aggregate of 3,483, make 3,729. The 30 teachers and 8 pupils who are preparing for the ministry, added to the last aggregate of 281, make 319.

Many of the schools now have infant classes connected with them, and much good is anticipated from this measure. In 23 of the schools there are 1,456 infant scholars.

It is supposed that this city contains from 40,000 to 50,000 children between the ages of 4 and 16. The Board believe that the number of pupils in the Sunday schools of the Methodist, Episcopalian and Reformed Dutch churches not connected with their Union, is about equal to that of the churches attached to the Union, so that the whole number of Sunday scholars in this city is about 25,000.

LAND SALES.—Notice is given, by proclamation published in the Government papers, that public sales of land will take place at the places and times following, viz:

At the land office at Detroit, in the Territory of Michigan, commencing on Monday, the 10th day of August next.

At the land office at Mineral Point, in the Wisconsin district, in the Territory of Michigan, commencing on Monday, the 7th day of September next.

In the State of Indiana, at the land office at Laporte, on Monday, the 7th day of September next.

At the same place, in continuation, commencing on Monday, the 21st day of September next.

At the land office at Fort Wayne, on Monday, the 12th day of October next.

At the land office at Danville, in the State of Illinois, commencing on Monday, the 21st day of September next.

THE MICHIGAN WAR.—The National Intelligencer of yesterday publishes the annexed letter from Columbus, Ohio, affording the most recent intelligence of the state of this—war.

COLUMBUS, May 7, 1835.

Gentlemen—The Governor and his suit, Commissioners, Chain-carriers, &c. arrived in this city last evening, being unable to finish the running of the line, in consequence, as they state, of the superior force of Michigan. The Governor intends to convene the Legislature about the first Monday in June, for the purpose of asking an appropriation to defray the necessary expenses of such a force as he may deem necessary to accomplish the intention of the Legislature, in the act of last session, providing for the resurvey of the boundary line, and the extending of jurisdiction over the territory in dispute. I think that the appropriation will be made, though it will meet with considerable opposition. Yours, &c.

By the Buffalo Commercial Advertiser of the 9th inst., we find that Messrs. Rush and Howard, "the Commissioners," as they are called of the President, to the State of Ohio and the Territory of Michigan, had arrived in that city.

Green peas and fine Green Turtle were on the dinner tables at Barnum's City Hotel on Saturday last. At Page's Hotel on Saturday, Sheephead, Lobsters and green Peas, were served up.

HEAD QUARTERS OF THE ARMY.

Adjutant General's Office,
Washington, 1st May, 1835.

[Order No. 24.]

Promotions and Appointments in the Army since the first of January, 1835.

1—PROMOTIONS.

Corps of Engineers.

Second Lieutenant Alexander H. Bowman, to be First Lieutenant, 21st January, 1835, vice Tuttle, deceased.

Brevet Second Lieutenant Frederick A. Smith, to be Second Lieutenant, 21st January, 1835, vice Bowman, promoted—(brevet 1st July, 1833.)

First Regiment of Artillery.

Brevet Captain Justin Dimick, First Lieutenant, to be Captain, 6th April, 1835, vice Churchill, promoted.

Second Lieutenant Edmund French, to be First Lieutenant, 25th February, 1835, vice Ramsay, appointed Captain of Ordnance.

Second Lieutenant William Palmer, to be First Lieutenant, 6th April, 1835, vice Dimick, promoted.

Brevet Second Lieutenant Thomas A. Morris, to be second Lieutenant, 25th February, 1835, vice French, promoted—(brevet 1st July, 1834.)

Brevet Second Lieutenant R. T. P. Allen, to be Second Lieutenant, 6th April, 1835, vice Palmer, promoted—(brevet 1st July, 1834.)

Second Regiment of Artillery.

Second Lieutenant John C. Casey, to be First Lieutenant, 30th April, 1835, vice Mercer, resigned.

Third Regiment of Artillery.

Brevet Major Sylvester Churchill, Captain of the 1st Regiment of Artillery, to be Major, 6th April, 1834, vice Brooks, promoted.

Fourth Regiment of Artillery.

Brevet Lieutenant Colonel Alexander S. Brooks, Major of the 3d Regiment of Artillery, to be Lieutenant Colonel, 6th April, 1835, vice Jones resigned.

Brevet Captain Harvey Brown, First Lieut. to be Captain, 10th April, 1835, vice Schmuck, deceased.

Second Lieutenant William A. Thornton, to be First Lieutenant, 31st January, 1835, vice Wilson, resigned.

Second Lieutenant Thomas J. Cram, to be First Lieutenant, 10th April, 1835, vice Brown, promoted.

Brevet Second Lieutenant John H. Miller, to be Second Lieutenant, 31st January, 1835, vice Thornton, promoted—(brevet 1st July, 1833.)

Brevet Second Lieutenant James L. Davis, to be Second Lieutenant, 10th April, 1835, vice Cram, promoted—(brevet 1st July, 1833.)

Second Regiment of Infantry.

Brevet Captain John Bradley, First Lieutenant, to be Captain, 22d April, 1835, vice Clarke, promoted.

Second Lieutenant Amos B. Eaton, to be First Lieutenant, 22d April, 1835, vice Bradley, promoted.

Brevet Second Lieutenant James T. V. Bonford, to be Second Lieutenant, 22d April, 1835, vice Eaton, promoted—(brevet 1st July, 1832.)

Sixth Regiment of Infantry.

Brevet Major Newman S. Clarke, Captain of the Second Infantry, to be Major, 22d April, 1835.

Second Lieutenant Joseph D. Searight, to be 1st Lieutenant, 30th April, 1835. Vice Richardson, resigned.

Brevet Second Lieutenant John Conrad, to be Second Lieutenant, 30th April, 1835, vice Searight, promoted—(brevet 1st July, 1831.)

Seventh Regiment of Infantry.

Second Lieutenant Theophilus H. Holmes, to be First Lieutenant, 26th March, 1835, vice Newell, deceased.

Brevet Second Lieutenant Henry McKavett, to be Second Lieutenant, 26th March, 1835, vice Holmes, promoted—(brevet 1st July, 1834.)

2—APPOINTMENTS.

Staff.

Charles Mapes, to be Paymaster, 7th January, 1835.

Peter Muhlenburg, to be Paymaster, 2d February, 1835.

Samuel R. Moore, to be Assistant Surgeon, 14th March, 1835.

Alexander F. Suter, to be Assistant Surgeon, 27th March, 1835.

Ordnance Department.

First Lieutenant George D. Ramsay, of the 1st Regiment of Artillery, to be Captain, 27th February, 1835, vice Hills, deceased.

3.—CASUALTIES.

Resignations.

Lieutenant Colonel.

Roger Jones, 4th Artillery, 6th April, 1835.

First Lieutenants.

Hugh W. Mercer, 2nd Artillery, 30th of April, 1835.

Horace A. Wilson, 4th Artillery, 31st January, 1835.

Asa Richardson, 6th Infantry, 30th April, 1835.

Second Lieutenant.

Theophilus F. J. Wilkinson, 2d Artillery, 28th February, 1835.

Brevet Second Lieutenant.

Goode Bryan, 5th Infantry, 30th April, 1835.

Staff.

Benjamin R. Hogan Assistant Surgeon, 30th April, 1835.

Deaths.

Captain John Hills, Ordnance, 25th February, 1835.

Captain Jacob Schmuck, 4th Artillery, 10th April, 1835.

First Lieutenant Stephen Tuttle, Corps of Engineers, 21st January, 1835.

First Lieutenant John E. Newell, 7th Infantry, 26th March, 1835.

Second Lieutenant Walter S. Chandler, 2d Artillery, 25th January, 1835.

Staff.

Ephraim M. Blane, Assistant Surgeon, 13th March, 1835.

Samuel W. Hales, Assistant Surgeon, 30th January, 1835.

2.—The officers promoted and appointed, will report accordingly, and join their proper stations and companies without delay: those on detached service, or acting under special orders and instructions, will report by letter, to their respective Colonels.

By order of ALEXANDER MACOMB,

Major General, Commanding in Chief;

ROGER JONES, Adjutant General.

"The frigate Constitution made the passage to Havre in twenty-four days. The Commodore was requested to use all possible speed, and it seems that he did. The old ship never crossed the Atlantic so rapidly before."—[Going the rounds.

The Constitution frigate is said to be the fastest sailing vessel belonging to the United States, yet she only kept pace on her passage to Havre with the packet ship *Havre*, both having left this port on the 16th March, and both arrived at Havre on the same day, (9th of April,) the latter a few hours ahead. But the packet ship *Britannia*, which also sailed in company with the Constitution, arrived at Liverpool on the 8th, and beat the later one day in her passage. We notice this circumstance because it is generally supposed that no vessels can compete in sailing with ships of war. We question whether the vessels of war of any nation can "go ahead" of the New York merchant packets.—[Advocate and Journal.]

THE URSLINES.—We are glad to find by the annexed article in the Boston Commercial, that the rumor of recent insults to the Ursulines at Roxbury, is unfounded.

The reported attempt to disturb the Convent at Roxbury on the night of the 6th, it appears from certificates which have been shown us, is without foundation. It arose from a number of young men belonging to Roxbury, who had been to Brookline on that evening to serenade some friends, stopping a short time in front of the Convent, where they played a few tunes and sang a song.—One of the certificates shown us, is from the Lady Superior, in which she says, she has "occasion to believe no insult was intended, but on the contrary the party who stopped before the Convent were actuated by kind and complimentary feelings, as has since been ascertained, although the young ladies experienced at first very great alarm."

The Hudson paper of Monday, in reference to the persons injured by the explosion on board the steam boat *Advocate*, says:

"We are informed that J. L. Brook, Esq. is still in a dangerous situation, and has not been removed from Coeymans, that Col Butler is fast recovering, and that two more of the children of Mr. Smith have died."

FOREIGN INTELLIGENCE.

LATER FROM FRANCE.—By the ship *Citizen*, a transient vessel from Havre, there are accounts two days later than those before received.

MADRID, April 2.—The Colombian Generals Soublet and O'Leary arrived here yesterday, with powers to treat for an acknowledgment of the independence of the Republic, and have to-day had an audience of the President of the Council. The Government has received very favorable reports from the Commandant of the Provinces, as to the progress of the recruitment for the army. Hitherto, all the men called into the service have entered with the utmost alacrity, displaying great zeal and ardor. The Ordinance interdicting the soldiery from singing patriotic songs and uttering cries, has produced serious disturbances at Malaga. The Ordinance was published at the moment when the funeral of an Urban Militiaman was taking place, attended by a long train of his friends. The band which preceded the procession, having begun to play Riego's March, the Governor sent an Adjutant to order it to cease, but as this injunction was disobeyed, the armed force interfered, and a contest ensued, and the Governor became so much alarmed, that he left the town. Malaga being thus left without any authority over it, a provisional Junta, was formed, and the people demanded the re-establishment of the Constitution of 1812. The new Junta, however was fortunately composed of moderate men, who appointed a new Governor devoted to the Queen. Thanks to this energetic measure, the Carlists, who had begun to post up their proclamations were reduced to subjection and order was restored. General Lopez, on the 17th ult. received a challenge from Don Louis O'Donnell, the Commandant of the cavalry of Don Carlos to meet him with an equal number of cavaliers, armed only with their swords. Gen. Lopez replied that he not only accepted the challenge but would come to the place of rendezvous, whenever it might be appointed, with 100 men less than his adversary. A curious publication, showing the number of victims that have been sacrificed by the inquisition, has just appeared, and according to which 105,286 fell under Torquemada, 51,137 under Cisneros, 34,952 under Diego Perez.

Those who suffered under the Inquisitors who preceded these three monsters, amounted to 3,410,215. It is reckoned that 31,912 have been burnt alive, 15,659 have suffered the punishment of the statute, and 291,450 that of the penitentiaries.—500,000 families have been destroyed by the Inquisition, and it has cost Spain two millions of her children.

PARIS, April 11.

Reports have been several days in circulation of Algiers being exposed to great danger from the Arabs, and yesterday it was rumored that it had fallen into their hands. The Ministerial Evening Journal, after noticing that the reports current are more than exaggerated, gives the following:—"The Government has received news from Count d'Erion to March 29th. The tribes of the West having formed some tumultuous assemblies beyond the Chiffa, Gen. Rapatel marched on the evening of the 27th from the camp of Bouffarick, at the head of the 10th Light, two companies of Zouaves, two squadrons of the 1st regiment of African Chasseurs, a squadron of Spahis, and some pieces of Artillery, to disperse these crowds.—He was the next day at Bouffarick, and wrote as follows to Count d'Erion: 'I was this morning on the Chiffa; the Chasseurs and the Spahis crossed it at day break, and charged the crowd. The enemy did not keep his ground an instant, but had several killed and wounded in this charge, which took us more than two leagues beyond the river. In returning, the enemy followed us a league on this side of the Chiffa, renewing his flight as soon as we charged him anew. He fell into some ambuscades that I had laid for him. He had 60 men killed or wounded, and we had not a single man killed.' Count d'Erion had recommended to Gen. Rapatel to make only one *coup de main* upon these crowds of the West. The troops which occupy the camp d'Erion are under cover, and in safety, and those with which it had been judged expedient to reinforce them, have received orders to return to their cantonments."

In the following statements derived from a London paper, we find truly honorable instances of the proper use of patronage and wealth.

The following facts ought to be known: they do equal honor to Sir R. Peel's discernment and liberality:

On Monday last Mrs. Somerville received an autograph letter from Sir R. Peel, informing her in the most delicate style of compliment that the knowledge of her acquirements in science had made it his duty to submit to His Majesty the propriety of granting to her a pension on the civil list of 200*l.* a year. Mrs. Somerville's letter of thanks was accompanied by a copy of her book. The day following (Thursday last) she received a handsome acknowledgment for the book, with an expression of regret that it had lost the charm of novelty, as he had already read it in the first edition.

The Rev. Mr. Milman has also received an autograph letter from Sir R. Peel, offering this shamefully persecuted author of the admirable *History of the Jews* the living of St. Margaret's, Westminster.

Mrs. Hemans, who has employed her talents entirely for the support of a large family, having been long since deserted by her husband, was lately, within ten days, most dangerously ill. In this state, in bed, with a pencil, she wrote some beautiful verses, which were sent to her friend, the accomplished Mrs. Lawrence, of Liverpool, who sent them to a nobleman in London, who was so struck with them and the unhappy situation of their author, that he took them to Sir R. Peel, who instantly desired the nobleman to cause Mrs. Hemans' eldest son, about 18 (who has been educated gratis by Dr. Butler, of Shrewsbury,) to come to London to receive an appointment in a public office, whilst Sir R. Peel himself wrote a letter of condolence to the mother, enclosing a bank note of 100*l.* for his outfit.

HISTORY OF IRELAND by Thomas Moore.—Of the first volume, the only one that has yet appeared of this publication, which is part of the Cabinet Cyclopædia, the London Literary Gazette, thus speaks:

The learned Rudbeck, see his *Atlantica* in four volumes folio, ascribes the building of an ancient temple in Sweden to one of the sons of Noah; and, after numerous pros and cons, cautiously expresses his suspicion that "it was probably the youngest son!" In the spirit of "the learned Rudbeck," Mr. Moore has begun his history sufficiently early, though he has only thought it necessary to commence regularly with the Celtic origin of the Irish, a thousand years before the Christian era. In the after discussions, however, he makes some amends for this antiquarian and national moderation, by a few references to the deluge and antecedent times; but nothing like the Welsh pedigrees, where Adam stands about the middle of the tree; we mean the genealogical Tree, and not the Tree of Knowledge.

Under these circumstances, the first volume, which marks the accession of so popular a contributor to this monthly series, does not offer us much on which to exercise our critical propensities. Irish antiquities have often amazed and puzzled us; and having dealt with St. Patrick, Adamnan, Keatinge, Vallancey, Ledwick, Milner, O'Halloran, O'Connor, Betham, Lanigan, O'Brien, &c. &c. &c., we are the less inclined to meddle with their dicta, as likened into a new and condensed form by their distinguished countryman. Suffice it to state, that the results of Mr. Moore's reading and investigation are principally that the Irish are of Celtic origin, and very early connected with the east, probably with Persia;—that their intercourse with the Phenicians was also anterior and superior to that of Britain, and that the "Sacred Isle" was peculiarly famed and glorified;—that the round towers were fire temples; and that very considerable civilization prevailed before authentic dates can be attributed to historical facts;—that letters and learning were cultivated by the first Druids; and that they were different from the Milesian or Scotic, as they were from the Belgic or Gaulic races;—that they were also different from the Welsh, who are of Pictish and Cimbric origin;—that Argyleshire was conquered by the Irish and the kings of Scotland, descended from them;—that the pretensions of Scottish writers are groundless forgeries, and Ossian a bit of a humbug;—that Christianity was introduced by readier means and in a purer system by St. Patrick, than into any other land; and that Ireland has been grievously oppressed and betrayed, almost ever since it sprang from the sea. Accounts of the Saints, and a good deal about the Paschal controversy, complete the volume.

[From the Gazette des Tribunaux.]
The Mysterious Deposit.
 COUR ROYALE DE TOULOUSE.

No doubt our readers will recollect the narrative we published, a short time back, of the suicide of M. Daure, the former Secretary of M. de Talleyrand. The singular circumstances attendant upon this event must have made a deep impression upon every mind.

Some hours before the fatal moment, M. Daure sent to the Abbé Marcellin, at Montauban, in whom he had long reposed the most perfect confidence, sundry papers and a trunk which was locked up, with the injunction either that it was not to be opened before the 1st March, 1835, or that the same should be delivered up to a person who would come from Paris to claim them. M. Daure's mother, who suspected that the trunk contained a considerable sum of money, demanded to have detailed particulars of its contents. The Abbé Marcellin declined to allow the secrecy of the deposit intrusted to his friendship and discretion to be violated. In consequence of this refusal, and of the persistence of Madame Daure, the Royal Court of Toulouse was called upon to decide the disputed point.

Before the discussion of the legal question by the advocates, the Abbé Marcellin conceived it to be his duty to state the facts which had forced him to appear before the Court.

"On the 19th of November last," said he, "I returned home from the country at about ten at night. I had already retired to rest, when a message was brought to me requiring my immediate attendance at a house which was named to me, for a very pressing matter. I repaired thither. 'Here is a trunk addressed to you,' said a person to me; it has just arrived; it is sent by M. Daure, who announces to us that he is about to commit suicide!"

"The person who thus addressed me did not appear to believe that this violent resolution would be adhered to. For my part I thought differently. I knew that Mr. Daure was not a man to say, 'I am going to kill myself!'—without doing so. I rapidly gathered together all the things which were addressed to me, and I prepared to set out for Penne. At midnight I was on my way; and I buoyed myself up with the hope that Daure was still living, and that I might, perhaps, save him. He was dead! In about three quarters of an hour after he had sent off the messenger with the things confided to me, he blew out his brains! On my return to Montauban, I took cognizance of the papers which had been sent to me; I had merely cast my eye over them before. Among these writings there were several which were to be read by me, and afterwards burnt. Others were to be sent to their addresses: among the latter was M. Daure's will in favor of his mother; this document was unsealed, and in his mother's absence I delivered it to his sister, Madame Vignais, in presence of an old woman, who also appeared to me to belong to the house. Among the small number of papers which I was to preserve was this letter, which I am bound to read to you, gentlemen, although it is too flattering towards myself:—it is the title by which I hold the deposit, (here the Abbé read the letter.) You must have remarked, gentlemen, the precision with which every sentence of this letter is written. I ask of you what is the signification of the following precise and clear lines, so full of calm, that one would almost be inclined to hesitate at believing they were written in the presence of death? 'No one—absolutely no one upon earth is to see it—you have no account to render to any living soul; your conscience is the only tribunal to which you have to look in this respect! * * *'

"Do you believe, gentlemen, that the man who addressed me thus could, a few hours afterwards, appoint any person 'upon earth' to look into the trunk to oblige me to 'render an account to my living soul'—to submit to the jurisdiction of any other tribunal than that of my conscience? I have not been able, gentlemen, to afford myself that melancholy, but consoling conviction, that my friend died under the influence of those hallucinations which carry off at one and the same time both the resolution and the will, and the conscience. Unhappily I had seen too clearly the foundation for this suicide to be able to attribute it to what we call madness. I confess, however, my opinion in this respect, and look upon Daure, not as a guilty suicide, but as a poor madman who was to be pitied, if the authority given to his mother (an authority which she declares she received after his communication to me) was such as she pretended: it would then remain

to have this act of suicide explained; in the midst of a series of acts which might appear extraordinary to the mass of mankind, but of which I—I know the desperate logic."

The Abbé Marcellin maintained that Madame Daure had exaggerated the financial position of her son.

"Daure," he said, "was so well known to possess nothing of his own, that all through his life the most infamous suspicions hung over him; his apparent fortune was surrounded by so much mystery that persons thought proper to spread the report that Daure was a spy for high personages. This is an atrocious calumny, which I repulse with all the energy I am capable of, and all the indignation of an enlightened conscience! Daure had so little money, Gentlemen, that a short time before his return to the south he claimed in the most pressing manner 1500 francs, which he had left in the hands of a friend before his departure."

The Abbé then explained the nature of his connection with Daure. He had never written direct to the Abbé from Paris: he spoke a good deal of him to others. Once only a letter was sent him, inclosed to one of his friends. Therein he wrote—

"I could wish to tell you several things, but cannot at present. However, you know how to comprehend so much and so well. I have sold the few things I had here, and am going in a few days to Germany. Perhaps I shall soon acquaint you that I have entered a convent of Trappists, which I once visited in the midst of the forests of Bohemia."

"This was written," said the Abbé, "in the beginning of September last, when he already contemplated making way with himself."

"I could wish, Gentlemen, that it were as clear to your minds as it is to mine, that in acting in regard to me as he did,—Daure did not look upon me as a man upon whom he was desirous to confer a favor, but of one whom he considered worthy of being made the depository of a secret,—as a man who knew all the most secret episodes of his life, who had divined his virtues as well as his defects, and who was able, as a priest, to complete the former, and obviate the fatal consequences of the latter."

"I have not been able to call exactly to mind the period when Daure quitted Montauban for the last time. I think it was in the beginning of last summer. I do not know what he was doing in Paris. All I know (for his friends have since written to me to that effect) is that it was visible to every one what a strange evolution had taken place in his character, and that disastrous projects disturbed his mind. An understanding was come to to endeavor to divert him from those dreadful pre-occupations. The Duchess de Dino conferred on the subject with M. Guizot, who had a particular esteem for Daure. The Minister wrote to invite him to call upon him the next day, at eleven o'clock. This was to inform him of his nomination to an employment which it was believed was perfectly suitable to his taste. Daure was all his life susceptible to a degree, and he became even more so as his death approached. He wrote to the minister, in answer, 'If the minister wishes to speak to me, I live in such a street—such a number.' At length he was enabled to leave Paris, and, as he said, to tear himself from his odious pursuits. I went to Germany, returned again to Paris, and quitted it again for the south. His death was inevitable; he could no longer bear up against the imperishable sorrows of which he had spoken so much to me. Every line he wrote proved this.—Thus in the diligence, seeing that a husband took offence at the attentions, full of noble delicacy, which he paid to his wife, he said to himself, 'How singular—this is the first time that a man has been jealous of death!' Daure left the diligence at a distance of two hours' journey from Montauban, and thence, during the night, in a cart, and lying upon his trunk, he took the direction of the wildest spot in the Department, Bruniquet. There his presence, and the mystery with which he constantly had the mania to surround himself, excited the attention of the gossips. As he says in one of his letters, he retreated before a set of old women, and letting his horse wander whither he pleased, plunged into the profound ravine of the Aveyron, and arrived at Penne. In his description of this wild spot he wrote, 'Here is a place which is fit to make one in love with death.' He established himself then at Penne. In the house of a respectable man, by whose delicate attentions and hospitality he was arrested for some time on the brink

of the tomb,—I only knew of his arrival at Penne eight or ten days before his death. I knew nothing of his fatal intentions, although the letter he wrote just before his death proves that they were long before matured. This, Gentlemen, is all that my conscience, to which an important secret is intrusted, permits my voice to declare to you. Do not demand proofs or explanations from me, for at the slightest question I shall cease to speak, and nothing shall force me to break silence. I am ignorant as to what the law will dictate to you relative to the cause of this suicide. I have been faithful to the last to friendship and to the dead, and I have taken for the guide of my conduct these words, the last which Daure has left us—'Remember that the dead have no other avengers upon earth than the conscience of the living.'"

The Court, by consent of all parties, ordered that seals should be affixed to the trunk; that they should not be removed before the 1st March; that this operation should not take place otherwise than in the presence of M. Cornac, Judge of Montauban, who should deliver to the Abbé Marcellin such papers as were not titles to property, as well as the letters, the said judge not to be allowed to read the addresses of those letters.

The Marquise De Crequy.

The fifth, and, we fear, the all but concluding volume of the amusing memoirs, published under the above name, has just appeared; and, if less entertaining than its predecessors, as treating of times more familiar to the general reader, contains innumerable curious anecdotes of a light nature, a few of which we propose translating for the benefit of our readers.

Fashion.—"I have seen the rise and fall of all sorts of ridiculous fashions," writes the old Marchioness. "During the time of the Regency, it was the custom to wear upon one's temples andynde plaisters, as a remedy against the vapors; and, by way of rendering them ornamental, they were adorned with small diamonds, points of cut steel, or garnets; so that they had the appearance of being nailed to the temple by an infinite number of small nails. Gold hair powder, extremely unbecoming to both brown and fair, was also in vogue; and high-heeled shoes, whose dimensions rendered it necessary to walk on the extreme points of the toes. But all these follies were nothing to the style prevalent among our fashionables immediately before the revolution. The men were shut up in tight coats, called, after the English, a frock, sloped off, so as to make an indecent exhibition of the hips, and ending in a swallow's tail. These frocks were chiefly worn of scarlet cloth, with buttons the size of a crown piece, composed of a circle of gold surrounding a watchglass, under which was seen a collection of rarities,—such as sprigs of moss or sea-weed, curious insects, diamond beetles, and cantharides. With a red coat, it was indispensable to wear a muslin waistcoat, black silk breeches, and silk stockings of blue, shot with white. The hair was dressed *à la débâcle*, with a tiny queue, and seven or eight ounces of powder on the collar and back of the coat. Two long watch-chains, each having a large bunch of gold bells, hollow acorns, or other trinkets capable of making a tinkling noise, which were called *brelouques*, completed the costume; with a little cane in the hand, such as are used by footmen for beating coats. These were said by the young courtiers to be "excellent weapons for fighting cats!"

"The head dresses of the ladies, meanwhile, had attained a most absurd elevation. Carriage cushions were necessarily abolished; and, in their stead, a slight wadding was used, about the thickness of a Montpellier scent bag. What the hair-dresser had the art of sticking on the top of a female head, under the name of *Paufs*, *Touquets en Lubie*, and *Valgalas*, is scarcely credible! Leonard, the hair-dresser (whom Monsieur used to call the Marquis de Leonard, to distinguish him from his brother, the Chevalier, who only consented to cut hair), boasted that he would dress the Duchesse de Luges, who, relying on his address, seldom looked in the glass, with one of her own chemises; and Madame Thibault, the Queen's bedchamber woman, obtained her Majesty's sanction to the exploit. The Duchess accordingly arrived at Court (luckily there was a general mourning) with one of her own cambric shifts twisted into her hair. This adventure brought similar follies into fashion, and, a few days afterwards, Madame de Luvel appeared at Court with a damask napkin for her head-dress, which every one found in admirable taste. In the

year 1785, the Marquise de Matignon chose to be a coffeee a la Jardiniere for Court, by Leonard; with a checked napkin of brown and red calico, in which appeared a head of green brocoli, an artichoke, a pretty little carrot, and some radishes. Madame Charles de Lameth exclaimed 'Lord! how delightful!—nothing but vegetables!—I doat upon vegetables!—they seem so much more natural than flowers.'

"By way of being 'natural,' too, my relation, the Countess de Clairmont Tonnere, used always to stir the salad with her fingers; and, after supper, when she amused herself with patting or boxing the ears of her 'dear Stanislas,' the Count used to exclaim—'Delicious creature! Her carresses make me hungry with the scent of Tarragon vinegar and Jamaica pepper! Those pretty little hands deserve to be eaten up!'

"A nun, it seems, would sometimes be guilty of a repartee. "When Madame de la Motte, the heroine of Maria Antoinette's diamond necklace adventure," says Madame de Cr  quy, "was shut up in the Salp  tri  re, certain of the Duchess of Chartres ladies in waiting went, on pretence of viewing the establishment, to obtain a glimpse of the criminal. At length they made a direct application for the indulgence to Sister Victoire, the Superior, who demurred, on the ground of Christian charity towards the sufferer. Madame de Blot at length insisted on the prerogative of her appointment in the Orleans family; but S  ur Victoire was inflexible. 'I did not find it written in Madame de la Motte's sentence,' she said, 'that she is condemned to receive the visit of the Duchesse de Chartres' ladies in waiting.'

Extract from a letter of Mr. John Barlow, one of the most experienced and distinguished Engineers of London, dated on the 27th February last:

"There is one source of revenue to a Coal Gas Company, fast coming into practical effect here, which promises to be of great importance, namely *cooking by gas*; I know one family who have used no other fuel for cooking for the last two years, and another who for several years have never lighted any other fire in their house, for any other purpose whatever, than *gas*; during the 3 or 4 hot months, and they both say it is cheaper, more convenient, cleaner, and the cooking better. Hundreds, and probably thousands of families will, in this country, be supplied with gas for cooking during the ensuing summer. They now roast, bake and boil by gas. The heat is always ready when wanted, and is extinguished when it is no longer required: no dust, no preparation, nor any cleaning up afterwards; the cook can leave a joint of meat either roasting or boiling, and never look at it again till the clock informs her it is time to take it up; I know a family who regularly put their meat down, and all go to Church on Sunday, locking the stove up, and leaving a capital dinner to the care of the gas. I dwell on this subject a little because in my view, it is very important, and it behoves Directors and Shareholders to give it every encouragement."

THE FLOWER SPIRIT.

I am the spirit that dwells in the flower;
Mine is the exquisite music that flows;
When silence and moonlight reign over each bower
That blooms in the glory of tropical skies.
I woo the bird with his melody glowing
To leap in the sunshine, and warble his strain,
And mine is the odor, in turn, that bestows,
The songster is paid for his music again.

There dwells no sorrow where I am abiding;
Care is a stranger, and troubles us not;
And the winds as they pass, when too hastily riding,
I woo, and they tenderly glide o'er the spot.
They pass, and we glow in their rugged embraces,
They drink our warm breath, rich with odor and song,
Then hurry away to their desolate places,
And look for us hourly, and think of us long.

Who, of the dull earth, that's moving around us,
Would ever imagine that nestled in a rose,
At the opening of spring our destiny found us,
A prisoner until the first bud should unfold;
Then, as the dawn of light breaks upon us,
Our wings of silk we unfold to the air,
And leap off in joy to the music that won us,
And made us the tenants of climates so fair!

SONG.

Give me old music—let me hear
The strains of days gone by;
Nor may thy voice in kindly fear,
If to their tones my falling tear
Should make a mute reply.
The songs that lulled me on the breast
To sleep away the noon,

Sing on—sing on!—I love them best;
There's witchery in the notes impressed
Of each familiar tune.

Give me old wine—its choicest store
Drawn from the shady bin;
Our vineyards will produce no more,
Such rare strong juice they gave of yore,
As sparkling lies within.
This was my grandf  re's chief delight,
When the day's chase was o'er;
Full high!—Full high!—his treasures bright
Should sparkle on our board to night,
Though we should drink no more.

Give me old Friends—who tried, the true,
Who launched their barbs with me,
And all my joys and sorrows knew,
As chance's gales the pilgrims blew
Across a troubled sea.
Their memories are the same as mine;
Their love with life shall last;
Bring one, bring all, their smiles shall shine
Upon our old good song and wine,
Like sunbeams from the past.

MILL-DAM FOUNDRY

ON MONDAY, June 1, at 12 o'clock, at City Hall, (unless previously disposed of at private sale,) will be sold by auction, the above well known establishment situated one mile from Boston. The improvements consist of—

No. 1. *Boiler House*, 60 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotive and other steam Engines.

No. 2. *Blacksmith's Shop*, 30 feet by 30. Fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 14 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Gearing, Shafts, Bores, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chains and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggon, could be made per annum.

For terms apply to
THOS. J. ECKLEY, Treasr. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, April 21, 1835.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

THE Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are furnished with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

Troy, N. Y. July, 1831. HENRY BURDEN, Agent.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 323 Water street, New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1834m H. BURDEN.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.

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PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept-13-17

RAILWAY IRON.

55 tons of 1 inch by 1/2 inch. Flat Bars in lengths of 200 do. 1 1/2 do. do. 14 to 15 feet, counter sunk 40 do. 1 1/2 do. do. do. holes, ends cut at an angle 800 do. 2 do. do. of 45 degrees, with splicing plates and nails to suit 800 do. 3 1/2 do. do. soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mewr

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Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glassess made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

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SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vanes sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLEY, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1832. Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833. For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
ml ly Germant. and Norrist. Railroad

Algers as she is.—Algiers is daily assuming a more European aspect; hats are nearly as often seen as turbans, cigars have replaced the long pipes and the Moorish bazaars give way to the glazed windows of French shops. Upwards of fifty merchants have established counting-houses; and a considerable number of mechanics and tradesmen, including of course a full proportion of modistes, couturiers, and perruquiers, are thickly scattered about. Eleven grand cafés with billiard-tables, four grand hotels (which are, however, execrable,) three restaurants, one hundred eating-house, two *cabinets littéraires*, one circus, a cosmorama, &c. have already been established, and cabriolets and omnibuses were shortly to ply from the Bab hazoon to Mustafa Pasha, and from Bab el habut to the Dey's country villa. The *Kasbah* is a little town in itself, containing the late Dey's palace, and several other houses and gardens. The palace has suffered much from the French soldiery; who, on first occupying it, pulled up the pavement, tore down the glazed tile coating of the rooms, and otherwise committed great injury in their eager search after treasure. The marble flooring, the arched galleries, supported by marble pillars of fantastic but graceful forms, which surrounded the open courts, the elegant fountains, which scattered coolness around, and the latticed shahnesheens, still, however, remain to pay the fatigue and trouble of the visitor's ascent. The *corps-de-garde*, with the gate, and the sycamores, banana-trees, and vines, which surround it, together with the mixture of French uniforms and Moorish costumes, formed altogether a beautiful little picture; as did also a wine-shop, shaded by a vine-covered pergola, under which were seated groups of soldiers playing at cards, drinking, flirting with some *piquantes* French *bu-nettes*, or teaching "Trompette," the *chien du régiment*, a variety of tricks.—[Major Temple's Excursions in Algiers.]

Barrack-Building at Tunis.—On speaking to the architect and engineers, and asking them to show me their plans, they at first did not quite seem to understand what a plan was: when it was explained to them, they declared they had nothing of the sort, and that, in fact, the Moors never made any pretensions to commencing a building; but that they built by the eye a certain length of wall, and that when this had been sufficiently prolonged another was built at right angles to it, and so on. What is still more remarkable, their arches are also constructed entirely by the eye, and have no frame work to support them during the process, which is as follows:—A brick presenting its broad surface to view, is placed with its edge on the buttress, where is to commence the spring of the arch; another is made to adhere to it by means of a very strong cement made of a gypsum peculiar to the vicinity of Tunis, which instantly hardens; on this brick is placed another in the same manner, and thus they proceed till the arch is completed. I saw a vault myself thus made in less than an hour and a half. These arches and vaults, when finished, are very graceful and correct in their proportions, and nothing can equal their strength and solidity. In building walls, an oblong frame about seven feet long, and as broad as the wall is intended to be, is placed on the foundations, and then filled with mortar and pieces of stone; in a few minutes the frame is removed, and placed in continuation of the line. This method appears to have been adopted in the construction of Carthage.—[Major Temple's Excursions in Algiers.]

Phrenology run Mad.—It appears that there is an *Orthophrenological* establishment at the village of Issy, near Paris, where children are received, who are incapacitated from receiving their education in a school in consequence of faulty conformation of the brain. The skulls of these unfortunate little creatures are to become the subject of physiological examination and experiment. Their encephalic mass is to be modelled, compressed, handled, and remoulded. Gall and Spurzheim merely pointed out the bumps of the different passions. They never dreamed of effacing them, and raising the bumps of virtuous propensities and genius to supply their place. They never thought of penetrating into the layers and recesses of the occiput and sinuiput, and unfolding all those connected organs and delicate net-work, where thought is formed, fixed, and developed.

This immense application of their master's system has been reserved for the bold successors of those illustrious men. They alone can have the bump of genius prominent enough to form a plan

so precious. Yet two distinguished medical men are at the head of this novel *orthophrenological* establishment. Doubtless, it will be managed by these enthusiasts with great judgment and science united. But may it not be apprehended that ignorant and covetous speculators will quickly take advantage of the credulity of the public, ever fond of the new and marvellous? And that, in these Lazarettos of human reason, wretched children will be immured whose skulls may be pronounced defective or anomalous, when submitted to the rule and compass of such empirics? They might, if left to the operations of nature, become superior characters, but will infallibly be reduced to the condition of idiots or madmen, in undergoing this process of compression and remodelling of the brain. The methodical classification of human beings into casts, according to the different degrees of their intelligence, would soon make us retrograde to the slavery of feudal times.

Imprisonment for Debt as practised in England.

Whitecross street prison is by far the largest and most extensive of the gaols in which men in this country are confined for debt. Its prisoners are more numerous, its enactments and regulations more severe, its accommodations more restricted, and its society more mixed, than those of the King's Bench, the Fleet, the Marshalsea—and we had nearly said Horsemonger lane; but we recollect that the latter is a gaol simply fit for felons, and into which it is an inhuman outrage on the first principles of justice to confine a person who has not been guilty of some marked and heinous crime. The Whitecross street prison, which has not been erected more than a quarter of a century—if so long—was built for the purpose of accommodating in one temple of sorrow, poverty and guilt, the debtor's side of Newgate, the Poultry and Giltspur street Compters, and the Ludgate prison, the three last of which were originally separate buildings in different parts of the city. The new prison was divided into wards, or compartments, named after the old gaols, and so called the Ludgate ward, the Giltspur ward, the Poultry ward, &c. Besides these, there is the Middlesex side of the prison, intended for prisoners arrested within the county, and the forty-shilling ward, for the debtors sent in by the orders of the Court of Requests, and whose embarrassments do not overtop the sum of forty shillings, until indeed they become doubled by the costs of law. We must also mention a receiving ward—the room into which debtors are ushered the first day and night of their imprisonment—a chapel, a sick ward, a strong room, a kitchen, and a sort of tap, to which the inmates have given the nomenclature of "the Scratch"—and I believe we have told of all the departments and divisions of one of the most monstrous leviathans of tyranny and iniquity ever raised by human industry upon the curse-cemented superstructure of poverty, misfortune, persecution, dishonesty, and guilt. Within no walls, not excepting even those of the Bastille and the prisons of the Spanish Inquisition, has there ever existed so deep and heavy a load of positive unhappiness—of actual heart-breaking acute misery. Greater torture of the limb, mightier exercise of terror, more severe personal suffering, and darker dungeon-like confinement, have, we know, often hurried men to confession or to death—have broken a coward, sometimes even a brave spirit; have crushed a weak constitution, and shattered the energies of youth and hope. But these effects have in all lands taken their rise in state-tyranny—they have been visited in the fear or the suspicion of governments, or by the mad superstition of priests; or they have been the punishments of desperate treachery, or atrocious penal crimes. Never have they been the result of a widely practised and openly avowed system, founded upon laws framed by a legislature in support of a free constitution. Neither, we are prepared to prove, has the worst state or criminal prison in any other land—and we are willing to retrace the path of civilization as far as one hundred years will take us back into times and practices of cruelty—disseminated so much real sorrow and real ruin too—as the English Debtors' Prison of Whitecross street, in an equal period of one, two, four, eight, or even ten years. For two instances in which they have guillotined a man's head in France, or crushed his body upon the wheel in Spain for state treason, religious heresy, or civil murder, you will find ten where they have broken his heart in England—for debt! and for one instance where the Inquisition or the Bastille, having imprisoned a father in those lands,

have also driven the family into exile, you may get fifty where an Englishman's confinement in Whitecross street has plunged his wife and children into what are worse than a thousand exiles—starvation and despair. Individual suffering is undoubtedly greater in the state dungeon; but spreading, gathering, goading privation and misfortune—smirking as it were from the actual prison into the great heart of society, and poisoning the social springs of life,—take their rise and go abroad from the Debtors' Gaol.—[Scenes, &c. by a Clergyman.]

The Tower of Skulls.—They took us to see a most remarkable edifice, called Burjer Roos, which as its name implies, is a tower entirely constructed of human skulls, reposing in regular rows, on intervening layers of the bones of the appertaining bodies. This curious tower stands close to the sea, at a little distance from the Fort, or Berjes-Sook, and is at present twenty feet in height, and at its base ten feet in diameter, but tapering to its summit: with these data, knowing what space is occupied by a skull, a calculation might easily be made of the number of men which were required to build it; though there appears no doubt that it was formerly, as the natives assert, much wider and higher. No tradition is preserved of its origin, except that the skulls are those of Christians. * * * To preserve it, it is occasionally covered with a coat of mortar; but when I saw it, a great part of this had fallen down, and exposed to view the ghastly-grinning skulls.—[Temple's Excursions in Algiers.]

Cheap Cure for Fever.—A German doctor, during twenty-five years' practice, has never failed to cure intermittent fever, by strictly and literally starving his patients for three whole days. He allows them only a little water; and after the fast accustoms them to food gradually.

WINE FROM THE COMMON BRAMBLE.—Five measures of the ripe fruit, with one of honey and six of water, boiled, strained, and left to ferment, then boiled again, and put in casks to ferment, are said to produce an excellent wine.—[Receuil Industriel.]

Engineer Department of the New York & Harlem Railroad, May 2d, 1896.

RAILROAD CONTRACTORS.—Proposals will be received at this Department until the 28th of May, for excavating a Tunnel through rock at Yorkville, from 18 to 24 feet in height, 24 feet wide, and 844 feet long.

For 15000 yds. of Rock, and 8000 yds. of Earth, north and south of the same.

Proposals will also be received for making an Open Cut Excavation where said Tunnel is proposed, which, together with other excavations, will amount to about 66,000 yds. of Rock, and 12,000 yds. of Earth.

Plans and specifications will be furnished 10 days previous to the time above mentioned.

The work will be required to proceed immediately after being put under contract, and to be completed by the 1st of December, 1896. Satisfactory security will be required of the contractors for the faithful performance of the work.

Communications may be addressed to the Engineer, at his office, No. 9 Chambers street. By order of the Board of Directors, JOHN EWEN, Jr., Engineer, m2138 of the N. York & Harlem Railroad Co.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. B-1y 1614

STEPHENSON,

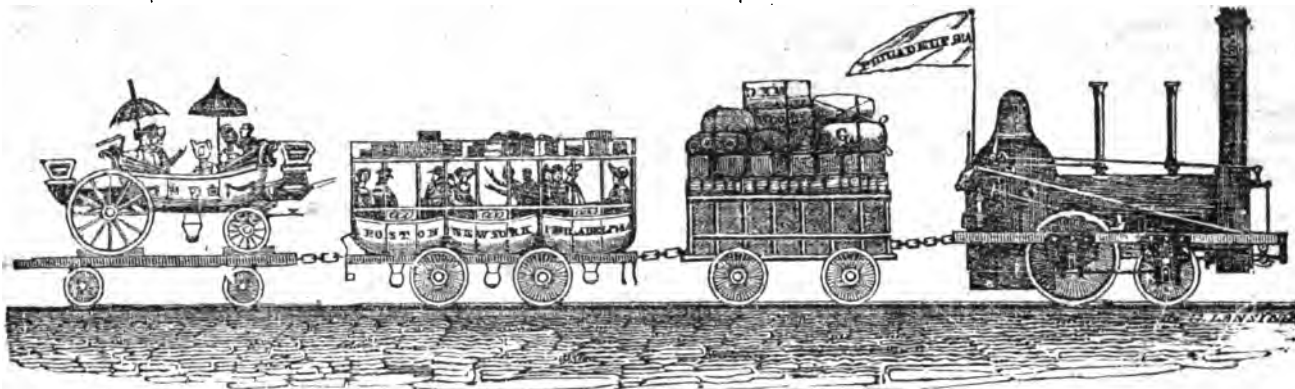
Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25 1f

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. The machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shingles. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one-half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1896. ADP&M&F



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, MAY 23, 1835.

[VOLUME IV.—No. 90.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 23, 1835.

The Report of Messrs. Jervis, Hutchinson, and Mills, is continued in this number.

RAILROAD SHARES.—We quote 105 for new, and 107 for old Shares, at which rate transactions to a considerable extent have taken place.—[Charleston paper, May 15.]

The Athens, Ga. Banner says: the annual meeting of the Directors of the Georgia Railroad Company was held in this place on Saturday last, and of the stockholders on the Monday and Tuesday following.

The following information is all we have yet been able to gather, relative to their proceedings, &c.

Three fourths of the stock was represented at the meeting. Among the stockholders, the very best feelings of liberality and unanimity prevailed, with regard to every thing touching the great work in contemplation, and for the early and efficient prosecution of which, liberal measures were unanimously adopted.

The Journal of the proceedings of the stockholders will appear in our next.

JAMES CAMAK, Esq. of this place, was re-elected President, General Superintendent and Treasurer; William Williams, Secretary; and the following gentlemen, Directors, for the current year, viz.: E. A. Nisbet and Adam G. Saffold, of Morgan Co.;

John Cunningham and Thomas G. Janes, of Greene Co.; Absalom Janes and Henry B. Thompson, of Taliaferro Co.; William Cumming, of Augusta; William Williams, John Nisbet, William Dearing, John A. Cobb, E. L. Newton, A. B. Linton, James Shannon, Wm. M. Morton, and Wm. R. Cunningham, of Athens.

Wm. Lumpkin, Esq., one of the former Board, declined a re-election.

SYRACUSE AND AUBURN RAILROAD.—A long and interesting letter from a gentleman at Auburn, has been handed to us,—accompanied by a letter from Mr. E. F. Johnson, Civil Engineer, who is now engaged upon the road,—from which we make the following extract, regretting that we have not room for the whole letter.

We publish this letter with a view of making the work to which it refers more generally known; that we may, if such aid availeth any thing, contribute our mite to its speedy construction. Knowing as we do, from long personal acquaintance, the great fertility and resources of the country through which it passes, and the almost unparalleled rapid growth of the flourishing villages at its two extremes, as well as the enterprise and respectability of those interested in its completion, we have not a doubt of its early construction, and ultimate success and value.

Auburn, May 9, 1835.

DEAR SIR,—In reply to inquiries so frequent and general of late, about the Auburn and Syracuse railroad, and its stock, we have requested our Chief Engineer to furnish us a statement, which is enclosed. It is cautious, as is proper it should be, he having just run over one of the proposed routes, and does not propose to settle any other question than the feasibility of the project, and upon that point it is abundantly satisfactory. To those who only know the ground, from having passed over the distance in the stage, it will be astonishing to find, that the difference between the average and maximum inclination is only 19½ feet per mile, about the same as that upon

the Utica and Schenectady Railroad, and less than that of the level part of the Mohawk and Hudson, and that the greatest inclination is 30 feet per mile for a distance of 1½ miles. * * *

The engineer has not enlarged upon the benefits to the public or stockholders, but says that he is inclined to believe, "that the cost of transportation will not be much, if any greater than upon a road approaching near to a level (as the route examined does to an uniform inclination,) the curvature being the same upon both." The company has the privilege of carrying freight. The benefits, public and individual, were so obvious, to those acquainted with the vicinity and business, that it was found not to be necessary to go from the two villages with the stock to have it taken up, nor to attempt to attract attention from abroad. The whole stock was promptly taken up last fall, upon opening the books, by the inhabitants on the road, who have since sold, at an advance to capitalists, nearly or quite one half. In estimating these advantages, the freight business (as known to the inhabitants of Auburn) of their own village, is a convenient and pretty appendage in the way of nett profits. Not counting upon any increase of this business, as must necessarily be the case by the greater facilities of this road, the business of the Owaseo Canal Company, now in progress, and the exhaustless hydraulic power to be created for navigation and manufacturing purposes, by tapping the Owaseo lake; by the amount which will be naturally drawn to the road from the Cayuga, Seneca, Owaseo, and Skaneateles lakes, and the fertile regions extending from 20 to 40 miles south of the whole line of the road, and also from the western region during the season of canal navigation, and particularly during the months from November to May, when that navigation is closed, not counting upon an increase of the freight business of Auburn, which is now about 10,000 tons, as estimated, annually, and, at a moderate estimate, will afford the company a profit of \$1.50 per ton, the subscribers here believed the freight privilege afforded them a security for an amount of profit or revenue, that would more than counterbalance any supposed difference of the passenger business in favor of the Utica and Schenectady road, over this section of the great thoroughfare.

I have made a long letter of this, because

little is known of this project away from home. The engineer and his corps are entirely engaged in ascertaining facts, and making a thorough examination, which will enable us to give more detailed information hereafter. It is designed to have the road complete for cars as soon as the Utica and Schenectady road is completed. I shall have answered generally all your inquiries when I add, that the capital stock is \$400,000—all subscribed in December last. The board of directors are, Elijah Miller, President; Nathaniel Garrow, Vice President; Asaph D. Leonard, Secretary; George B. Throop, Treasurer; Jno. M. Sherwood, Edward E. Marvinne, Richard Steele, John Seymour, Allen Warden, S. Van Anden, Henry Raynor, V. W. Smith, and A. Fitch. Stock is transferable at the Treasurer's office at Auburn, and at the office of John Delafield, Esq. of New-York, who has been duly appointed the Register of Stock in the city of New-York.

[COPY.]

I have examined one of the proposed routes for the Auburn and Syracuse Railroad.

The distance by this route is 26½ miles, exceeding that by the turnpike about one mile. The greatest inclination is 30 feet per mile for a distance of 1½ mile. This occurs in the approach to the Nine Mile creek, on the west side, along the Windfall Valley. The total elevation of Auburn above Syracuse is 274 feet, making an average of 10½ feet per mile. The difference, therefore, between the average and maximum inclination is 19½ feet per mile, not much greater than the same difference on the Utica and Schenectady Railroad, and less than the same difference upon the portion of the Mohawk and Hudson Railway between the inclined planes, the greatest inclination upon which is 37½ feet per mile for 1½ miles, the average descent being 11½ feet per mile. So far, therefore, as it regards the inclination, the Auburn and Syracuse route is more favorable than the level portion, as it is commonly called, of the Mohawk and Hudson road, between the planes. The latter, however, has the advantage in straightness, which will lessen the difference. The portion of the Baltimore and Ohio Railroad, between Baltimore and Parr's Ridge, has an average descent towards Baltimore of 14½ feet per mile, and a maximum inclination in the same direction of 37½ feet per mile. The average is consequently 4½ feet, and the maximum 7½ feet per mile, greater than upon the Auburn and Syracuse road. The Amboy and Camden road is stated to have a maximum inclination of 45 feet per mile; this is however only a short distance, three fourths of a mile.

No estimate has yet been made of the probable cost of the road. It will not, however, I imagine, vary materially in proportion to its length, from that of the Utica and Schenectady Railroad, provided a similar plan of construction is adopted. The materials being near at hand, will probably cost less. The damages to turnpike and land proprietors, will undoubtedly be less.

As it regards the cost of transportation, it will be observed that the inclination is eastward, in the direction of the greater trade, the average descent being ten and a third feet per mile. This is perhaps a greater descent than would be required to suit the preponderance in freight, &c. Considering how great that preponderance must be, viz. 2 or 3 to 1, I am inclined to believe that the cost of transportation will not be much, if any greater, than upon a road approaching near to a level, as the route ex-

mined does to an uniform inclination, the curvature being the same upon both.

I would remark, in conclusion, that the ground between Auburn and Syracuse has not yet been fully explored. The route at present surveyed may not prove the best in every particular. No change will, however, it is presumed, be made, unless warranted by reasons affecting the cost of construction, or the cost or amount of transportation, and will, consequently, prove favorable rather than otherwise.

E. F. JOHNSON,
Engineer of A. and S. Railroad.
Syracuse, May 8, 1835.

Report of John B. Jervis, Holmes Hutchinson, and Frederick C. Mills, to the honorable the Canal Commissioners of the State of New-York:

(Continued from our last number.)

Inclined plane at Liverpool.

Length, 1.12 miles; rise $\frac{1}{4}$. The extra cost of the transit for moving power, taking the average from two semi-annual reports, is 1.80 cts. per mile, 2.02 cents for the total length, per ton; equal, for total cost of transportation, to 0.43 of a mile, on a level.

Sutton and Whiston Planes.

Are each 1½ miles long, and have an inclination of $\frac{1}{8}$ or 55 feet per mile. They incline in opposite directions, and therefore, if the trade was equal in each direction, only one plane should be calculated as affecting the total transportation; as it is obvious, a load passing in either direction would only require additional power to ascend one plane. In the reports of the directors they give the total freight, not distinguishing between the different directions; and we are left to determine, from the general character of the trade, whether any and what difference there was. It appears that not more than $\frac{1}{4}$ of the tonnage between the two cities passes on the railway; and we, therefore, are led to infer the railway takes the lighter character of freight, which is probably about equal in both directions; and our computation of costs is made on this basis.

This road being worked entirely by locomotive steam power, except the inclined plane at Liverpool, which has stationary power, our computation is made accordingly.

In ascending the plane the resistance will be $\frac{1}{4}$ (friction,) + $\frac{1}{8}$ (gravity,) = $\frac{3}{8}$, or ratio to a level of (.35 to 1,) or a little more than three and one-third to one. The power of the engine will be reduced by its gravity, and that of its tender, to 70 per cent. of its power, on a level; or to make it equal its power on a level, it must be increased to 142 per cent., which makes the cost of moving power to ascend the plane, as compared with a level, as 4.75 to 1, or four and three-fourths to one. The extra moving power to ascend this plane over a level is equal to the transit of 5.62 miles on a level. The moving power is 26 per cent. of the total transportation, exclusive of the interest account, in which the items of moving power and wagons are blended; this will not be less than 4 per cent., making the total cost of moving power at least 30 per cent. The extra cost of the planes are therefore equal 1.68 miles entire transportation on a level.

The greatest inclination on any part of this railway, except the inclined planes above mentioned, is $\frac{1}{16}$ or 6 feet per mile. It is presumed the ascent of this inclination will regulate the load of the engines, on

which the resistance will be $\frac{1}{16}$ + $\frac{1}{8}$ = $\frac{3}{16}$, or ratio to a level of 1.25 to 1. The power of the engine will be reduced by its gravity and that of its tender to 97 per cent., or its power must be increased over what would be required on a level; say to 104 per cent., making the cost, as compared with a level, as 1.30 to 1. This will be applicable to 27 miles of road, on which the extra cost for moving power is equal 8.1 miles, or for entire transportation equal 2.43 miles.

The influence of the elevations on this railway in increasing the cost of transportation over that of a level, is $(43 + 1.68 + 2.43 = 4.54)$, a little more than four and half miles of level way. The actual average cost of transportation for 31 miles was found to be (4.7,) nearly four and three-fourths cents per ton, which, reduced to a level road, we find to be (4.07,) over four cents per ton, per mile.

An increasing fact is developed in this investigation, in relation to the comparative cost of transportation on inclined planes by stationary and by locomotive steam engines. The plane at Liverpool is worked by stationary steam power, and has an inclination of $\frac{1}{4}$ or 100 feet to the mile. The Whiston and Sutton planes, worked by locomotive steam power, have an inclination of $\frac{1}{8}$ or 55 feet in a mile, being exactly half the inclination of the Liverpool; yet the cost of moving power on the Liverpool to Whiston or Sutton is as 1 to 2.80; showing that locomotive power, for an ascent of 55 feet to the mile, is about three times the expense of stationary power for a plane 110 feet to the mile, calculated for equal horizontal distances. It should be observed, in relation to this fact, that economy of stationary power on inclined planes depends materially on the amount of business. In this case it was about 500 tons per day.

Baltimore and Washington Railroad.

This road commences at a point in the Baltimore and Ohio railroad, about 6 miles from Baltimore, and extends 30 miles to the city of Washington. Its operations are conducted by the Baltimore and Ohio company. In their report of October, 1833, they state the estimated cost at a little over \$65,000 per mile, for 26 miles. The estimate for the whole 30 miles is given at \$50,000 per mile, in a report on canals and railroads, as presented, 25th June, 1834, to the House of Representatives in Congress. In their report of October, 1834, the directors say the graduation and masonry, (the part of the expenditures liable to the principal contingencies,) is nearly completed; they make no allusion to the probability of the work costing more or less than the estimate; and as it would be natural to do so, if any important disagreement was probable, it is inferred the road would cost the estimated sum; and being so near completed, we have thought it proper to put it in the table. This road has iron rails on stone foundation, except the embankments, which have timber foundation.

Columbia Railroad.

This railroad is 82 miles long, and per last report of the Pennsylvania commissioners, the road has cost, including an estimate for an unimportant amount of unfinished work, \$40,450 per mile. It has mostly iron rails, partly on stone and partly timber foundation.

Allegheny Portage Railroad.

This railroad is 36 miles long, and per report of Pennsylvania commissioners, has cost, including a small estimate for unfinished work, \$47,977 per mile. It has iron rails for a fraction over two-thirds its

length, about half of which are on stone foundation, and the balance on timber; nearly one-third is timber road with iron plates.

Mohawk and Hudson Railroad.

The main stem of this road is 16 miles in length. It has timber rails with iron plates, about half of which are on a stone foundation, and the other half on timber. Cost per mile of double road, \$38,107, per company books. (They have also about 3½ miles of single road in branches, that cost \$15,847 per mile.)

Actual cost of transportation for freight by locomotive and stationary steam, 3.5 cents per ton per mile. All the ascent for the greatest trade, (being as 3 to 1,) is overcome by one stationary engine, which does not materially enhance the ratio of cost over a level, taking the whole road. Experience has been quite limited on this road, and considering that the ratio of trade in different directions, in connection with the facility of overcoming the principal elevation by stationary power, would not materially increase the cost of transportation over a level, it has not been thought important to reduce it by computation. The cost of transporting passengers has been 1.7 cents per mile.

Saratoga and Schenectady Railroad.

This railroad is 22 miles long. It is constructed with a timber rail, capped with an iron plate, on timber foundation, except about three miles, that has a light stone foundation. This road has a single track; its cost, per report of directors, November, 1832, \$11,010 per mile, exclusive of building, &c.; to make a second track of the same character would cost \$6,000, making the total cost for double road \$17,010 per mile.

Delaware and Hudson Canal Company Railroad

Is 16 miles long, has 5 mile of double and 11 miles of single track. The valleys on this road were generally bridged with timber. The road is timber with an iron plate. It cost originally, including stationary engines, about \$10,500 per mile, (the exact amount not known.) To have made it double would have raised the expense to \$14,000 per mile; average annual repairs for four years is \$623 per mile. Transportation, when the business is at 250 tons per day, is 4 cents per ton per mile, and when 500 tons per day, is 3 cents per ton per mile. This arises mostly from the cost of operating the planes, which is nearly the same in both cases.

The ascent of this road (855 feet) is overcome by five stationary steam engines, working on planes whose total length is 2½ miles. The cost of motive power for 500 tons per day, averages essentially the same as it does for horse power on a level, having the same in horizontal length. From the summit the principal descent is effected by three self-acting engines, so arranged that the loaded waggons draw up the empty ones: and the balance of the declivity is advantageously arranged for a descending trade. The economy in the use of stationary steam power, arising from the cheapness of fuel, and the great regularity which may be obtained in a coal business; and the comparatively small amount of agencies to conduct the business, leave no doubt on our minds, that transportation is effected on this road as cheap per ton per mile as a general business could be on a level road.

Newcastle and Frenchtown Railroad

Is 16 miles long; timber rail capped with

iron plate, about one-third on light stone foundation, and the remainder on timber; cost \$30,000 per mile. (See report of committee on roads and canals to Congress, January 25th, 1834.)

Camden and Amboy Railroad.

The part extending from Amboy to Bordentown is 33 miles in length, is believed to be entire iron rail, partly on stone and partly on timber foundation; cost (as per congressional report above mentioned) 30,000 per mile.

South Carolina Railroad.

Is 130 miles long; timber rail capped with an iron plate. This road is built on piles; no embankments made in the grading; cost about \$7,000 per mile. It is not known whether it is a single or a double road, but believed to be mostly single track.

There are several important railroads in the United States, which we should have been gratified to have added to those above given. But we have not the information in relation to them, that would enable us to derive any practical advantage. There are others that we have not thought proper to introduce in a question that relates to the general utility of railroads as public thoroughfares: they are roads made mostly for local objects, or for short distances, where the surface of the ground is nearly level, and the road made to conform nearly to the natural level or inclination, and very little expense incurred to remove those irregularities in the surface, which in a road of any considerable length and importance are generally encountered, to obtain an economical grade: and the superstructure of such roads is usually made in an imperfect manner, not calculated to serve the purpose of accommodating an important general trade.

In the roads described, it is believed a fair view may be obtained of the general question of cost. In their graduation some have been of an expensive character, to wit: The Baltimore and Washington, Allegany Portage, the Columbia, Mohawk and Hudson, and a part of the Baltimore and Ohio, though on the average the latter cannot be much above medium: the Camden and Amboy, and the New-Castle and Frenchtown, rather below a medium, and the Saratoga as very favorable. The South Carolina road having been placed on piles, excavation has been avoided as much as possible, and embankments omitted altogether, by which the expense of grading has been very little. The general character of the superstructure has been stated; and their rails, or the foundation of the rails, appear to be, to a great extent of timber.

The superstructure of railroads, when composed of timber with the rail capped with an iron plate, will cost, for a double track, from 6,000 to \$10,000 per mile, according to the value of timber, and the stability given to the road; this is exclusive of grading. The cost on the Baltimore and Ohio, for this kind of road, was \$8,852 per mile. When composed of iron rails laid on stone foundations, the cost will vary from 18 to \$25,000, according to the convenience in obtaining stone, the extent of the ballasting, and the weight of rail that may be adopted; the probable average may be \$22,000 per mile. The difference, then, between a medium of the two kinds, is \$14,000 per mile. To have adopted the iron rail on a stone foundation in the roads mentioned, would have materially increased their average cost. But in the first construction, it is usual, even when iron rails are adopted, to put down a timber founda-

tion to support them on the embankments, until the embankments have time to become fully settled.

The first railways in England were constructed of timber without any iron. The timber being found to wear too rapidly under the wheel, the iron plate was then put on. From this rude beginning in railroads, their advantages began to be developed; and experience soon suggested improvements. Hence we find the wooden rail soon abandoned, even in the coal districts. Cast iron rails on a stone foundation followed timber; and now wrought-iron is generally used in preference to cast iron. These remarks are introduced to show the result of experience in England. In this country timber will doubtless be used to a greater extent, and for a longer period than it was in England. The cheapness of timber, the want of capital, and the limited amount of business in many places, will operate as causes to produce this result. We already observe, however, in this country, a departure from the use of timber rails on several important railroads. Among those who have critically attended to this subject, there is probably very little difference of opinion in regard to the most suitable material for rails and their foundation, when an extensive business may be anticipated, and particularly where a high velocity is an object. The Baltimore and Ohio Railroad Company, after an experience of several years with timber rails, have come to the following conclusion: "In the construction of the Washington road, the board have had regard to its durability, not less than to making it a source of immediate profit to those interested in the undertaking. The experience of the main stem, has conclusively shown how important it is to avoid the expense of repairs of the railway, which not only materially affect the revenue, but occasion constant interruption and inconvenience to the travel on the road. True economy consists in constructing the road, in the first instance, so as to obviate the necessity of frequent repairs, and to enable the motive power used in transportation to be employed to its fullest effect, without the fear of injury to the rails or bridges over which it passes in the performance of its daily work."

Timber is found to be less durable in a railroad than in almost any other situation. The action of the carriages tend to open the pores of the timber, which renders them more liable to imbibe moisture; all horizontal joints are much exposed under this action, and particularly that under the rail plate. There are, no doubt, situations where timber may be advantageously adopted. The cheapness of this article, the scarcity of stone for foundations, the scarcity of capital, limited extent of business, and the experimental character of the particular investment, will often present arguments in favor of its adoption. At the same time we are fully of opinion, that on all railroads which constitute important avenues of communication, the period is not distant when timber rails will be wholly abandoned for iron.

The question in relation to the average cost of railroads, it will be difficult to determine, as the graduation will be very different at different places. The table given of the cost of several railroads, excluding the Liverpool and Manchester, would afford an average of \$30,393 per mile. Had all these roads been constructed entirely with iron rails and stone foundations, their average cost would probably have been between 35

and \$40,000 per mile. Taking all the railroads designed to accommodate a large general trade that have been constructed in this country, and add to their expense what would be required to complete an iron rail with stone foundations, we believe the cost for a double road would not fall below \$35,000 per mile; and to reduce the same to a timber road of the best character, would not be less than \$25,000 per mile. The grading in both cases is supposed to be done in a permanent manner. We are aware of the fact, that railroads, in some instances, have been made for much less; but for the reasons before given, we do not believe them entitled to a place in this examination, which is designed to investigate the utility of railroads as a means of general intercommunication of trade. There are, no doubt, many situations where the favorable formation of the country, and the facilities for obtaining materials, will reduce the cost below the amount stated above, and a less expensive road may be sufficient for the trade to be accommodated. But there will be others that will be more expensive, as experience has fully demonstrated; and our object is to reach an average result for the accommodation of a general trade, where expedition, regularity, and economy in the moving power, will be important. It should be observed in relation to this question, that the cost of a railroad will depend materially on the amount of tonnage, and the speed it is necessary to maintain. This arises from the economy of motive power; for instance, where a small amount of business is to be accommodated, it will be economy to apply greater motive power, and avoid expensive graduation; on the other hand, a large amount of trade will induce greater expenses in bringing the lines of graduation to the most favorable standard for economizing this power.

Remarks in relation to repairs on Railroads.

Experience on this point is yet quite limited. We have the account of two years on the Baltimore and Ohio road, four years on the Delaware and Hudson company road, and four semi-annual statements of the Liverpool and Manchester road. We have also, in relation to the latter, a general statement of the half year preceding and the half year subsequent to the four full reports, from which we are led to infer that no material variation occurred for three years. The average of the three roads is \$1,040 per mile per annum.

There is a great difference in the annual expense of repairs for these roads, which suggest the propriety of examining into the cause.

The moving power on the Baltimore and Ohio, and also on the Delaware and Hudson company's road, admitted, for freight, only a moderate speed, probably seldom exceeding 4 miles per hour, and nearly the same amount of tonnage was conveyed on each; on the latter, no passengers are carried; on the former, the passengers constitute about half the business.

The Baltimore and Ohio road has less timber in its structure, though it has a large majority of timber road. The Delaware and Hudson Company road is about $\frac{2}{3}$ single track, and considering the passenger business has not over half the use, and still its repairs are more than 50 per cent. higher. Two years, with a moderate amount of trade, on a timber road, would not give a fair average of the cost of repairs, and the condition of the two roads at the end of the year, in regard to the age and durability of their timber, may be very different. We are, therefore, led to conclude that further

experience will show the repairs on the Baltimore and Ohio road, as the business increases, to be greater than they have hitherto been.

The Liverpool and Manchester road has cost over five times as much for repairs as the Baltimore and Ohio, and over three times as much as the Delaware and Hudson Company road. The Liverpool road was made in the most substantial manner, with very little curvature. The Baltimore road is very much curved, which increases the expense of maintaining the parallelism of the rails. The statement of the cost of repairs and maintenance by the directors of the Liverpool road is very explicit, and continued for successive terms with very little variation; leaving no ground to misunderstand the subject. The amount of business on the Liverpool has been from three to four times as great as on the Baltimore, for equal terms of time; and the velocity of travelling, both with freight and passengers, has been also much greater on the former than on the latter. In view of all the facts we have obtained, we are led to the conclusion, that the amount of business, and the velocity of travelling, has a material influence on the question of repairs. In the last report of the directors of the Liverpool road, they allude to the expense of maintaining their road on the Whiston and Sutton planes, in consequence of the high velocity which the engines and wagons often obtain in their descent; and propose to lay heavier rails to guard against this inconvenience. In a report recently made to the directors of the London and Birmingham railway, by R. Stephenson, (late engineer of the Liverpool road,) on the propriety of adopting the undulating plan, he urges, as an objection to this plan, the injurious tendency of the high velocities obtained in the descents to the road and particularly to the locomotive engine, as a reason that he considers conclusive against it.

The repairs of a railroad composed mostly of timber will generally be much less for two or three years after it is put into operation, than the average for a term of ten or fifteen years. Our experience is limited in this branch of the investigation, but from the facts we have obtained, we are led to the conclusion, that the average expense of repairs for a road, designed to accommodate a large general trade requiring a high velocity, will not be less than that stated as the average of these roads, viz: \$1,040 per mile per annum.

Transportation on Railroads.

The cost of transportation (reduced to a level road,) on the Baltimore road, we have found to be 3.05 cents per ton per mile, and 4.07 cents per ton per mile on the Liverpool road. In the former case, it is done by horse power; in the latter, by locomotive (except on one plane,) steam power. The ratio of cost of motive power to the entire cost of transportation is for the Baltimore as 4 to 10; and for the Liverpool road, as 3 to 10. It, therefore, appears, that the Liverpool road, with 10 per cent. less ratio in cost of motive power, (which makes the motive power nearly equal on the two roads,) costs one-third more for entire expense of transportation. If our accounts can be relied on as presenting accurate results, it would appear highly probable the extra expense in repairs and management of the business, was incurred in consequence of the greater speed maintained. Some abatement should doubtless be made, for the ratio of difference in expense of loading and unloading, which, in consequence of its being shorter, would bear heavier on the Liverpool road than on

the Baltimore. The accounts for the Liverpool transportation are presented in much detail, and are very satisfactory in their character. Those for the Baltimore road are not given in as much fullness and detail, but we have no reason to doubt their accuracy. It further appears, that horse power is a little more expensive for motive power, at a low velocity, than locomotive steam, at a high velocity, as compared for the two roads. But this would not be the case if the power was reversed for the two roads, as the short ascents on the Baltimore road would greatly depress the economy of steam power. The average cost of transportation on these two roads, when reduced to a level, is 3.56 cents per ton per mile. This allows no profit or toll; the cost stated for the Mohawk and Hudson road is 3.5, and for the Delaware and Hudson Company's road is also 3.5 cents per ton per mile, as the nett cost. It may, therefore, be considered that experience thus far has settled the cost at $3\frac{1}{2}$ cents per ton per mile, on a level road.

It has been shown in this investigation, that where locomotive steam power is used, it is important to its economy, to have all the inclination reduced to a uniform angle, and the curves to a uniform radius, otherwise the traction that occurs on the sharpest curves, and greatest ascents, will determine the load of the engine. It is obvious that the load of the engine must be regulated by its ability to overcome the greatest resistance that occurs on the road over which it passes, unless extra power is stationed on the line to aid in passing ascents: the inconvenience of stationary power would prevent a resort to this method, unless the increased power required was considerably greater than was generally necessary on the route travelled. This consideration is highly important where a large general trade is to be accommodated, and accounts for the great expense that is often encountered to bring the grade to the most favorable standard.

The cost has been shown to be $3\frac{1}{2}$ cents per ton per mile on a level, and as railroads are not often entirely level, it has been thought proper to a full understanding of the subject, to present a statement, showing the comparative economy in motive power, by locomotive steam engines on roads of different inclinations. In the calculations, the engine is assumed to weigh $6\frac{1}{2}$ tons (13,000 lbs.) with 7,000 lbs. on its working wheels; adhesion at 10; the weight of the tender at 7,000 lbs.; resistance from friction $\frac{1}{15}$. The load carried is exclusive of the tender, and includes freight and wagons. Two-thirds of the gross load will be tonnage goods.

On a level the gross load will be 75.25 tons; on a road or section, having an ascent of 10 feet per mile, 49.53 tons—do. 20 feet, 37.35—do. 30 feet, 27.24—do. 40 feet, 20.22—do. 50 feet, 17.04—do. 60 feet, 13.92—do. 70 feet, 11.31.

In the load on a level, we have 50 tons exclusive of wagons, taking the cost of motive power at 40 per cent. of the entire cost of transportation; the total cost at the level being $3\frac{1}{2}$ cents.

The total cost on an ascent of 10 feet per mile is per ton, 4.20 cts.—20 feet, 4.90—do. 30 feet, 5.95—do. 40 feet, 7.26—do. 50 feet, 8.19—do. 60 feet, 9.66—do. 70 feet, 11.41.

There are engines of a larger size than the one assumed; but it is the most approved at this time, in reference to the weight of engine, and the weight of the working wheels. This however is unimportant, as the comparison will not be at all affected by varying the power of the en-

gine: the ratio between a level and the ascents will remain the same notwithstanding.

Costs of Canals.

We subjoin a table marked A, containing the cost of 50 canals in England: this table gives the name of each canal, the total cost in pounds sterling, cost per mile, length of each canal in miles, lockage in feet, date of completion, original cost for each share, and the value and dividend of each share in 1821, in March 1828, in November 1831, in 1833, and on the 21st of October, 1834. Forty-five of these canals, being the most important in England, have an aggregate length of 1,464 miles. We also subjoin a table of the principal railways; only one, however, of those which are completed and in operation, (the Liverpool and Manchester,) is calculated for general trade.

In table B, we give a view of the principal canals in this country: it contains all the particulars that we were able to obtain of 40 canals, principally in the northern and middle States. It has the names of the canals, the length of the main trunk and feeders, depth of water, width of surface, number of locks, their length and width, and the aggregate lockage on the canals and feeders, number of dams, date of completion, cost per mile, total cost, and the tolls for each for the years 1833 and 1834.

The information contained in the tables for the canals of this State was obtained from public records and from documents in the Comptroller's office. That for the Pennsylvania and the other canals were taken principally from the official reports, and from information derived from the officers having charge of these canals respectively; we have also been assisted in the inquiries by private records and memorandums in our possession.

The Erie canal extends from the Hudson river at Albany to Lake Erie; is 363 miles long, and has 699 feet of lockage; the canal is 40 feet wide on the surface, 28 feet wide at the bottom, and four feet deep. The locks are 90 feet long, between the gates, 15 feet wide, and built principally of lime stone, laid in hydraulic cement, with the front stone cut and laid in courses. Although there is a small amount of elevation, compared with the distance, but at 1½ feet of lockage per mile, there are a few places that presented formidable difficulties in the construction: a part of the distance between the Hudson and Schenectady, the rock excavation at Little-Falls, and the deep-cutting in the mountain ridge west of Lockport.

The Champlain canal is the same dimensions as the Erie canal; the locks are constructed in the same manner, except they are 7 feet longer, and one foot less width. This canal is 64 miles long, and extends from the junction 9 miles north of Albany to Lake Champlain. The summit is supplied with water from the Fort Edward pond, and by a navigable feeder from the Hudson river, taken out above Glen's-Falls.

The Glen's-Falls feeder is 7 miles long, and with the pond, makes a navigation of 12 miles in length; there is a descent of 132 feet by 13 wood locks.

The Oswego canal is constructed similar to the Erie canal, but has nearly one half river navigation. The locks are of the same dimensions and quality, except one, which is built of wood.

This canal extends from the Erie canal at Syracuse to Lake Ontario.

The Cayuga and Seneca canal is, with the Cayuga branch, 23 miles long, connects

the Erie canal at Montezuma with Seneca lake at Geneva, one half of which is river navigation. It has 11 wood locks, that overcome an elevation of 80 feet. The dimensions of the canal and locks are similar to those on the Erie canal.

The Crooked Lake canal is 8 miles long, connects the Crooked and Seneca lakes and has 269 feet of lockage; this, although the locks are of wood, is the most expensive of the State canals; the large expenditure is accounted for by the great elevation overcome, and by the difficulties in construction in the narrow rocky valley of the outlet.

The Chemung canal extends from the head of the Seneca lake to the Chemung river: it is 23 miles long, and the summit is supplied by a feeder of 13½ miles in length, from the Chemung river, at the Chimney Narrows in Steuben county. This canal and feeder, (as also the Crooked Lake canal,) is 42 feet wide on the surface, 26 feet wide on the bottom, and four feet deep; the locks are of wood, connected with the upper level by a wall of masonry at the head. The length of navigation, including 2½ miles of pond in the Chemung river above the feeder dam, is 39 miles, with a lockage of 516 feet, and is the cheapest of the State canals.

The Erie canal cost	\$19,255 49 per mile.
Champlain	15,520 85 "
Oswego	14,879 93 "
Cayuga and Seneca	10,295 85 "
Crooked Lake	19,597 11 "
Chemung	8,504 96 "

The aggregate cost of the six State canals, paid by the Canal Commissioners, for their construction up to the time when they were completed, for the 558 miles of navigation, is \$9,692,106.68, being an average cost of \$17,367.57 per mile.

The Delaware and Hudson canal extends from the Hudson river, near Kingston, to Honesdale on the Lackawaxen river, in the State of Pennsylvania. This canal is 108 miles long, 36 feet wide on the surface of the water, and four feet deep. The locks are 76 feet long, nine feet wide in the chamber, 110 in number, and overcome an elevation of 1,073 feet: 60 of the locks are of hammered stone masonry, and 50 are composite, of stone and wood.

There was some formidable rock excavation in the valley of the Delaware and Lackawaxen rivers, which increased the expense of construction. The average cost of this canal was \$20,665 per mile.

Pennsylvania Canals.

The Pennsylvania State canals are divided into 9 divisions, and they have an aggregate length of 601½ miles. The main line of these canals form a communication in connection with the Columbia and the Portage railroads, between Philadelphia and Pittsburgh. Between these places there are 282 miles of canals and 119 miles of railway.

The Delaware division extends from Bristol to Easton, 59½ miles; and in the valley of the Susquehanna, including the west and north branch, there are 183 miles of canal, besides the Beaver and French creek divisions, west of the mountains. These State canals have 1,933 feet of lockage, and their total cost is \$13,301,235.69, or an average of \$22,113.43 per mile.

Beside the State improvements there are three important canals in Pennsylvania owned by corporations, viz: The Schuylkill, the Lehigh and the Union canals.

The Schuylkill canal extends from the city of Philadelphia up the river of that name, 108 miles, to the coal district. This work has 62 miles of canal and 46 miles of

pools, formed by 28 dams across the Schuylkill river. There are 92 lift and 28 guard locks, and the total lockage is 568 feet. This canal was completed in 1825, and the business upon it has increased so rapidly that it has been necessary, and the directors are now constructing double locks to accommodate the trade. At its completion (in 1825,) the canal cost \$16,741.26 per mile.

The Lehigh canal was constructed principally for the transportation of coal, and extends from Mauch Chunk to Easton on the Delaware river, 46½ miles. This canal is 60 feet wide on the surface and 5 feet deep; the locks are 100 feet long (except 4, which are 180,) and 22 feet wide in the chamber; and its large dimensions have, doubtless, added much to its cost.

Coal that is brought from the Lehigh mines down this canal, may be sent to Philadelphia by the Delaware canal, or to New-York through the Morris or the Delaware and Raritan canals. This canal cost \$33,610.75 per mile.

The Union canal connects the Schuylkill and Susquehanna rivers; this, although a small canal, 36 feet wide on the surface of the water, and 4 feet deep, has been expensive in construction. Connected with this canal is a feeder of 24 miles in length, to supply its summit level. This feeder is navigable, and a railroad of 4 miles in length extends to the coal mines. A large expenditure has been incurred to construct reservoirs, 3 feeders, and for the use of two steam engines, of 100 horse-power each, to supply the summit level with water, and for several miles the sides and bottom of the canal have been planked, to prevent leaks in the lime-stone districts. This canal cost \$18,518.51 per mile.

The three canals have 1,452 feet of lockage, and cost \$5,354,151.13, and the average cost of the 262½ miles is \$20,377.36 per mile.

The State of Ohio completed their canal, from Lake Erie to the Ohio river, in 1832, which, together with the Miami canal and feeders, make an aggregate of 400 miles of navigation. The total amount of lockage is 1,557 feet; the locks, 184 in number, are constructed of cut stone laid in hydraulic cement; and the total cost of the canals and appendages, as appears in the Canal Commissioners' report of 1833, is \$4,189,539.64, or an average of \$10,473.84 per mile.

The Chesapeake and Ohio canal will form a communication from the City of Washington, 342 miles in length, to Pittsburgh. That portion nearly completed and navigable extends from Tiber creek, in Washington city, 109 miles to a point 8 miles west of Williamsport. This canal varies from 5 to 7 feet in depth, and from 50 to 80 feet in width; the ascent is 353 feet, overcome by 44 lift locks 100 feet long by 15 feet wide in the clear, constructed of cut stone masonry laid in hydraulic cement.

This canal is situated in the valley of the Potomac; it is of large dimensions, and formidable difficulties have been encountered in its construction. The amount expended and required to complete 109 miles is \$4,164,732.04, or an average cost of \$37,291.12 per mile.

There are five canals in New-England, having an aggregate of 170½ miles in length, with 1,363½ feet of lockage, constructed by private corporations at an expense of \$2,187,000, or an average of \$12,838.71 per mile. The Blackstone canal between Worcester and Providence, of 45 miles long, has 48 locks of cut granite, laid in

ement; the other four canals have wood locks.

Three of the canals embraced in the tables are of large dimensions, and were constructed of suitable capacity for the navigation of coasting vessels:

These canals connect the great bays of the Atlantic, as follows, viz: The Dismal Swamp, between Albemarle sound and the Chesapeake bay; the Delaware and Chesapeake canal, across the peninsula between those bays; and the Delaware and Raritan forms a channel for coasting vessels between Philadelphia and New-York. The above, with a canal between Barnstable and Buzzard's bays, were originally designed as the four great cuts to connect and form a continuous inland coasting navigation from Boston Harbor to the bays of North Carolina. One of these canals, the Delaware and Chesapeake, was attended with peculiar difficulties in its construction, but neither are considered as proper for a standard of comparison.

The following table exhibits the length, lockage, and cost of some of the principal canals.

	Lock- age.	Cost per mile.	Total, Dollars.
1 N. York & Albany, 558	2,016	12,387 37	9,693,106 68
2 Del. & Hudson, 108	1,073	20,665 00	2,231,890 00
3 Erie & Champlain, 601	1,333	22,113 44	13,501,937 01
4 Schuylkill, 108	1,073	20,665 00	2,231,890 00
5 Ohio & Erie, 200	1,432	20,377 26	3,254,151 19
6 Ohio State canals, 400	1,357	10,473 94	4,189,539 64
7 Ches. & Atlantic, 700	353	37,391 12	4,164,727 04
8 N. England canals, 170	1,353	12,338 71	2,180,000 00
Total, 2,210	9,748	18,008 41	71,192,586 18

By the preceding table it appears that 27 of the principal canals of this country, having an aggregate length of 2,210 miles, with 9,748 feet of lockage, embracing many difficulties, and constructed in nine of the United States, in a great variety of locations, have cost \$41,122,585.18, or an average of \$18,608.41 per mile.

Repairs of Canals.

It appears from the report of the Comptroller, Assembly Document, No. 216, of 1835, that the repairs of the State canals, including salaries of superintendents and lock-tenders, have been, per mile, for the last year as follows, viz: for the Erie canal, including 14 miles of the Champlain, and the sloop-lock at Troy, \$883.78; Erie and Champlain canal, \$1,005.03; Oswego canal, \$320.63; Cayuga and Seneca, \$401.46.

The repairs for the last 3 years, ending September 30, 1834, have been annually, per mile, for the Erie and Champlain canal, \$826.13; Oswego canal, \$313.13; Cayuga and Seneca canal, \$339.88.

And for the last 6 years, from 1829 to 1834, both years inclusive, ending on the 30th September, the repairs have been annually, per mile, for the Erie canal, \$603.76; Champlain canal, \$681.01; Oswego canal, \$309.19; Cayuga and Seneca, \$301.07.

In the Document before alluded to, there is a division of the cost of repairs upon the Erie canal, stated separately, and the amount for the last year is per mile, for 159 miles, from Buffalo to Montezuma, \$600.47; for 73 miles, from Montezuma to 7 miles west of Rome, \$660.34; for 146 miles, from 7 miles west of Rome to Albany, including 14 miles on the Champlain and the Troy dam and lock, \$1,304.04.

The repairs of the Erie canal in 1829 averaged \$493.12 per mile, and in 1834 \$883.78, being an average in the cost of repairs, of 79 per cent.

The lockages at the first lock west of Schenectady, in 1829, were \$12,615; in 1834, were \$28,911. An increase of 80 per cent.

The last results, as do also the comparisons of former years, indicate that the expense of the repairs of the Erie canal increases in nearly the same ratio as the business.

The repairs on the Delaware and Hudson canal, for the last 4 years, ending December 31, 1834, was an average of \$527 per mile; and for the year 1833, including the salary of superintendents and lock-tenders, on the Schuylkill canal, was \$710.44 per mile.

Cost of transportation on Canals.

In this inquiry we have selected three canals that have a large amount of business and those that have their prices well established.

The Erie canal, and the Delaware and Hudson canal, in this State, and the Schuylkill in Pennsylvania. We are not able to give the items that compose the cost of freighting upon canals, with the same certainty as that expense has been reported by the Liverpool and Manchester, and the Baltimore and Ohio Rail Road companies; but we assume the prices, paid on canals for down freight, upon articles of the greatest tonnage.

The Schuylkill canal in 1833, had 361,064 tons of down freight, of which 250,558 was coal from the mines; and the up freight, consisting of merchandize, plaster, iron ore, &c., amounted to 84,795 tons. The price for the transportation of coal is one cent per ton per mile, exclusive of tolls.

The Delaware and Hudson Canal Company, in 1833, sent to market from the mines, 111,777 tons of coal, and the merchandize up amounted to 9,700 tons. In 1834, the coal sent to the Hudson river was 45,000 tons. The established price of transportation was \$1.12 per ton of 2,240 pounds of coal for 108 miles by this canal, from Honesdale to the Hudson river, equal 1.041 cents per ton per mile.

The property arriving at tide water, by the Erie and Champlain canals, in 1834, as appear from official statements, was equal to 553,825 tons; passing from tide water 114,608 do.—making an aggregate of 668,433 do.

The proportion of down freight or property going to market, is to merchandize or tonnage going from tide water, as 4.83 to 1, or as 5 to 1 nearly.

The cheapest prices of freight on the Erie canal are paid for staves, timber, wood, stone, lime, plaster and salt; the highest charges are for merchandize. We put down the rates, exclusive of tolls, as charged by the different forwarding lines, although goods are frequently taken up the canal by boats unconnected with the lines, at about half those rates; this higher price is intended, besides the cost of freighting, to pay for the risk to which the forwarding merchant is liable as a common carrier.

During the season of navigation last year, there was brought down the canals, 32,670 tons of staves, and we are informed, that the average price of transportation of this article has been \$2 per ton for the last 6 years, from Tonnawanta to Albany, exclusive of tolls. The distance is 352 miles by the canal, and this would give only $\frac{1}{17}$ of a cent per ton per mile.

There was also sent down—181,016 tons of boards and scantling, at $\frac{1}{4}$ of a cent per mile; 96,642 do. of wood, do. at $\frac{1}{2}$ do.; 23,894 do. salt, to Buffalo passing Utica, at $\frac{1}{2}$ do.; 70,372 do. merchandize do. at $\frac{1}{2}$ do.

Making an average of the above prices, of $\frac{1}{17}$ of a cent per mile for a ton of 2,000 pounds.

Flour is a large item of the down freight;

there is about 120,000 tons sent to market annually, and this, together with provisions, may be taken as a standard of comparison.

Flour has been carried from Rochester to Albany, 289 miles, by transient boats, as low as 15 or 20 cents per barrel, exclusive of tolls; we are informed, however, that contracts for freight to a large amount have been made by millers at Rochester, with the established lines of forwarding merchants, for the ensuing year, at 24 cents per barrel, from the first of June to the first of October; before and after these periods, at 30 cents per barrel for flour, exclusive of tolls.

For this comparison we will take an average between these two prices, which is 27 cents per barrel, and this is believed to be about the average price paid for freight on the whole tonnage of the Erie canal during the season of navigation.

At the above rates the prices of transportation on the three canals, exclusive of tolls, would be, for a ton of 2,240 pounds, as follows, viz: on the Erie canal, 1.04 cents per ton per mile; on the Delaware and Hudson, 1.041 do.; Schuylkill, 1.00 do.; or an average of a little over one per cent. per ton per mile, on the three canals.

For a more perfect comparison of the cost of transportation, we will reduce these canals to a level, by an allowance of 20 feet of lockage on the Erie and Schuylkill, as equal to a mile of distance, and in consequence of the less crowded navigation, of 30 feet to the mile on the Delaware and Hudson canal.

The distance on the Erie canal from Rochester to Albany, is 260 miles, and the lockage 626 feet, and reduced to a level would be equal to 300 $\frac{1}{2}$ miles.

The Schuylkill canal is 108 miles long, and 588 feet of lockage, and reduced to a level in the above mentioned ratio, is equal to 137 $\frac{4}{10}$ ths miles.

The Delaware and Hudson is 108 miles long, and has 1,073 feet of lockage, and is equal to 185 $\frac{8}{10}$ ths miles level canal.

On a level canal, the prices of freight would be for the Erie canal 828-1000ths of a cent per ton per mile; Schuylkill 735-1000ths do.; Delaware and Hudson 708-1000ths do.; and the average price of the three canals would be, without toll, 783-1000ths, or a little less than 8-10ths of a cent per ton per mile.

In Hazard's Register, vol. 15, page 112, it is stated that the Lehigh, the Delaware, and Delaware and Raritan canals, paid last year 2-10ths of a cent per ton per mile, for the transportation of 105,000 tons of coal; the contractor finding every thing, except paying the tolls.

General Remarks.

Having presented such facts as are within our knowledge, with the circumstances connected with them; together with such explanations of principles, as appeared to us necessary to a correct understanding of the subject in its practical character; we have not thought it would aid in the object of inquiry, to attempt any precise ratio of comparative cost of construction or repairs, between canals and railroads: the reason for this is to be found in the obvious modification to which any ratio must be exposed, in the varied local circumstances that will be encountered, in the progress of improvements of this character, and whose tendency would render any ratio of little or no practical value. We, therefore, refer to the several statements, and particularly the tabular views, for information, which we believe, when applied to any known case, will afford some useful hints in regard to the relative merits of the two different modes of facilitating internal communication. We

may, however, be permitted to state, what appears conclusive from the facts presented, that canals, on the average, have thus far cost less than railroads, both in their construction and repairs.

In regard to their relative merits as affording the means of transportation, there is less difficulty in reaching an approximate ratio. In reducing them both to a level, we attain for general purposes, a fair standard of comparison. Taking the facts we have obtained as a basis, we find the relative cost of conveyance is as 4.375 to 1, a little over four and one-third to one, in favor of canals: this is exclusive of tolls or profits. If the cost of construction, the annual cost for repairs, and the amount of tonnage, were the same on a canal as on a railroad, then the same rate of toll would produce the same rate of profit on each. Our examinations have shown, as before stated, that railroads in the average, cost more than canals, both in their construction and repairs. But for comparison, we assume a case in which they are equal, and charge the same toll. The average tolls on the Erie canal are less than one cent per ton per mile: assuming an average toll of one cent per ton per mile, the ratio of the entire cost of transportation and toll is, as (2.5 to 1,) two and a half to one, in favor of canals. In the preceding computations, the cost of transportation on railroads is the nett cost, as reported by railroad companies, allowing no profit on this business, while the charges on the canals is at contract prices, which are supposed to yield a profit to the carrier. The cost of transportation on canals, as previously stated, is the average on the Erie canal, the Delaware and Hudson canal, and the Schuylkill canal; on the two latter, the cost of transporting coal only is known; and the total average of the three canals is almost exactly the same as the average price for the several different articles transported on the Erie canal. The preceding calculations are confined to a velocity not much exceeding 50 or 60 miles in 24 hours. We have not instituted any investigation to show the relative economy in high and low velocities. For the conveyance of freight, we are of the opinion, canals are not well adapted to any material increase of speed beyond 3 miles per hour; and as the speed on half of the railroads embracing this computation is from 10 to 15 miles per hour, we may consider this comparison as nearly similar to one of high velocity on railroads, and low velocity on canals. And goods that can afford to pay the difference above indicated, for the saving of time, would hold the two kinds of conveyance in equilibrium. The amount that would find so great an object in the saving of time, in comparison to the total quantity requiring transportation, it is believed would be small. In relation to the conveyance of passengers, the saving of time is highly important, and the railroad becomes eminently the superior method of communication. We are, therefore, led to the conclusion, that in regard to the cost of construction and maintenance, and also in reference to the expense of conveyance at moderate velocities, canals are clearly the most advantageous means of communication. On the other hand, where high velocities are required, as for the conveyance of passengers, and under some circumstances of competition, for light goods of great value, in proportion to their weight, the preference would be given to a railroad.

It may be observed in favor of railroads, that they admit of advantageous use in districts where canals, for the want of water, would be impracticable. This advantage often occurs in mining districts, and some-

times for general trade, where it is necessary to cross dividing ridges at a level too high to obtain water for their summits.

The facts and reasonings presented, we believe, clearly show that both canals and railroads are highly important means of internal communication; that each has its peculiar advantages, and will predominate according to the character of the route, and the trade for which it is intended to provide.

Respectfully submitted,

JOHN B. JENNY,

HOLMES HUTCHINSON,

FREDERICK C. MILLS,

Civil Engineers.

Albany, 14th March, 1835.

[From the National Intelligencer.]

THE ALLEGHENY ARSENAL.—Pennsylvania can boast of having within her territories one of the finest arsenals in the Union; probably for neatness and symmetrical arrangement, the handsomest in the world. I mean that extensive military establishment recently named after the beautiful river 'Allegheny,' and more extensively known as the United States Arsenal near Pittsburgh. This ordnance depot occupies a plot of ground containing thirty-one acres one rod and thirty-three perches, and one hundred and thirty-two feet from the river above mentioned, to the Philadelphia turnpike road, and entirely surrounded by a handsome, well built wall. The order in which the ground is divided is as follows:—

1st. The lower park, comprising a military store, built of free stone, three stories high; two carriage houses and three timber sheds, with brick pilasters; a river wall of massive stone, containing one thousand seven hundred and twenty perches.

2d. The arsenal yard, a square with the following buildings: The main arsenal or magazine of arms, three stories, with a pediment or tower one hundred and twenty feet by forty; upon the second floor the arms are arranged in racks, and present to the 'coup d'œil militaire' a splendid sight; it is in fact a military museum. Here are deposited the relics of former times; revolutionary trophies, taken at Saratoga, Yorktown, and St. John, present themselves at the entrance, and remind the visitor of Washington, Lafayette, Gates, and other worthies of past days. At the end of the room may be seen a little mortar, with the marks of U. S. Philadelphia, 1793, an intimate friend of 'old Mad Anthony' and a most destructive enemy to aborigines. The total number of small arms falls not short of seventy-seven thousand. The other buildings are officers' quarters, barracks, armory, smithy, carriage-shop, machine shop with an engine of twelve horse power, paint shops, lead and brass foundries, tin shop, accoutrement shop, and offices. The last named buildings are of brick, with shingle roofs. The yard, with its gravel path-ways and locust trees, is not unlike the garden of the Tuilleries in miniature. In the centre is a cistern or reservoir, intended, with the fire engine, to convey water to any part of the fabric.

3d. The front park presents in view the outside of the main arsenal, with the right and left wings of the commandant's and subalterns' quarters, and is chiefly designed as a grove, to add to the appearance of the 'tout ensemble.' This park is enclosed with iron railings, similar to those around or in front of the President's House, at Washington. After crossing the Butler road, it leads us, 4th, into the upper park, surrounded, likewise, with a permanent wall of stone. In its inclosure are the public stables, (of brick;) three small frame buildings, separated about eighty yards from each other, denominated as the composition, drawing, and preparation rooms, are seen from the road. About two hundred yards in the rear of these buildings is the magazine of powder, designed to contain (environs) one thousand three hundred barrels. The topographical scenery is not surpassed by any west of the Allegheny Mountains, and the climate is salubrious and fruitful.

LAND IN DUTCHESS COUNTY.—We are assured, by a friend, that within the past week, the sum of 100 dollars per acre, was offered for 400 acres of land at Fishkill Hook—an evidence of the high value set on improved farms, in the neighborhood of this great city;

[From the Journal of the Franklin Institute.]

Report to the Board of Directors of Bridges, Public Roads, and Mines, upon the Use of Heated Air in the Iron Works of Scotland and England. By M. DUFRÉNOY, Engineer of Mines. Paris, 1834.

(Continued from Number 11.)

WORKS IN THE ENVIRONS OF GLASGOW.

The vicinity of Glasgow is one vast coal region, the first in Great Britain, both in the extent and the thickness of the veins. This coal basin is also very remarkable for the abundance of its iron ore, both imbedded in the argillaceous schist of the region, and in regular veins, often of considerable extent.

The layers of coal in the vicinity of Glasgow, which belong to the lower strata of the coal formation, alternate with beds of mountain limestone, so that in the same locality are often united the coal, the ore, and flux, and often the fire clay used in the construction of the furnaces.

These invaluable advantages are in part compensated by the enormous loss incident to the carbonization of the coal in this locality, as well as by the lightness of the coke produced. From these circumstances, a ton of iron requires at the Glasgow Works for its production, a much larger quantity of fuel than in any district of England.

The employment of the heated air has produced a revolution in the Scotch works, and enabled them to sustain a competition with those of Wales.

Clyde Iron Works were, as before stated, the first in which the heated air was tried. The apparatus now in use, (see figures 1 and 2,) is composed of a double row of horizontal pipes, a, a, a, 150 feet long. These pipes are nineteen inches in diameter, and one inch and a half thick. The exterior row passes behind the furnace, and enters the other row, dividing the air into two parts; so that the blast is carried equally to each tuyere.

The valves placed at E regulate the distribution of air, and stop either branch when repairs are required.

In the length of 150 feet, the tubes pass through five furnaces, or heaters, F, F, F, F, F, of which two are placed near the tuyeres; so that the air has no time to cool before entering the furnace. Figures 1 and 2 give an exact idea of the form and disposition of the five heating fires; they are connected by a conduit of brick, g, g, g, which envelopes the pipes; by this means the flame which escapes from the fireplace circulates about the pipes, and heats their whole length. To preserve the parts of the pipe immediately in contact with the flame, they are encased in fire brick the whole length of the furnace. In the first apparatus of this kind which was constructed, the ends of the pipes were inserted one in the other, having some play to prevent any rupture by expansion; the result was a great loss of air, and the plan was abandoned. Besides, it was remarked that a great waste always took place at the joints of the pipes; so that it was not sufficient to fasten them with bolts and

Figure 1.

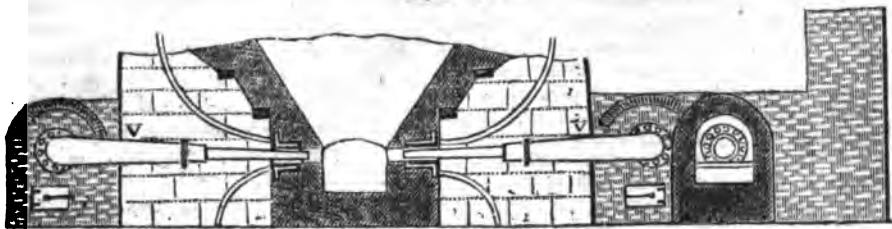
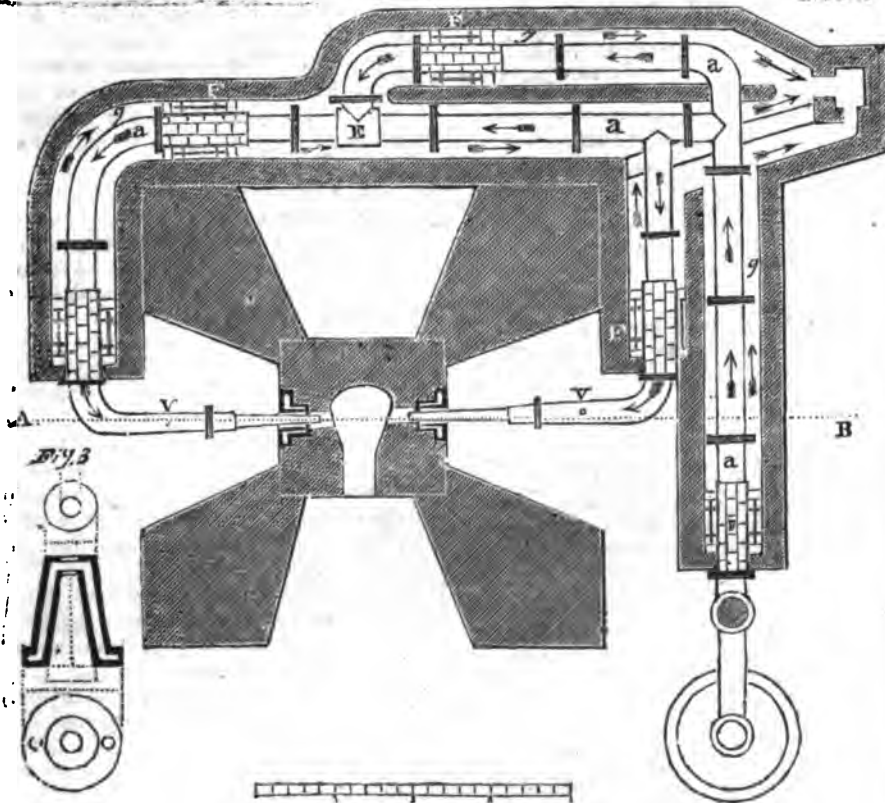


Figure 2.



nuts; the joints were therefore covered with a ring of iron cast on after they were finished. By means of this precaution, the pipes lasted a long time; at the time of my visit, they had been five months in use without repairs.

On the exit pipes are small holes, V, V, by means of which any change of temperature in the air might be ascertained. This precaution is indispensable, because one of the essential conditions in the use of heated air, is, that its temperature be kept uniform—with this apparatus they raised the air to 612° Fahrenheit, which is higher than the melting point of lead.

In the Clyde Works, two of the four furnaces have each an apparatus like the one described, but in the other two there was no room for the extent of pipes, and they are contracted into smaller space, by being doubled upon themselves.

The working of a furnace with heated air requires no particular precaution; the operation is the same as before its introduction, the only difference consisting in the substitution of raw coal for coke. This substitution did not immediately follow the adoption of the new plan; it was some time after, and only when the temperature of the air was raised above the melting point of lead, that the immense benefit of the change

was discovered, giving a consequent diminution in the expense of manufacture.

The general idea adopted in Scotland, is, that certain qualities of coal cannot be employed crude, except when the air is highly heated. We have already said that at the Monkland Works, where the air is heated to 460° and 490° Fahr., coke is still used.

The descent of the furnace is very regular—the distances between the charges are nearly equal, the charging being regulated by the space left empty in the throat. The richness of the ore not roasted, varies from 22 to 34 per cent., and the composition of the charges follows this variation. At the time of my visit, the average yield of ore, after roasting, was 44 per cent., and the charges thus composed:

660 lbs. coal,
520 lbs. ore roasted,
100 lbs. lime.

They usually made 40 charges in 24 hours. During the two days that I witnessed the working of the Clyde Works, the number of the charges were,

July 4—from 6, A. M., to 6, P. M., 38
from 6, P. M., to 6, A. M., 39
“ 6—from 6, A. M., to 6, P. M., 37
from 6, P. M., to 6, A. M., 40

The yield of the furnace in these four

castings, was, 4 t. 8 cwt.; 4 t. 9 cwt.; 4 t. 6 cwt.; 4 t. 12 cwt. Total, 17 t. 15 cwt. for 154 charges; or, 8 t. 17 cwt. 2 qrs. each 24 hours.

This result shows that a ton of iron is produced at an expense of 2 t. 8 cwt. 2 qrs. coal. The consumption of the heating fire is 8 cwt. Total, 2 t. 16 cwt. 2 qrs. per ton of iron.

The castings are made every twelve hours. The metal obtained is usually a mixture of No. 1 and No. 2. That which goes first from the hearth is No. 1. These two varieties of iron are distinguished by the small channels which furrow the surface of the metal while cooling.

The tuyeres are hermetically closed round with clay, and as they cannot resist the elevated temperature to which they are submitted, water tuyeres have been substituted similar to those used in the fineries. The figure 3 represents the tuyeres employed at the Clyde Works; they are of cast iron, and last various lengths of time, averaging five or six months.

The tuyeres are closed in, to prevent the entrance of cold air through the openings. There is no objection to this arrangement, because the air is so hot that no scoria accumulates upon the pipe, and the workmen are never obliged to free the tuyeres. There is a high white heat in this part of the furnace; nevertheless there are scarcely any sparks produced by the oxidation of the iron, and the particles that fall are black in the centre, showing that the metal is still covered with a small layer of melted scoria.

The flame issuing from the furnace is of a bright red, while that from the coke furnace, worked with cold air, is of a yellowish color. This difference of color is as marked as that which exists between the flame of alcohol colored by strontia and by baryta.

The pressure of the blast in the air vessel is two pounds and a half, or five inches of mercury to the square inch. It is the same near the tuyeres, only the gauge which indicates it is subject to great oscillations. This pressure was formerly three pounds. The opening of the tuyere is three inches; it was two inches and a half when cold air was used. The quantity of air forced into the furnace is less. The blowing engine, of seventy horse power, served only three furnaces; now it feeds four with ease. From the dimensions of the blowing cylinder* the quantity of wind, which was 2827 cubic feet per minute of cold air, is now but 2120 cubic feet.

The furnaces of the Clyde have not been altered since the introduction of hot air. They had been in blast a long time when this new plan was adopted; one of them has been seven years in blast, and the regularity of its operations gives an earnest that it will last a long time.

At the commencement of this report, I

* The steam engine which works the blowing apparatus, requires for fuel twenty tons of broken coal, or slack, per day of twenty-four hours, which costs one shilling and eight pence sterling per ton, (forty cents.)

have already stated the economy of fuel, and of flux, which had been obtained at the Clyde Works, by the introduction of hot air. I think it, nevertheless, useful to show the correctness of the estimate by transcribing a statement of the differ-

ent expenses of manufacture during a month while cold air was used, and a corresponding month, with the use of hot air. I make this statement from the books of the Works, to which I have been allowed access with a rare liberality.

Consumption and Produce of three Furnaces, using Cold Air and Coke, during the month of February, 1829.

	Coke.		Ore.		Flux.		Pig Iron.			Castings.	Total.
	t.	c.	t.	c.	t.	c.	No. 1.	No. 2.	No. 3.		
1st week	386		237	9	68	2	72	13	38	13	125
2d do.	411	10	242	11	72	11	51	19	37	11	136
3d do.	401		231	16	70	18	44	16	48	2	131
4th do.	301	10	177	13	53	6	53	27	26	3	105
	1500		879	9	264	17	232	8	145	15	499

Add the consumption of the engine, averaging one ton of slack to the ton of iron made.

Consumption and Produce of four Furnaces, using Hot Air and Coal, during the month of February, 1833.

	Crude Coal.		Ore.		Flux.		Pig Iron.			Castings.	Total.
	t.	c.	t.	c.	t.	c.	No. 1.	No. 2.	No. 3.		
1st week	516	15	490	7	91	16	81	4	98	15	265
2d do.	514		491	6	91	7	48	8	46	13	257
3d do.	521	15	486	8	91	8	94	12	59	10	264
4th do.	470	10	434	12	81	18	75	2	47	10	224
	2023		1902	13	356	9	299	6	183	10	1010

The consumption of the steam engine averaged eleven cwt. per ton of iron produced.

The result of an examination of these tables is, that, for one ton of iron produced, there was consumed as follows:—

1829. With Cold Air and Coke.			1833. Air heated to 612° Fahr. and Crude Coal.		
1. Coal for fusion—		t. cwt.	Crude coal,		t. cwt.
3 tons of coke, corresponding to coal,	6	15	Do. for steam engine,	11	
Do. for steam engine,	1		Do. for heating the air,	8	
	7	15		2	19
2. Ore roasted, 3523 lbs., or	1	15	Ore, 3780 lbs., or	1	18
Its average yield being 57 per cent.			Its average yield being 56 per cent.		
3. Flux, 1056 lbs., or	10		Flux, 704 lbs., or	7	
Daily production of furnace, 11,904 lbs., or about 6 tons.			Daily production of furnace, 18,025 lbs., or about 9 tons.		

The daily production having been raised at the Clyde Works from six to nine tons, the introduction of hot air has produced an economy in the consumption of fuel, and in the expense of manual labor.

The following shows the cost of manufacturing pig iron during these two periods:

	In 1829. Cold Air.		In 1833. Hot Air.	
	t.	c.	t.	c.
Coal for melting, at 5s. per ton, (£1 20.)	6	12	8	98
Do. for the blowing machine, at 1s. 8d. per ton, (40 cents.)	2		11	22
Do. for the heating apparatus,		80	8	48
Mineral roasted, at 12s. per ton, (£2 88.)	1	15	1	18
Flux, at 9s. per ton, (£2 16.)	10		7	76
Labor, at 10s. per ton, (£2 40.)		2	1	60
General expense, interest of capital, &c., (£1 48.)		1		96
Total,		19		11

Note.—The cost in sterling money is reduced to United States currency, at the rate of four dollars and eighty cents per pound.—[TRANS.]

(To be continued.)

WEARING SPECTACLES.—Mr. Curtis, the celebrated oculist, in a recent publication, is very earnest in teaching the

world, that when an individual feels obliged to wear glasses, for the first time, it is immensely important to future vision not to have the spectacle eyes too small. says Mr. Curtis, the glasses are not sufficiently large to cover the circle of the orbit, the wearer is obliged to look against the frame, as well as above and below it. The large, old fashioned spectacles, are therefore altogether superior to the modern article: oval bows he condemns in toto, as they exert a destructive influence over the organ, by obliging the whole muscular power of the eye to be exerted, in order to receive impressions through the very contracted window of the bow. He thinks highly of gauze spectacles, as screens to keep out the dust, so terribly destructive to vision in sandy regions and in cities, where the dust is whirled with tremendous violence through the streets, like blowing through so many tubes. He seems to be much opposed to operations on this delicately constructed organ.—[Ibid.]

Henry L. Ellsworth, of Connecticut, has been appointed, by the President, Superintendent of the Patent Office. Mr. E. accepts the office, and has proceeded to Connecticut to remove his family to Washington.—[National Intelligencer.]

Facts from Williams' Annual Register.—There are in the State of New York 56 counties, 781 towns and 9 cities. There are 116 incorporated villages in the State. The incorporated villages are governed by a President and Trustees, generally five in number, who are elected annually by the people. A State census is to be taken this year.—The total number of Post Offices in the State is 1,703. There are 260 newspapers printed in this State, besides several magazines. Papers are published in all the organized counties of the State except Franklin and Putnam. There are 25 daily papers, 15 printed in the city of New York, 3 in Albany, 3 in Troy, 2 in Buffalo, 1 in Brooklyn and 1 in Rochester. In the city of New York there are 65 papers published exclusive of magazines.—15 daily, 11 semi-weekly, 31 weekly, 3 semi-monthly, and 5 monthly. The average circulation of the ten large daily papers is about 1,700, or 17,000 total number of sheets issued daily. The total value of woollens manufactured yearly in this State, exclusive of those made in families, is \$2,500,000. The total value of all manufactures of iron in the State, is estimated at about \$4,000,000.

Summary of Canals completed.

Name.	Length.	Cost.	Tolls in 1833
Erie Canal,	264 miles	\$8,027,466 06	\$1,290,126 20
Champlain Canal,	64	—	182,560 02
Glen's Fall Feeder,	12	1,179,571 06	—
Oswego Canal,	38	665,437 25	22,940 47
Cayuga & Seneca Ca.,	23	236,984 74	17,174 09
Cheunung Canal,	23	342,133 95	694 09
Navigable Feeder,	16	—	—
Crooked Lake Canal,	9	136,321 93	200 09
	546	\$11,498,035 99	\$1,463,715 22

Navigable Ponds & Feeders,

Total, 566 miles of canal navigation completed and owned by the State. Average cost per mile, about \$21,000

Number of Churches and Meeting Houses in the City of New York.

Presbyterian,	33	Universalist,	3
Episcopalian,	26	Unitarian,	2
Methodist,	29	Independents,	2
Baptist,	17	Jews,	3
Reformed Dutch,	13	Moravian,	1
Roman Catholic,	6	Miscellaneous,	4
Friends,	5		
Lutheran,	2	Total,	148

Comparative View of the number of Clergy in the State, in 1819 and 1835.

	No. in 1819.	No. in 1835
Presbyterians and Congregationalists,	528	662
Baptists,	139	443
Methodists,	90	492
Episcopalians,	83	191
Reformed Dutch,	105	116
Associate Reformed,	—	23
Lutherans,	16	30
Other denominations, not enumerated in 1819,	—	74
	761	1,920

The assessed valuation of personal and real estate in the several counties in the state of New York for the year 1834, is \$459,673,135. The amount of auction duties for 1834 is \$193,470 19. The amount of tolls received from the state canals during 1834 is \$1,339,799,56. There are 90 banks in the state, with a capital of \$34,781,460. There are 14 marine insurance companies in the city of New York with a capital of \$4,550,000, and 29 fire insurance companies, with a capital of \$10,450,000. There are 27 insurance companies in the state exclusive of those in the city of New York, with a capital of \$4,501,731. In the state there are five colleges—Columbia College, and the University in the city of New York, Union College in Schenectady, Hamilton College in Oneida, and Geneva College at Geneva, Ontario county.—There are six theological seminaries, one in New York, one at Auburn, Cayuga county, one in Madison county, one at Hartwick, Otsego county, and one at Cazenovia, Madison county. The arrivals at the port of New York from foreign countries during 1834, were 1,932. During the same year 48,110 passengers arrived at this port from foreign countries. There are 41 whale ships owned in this state, employing a capital of over \$1,000,000, and crews of about 1,000 men.

The number of Attorneys and Counsellors at Law in the state of New York, in 1835, 2052.

The number of Physicians in the state is 2650.

The rank and file of the Militia of this state comprises 156,212 men, viz: horse artillery, 1271; cavalry, 7225 artillery, 11,396; infantry, light infantry, and riflemen, 163,301; fifty companies of artillery attached to infantry permanently, for inspection, 3019.

NEW-YORK AMERICAN.

MAY 16-23, 1835.

LITERARY NOTICES.

THE NEW YORK ANNUAL REGISTER for 1835, by EDWIN WILLIAMS, New-York. This is the sixth year of this useful, improving and annually enlarging publication—and it has now so completely established its character for extent, variety, and accuracy, of information, as to render superfluous any thing beyond the mention that another volume has appeared, and that it is in every respect equal, and in point of paper and typography, superior, to its predecessors.

THE STRANGER IN AMERICA, or letters to a gentleman in Germany, by FRANCIS LIEBER: 1 vol. 8vo., Phil., CAREY, LEA & BLANCHARD, for sale in New-York by WILEY & LONG. We recently took occasion to copy, from an English Review, a notice of this work of Dr. Lieber, and to express our concurrence in the praise there bestowed upon it. We are a queer people—we Americans; we will not buy books about our own country, unless they abuse and caricature us,—nor interest ourselves in the reputation of naturalized citizens—except, indeed, about election time. This book of Dr. Lieber, seems to us an illustration of both these remarks. It is certainly clever, agreeable, full of rambling disquisitions, in which there is always a staple of thought and knowledge, and without, complimentary to Americans, and American Institutions. The writer has taken up his abode among us for good and for evil—he is one of us—and by his labors on that truly national work the *Encyclopedia Americana*, has done not a little to illustrate American literature. Yet these letters to Germany, originally published, under the title, we believe, of letters written during a tour to Niagara, are coldly received; and the praises of which they have been the object in English reviews, are not transplanted, as in the case of every word of eulogy on our native writers, is so eagerly done—into the newspapers of this country. We can assure our readers, nevertheless, they will find that "The Stranger in America" is a very agreeable and well informed companion.

HINTS FOR THE IMPROVEMENT OF EARLY EDUCATION AND NURSERY DISCIPLINE; from the 12th London edition, with additions. 1 vol. 12mo.—New York—WILEY & LONG.—The dedication of this work—brief, comprehensive, and speaking—opens its way favorably. It is in these simple but touching words—"Dedicated to Mothers by a Mother;" and well does it redeem the promise of such a dedication, for it is manifestly throughout, the production of a careful, firm, and affectionate mother, who loves her offspring too sincerely, to indulge in the selfishness which so often interferes with proper discipline, and who reverences too much the purity of childhood, to be, in any wise, a party to impairing it, by undue indulgence. Let the following extract show her principles:

Success in Education depends,

FIRST—More on Prevention than Cure; more on securing our children from injury, than on forcing upon them what is right. If we wish, for instance, to render a child courageous, we shall effect it, not so much by urging and compelling them to feats of hardihood, as by guarding him from all impressions of terror, or from witnessing a weak and cowardly spirit in others.

SECONDLY—On Example rather than on Precept and Advice.—As the bodies of children are imperceptibly affected by the air they breathe, so are their minds by the moral atmosphere which surrounds them; that is, the tone of character and general influence of those with whom they live.

THIRDLY—On forming Habits rather than on inculcating Rules.—It is little to tell a child what to

do; we must show him how to do it, and see that it is done. It is nothing to enact laws, if we do not take care that they are put into practice, and adopted as habits. This is the chief business of education, and the most neglected; for it is more easy to command, than to teach and enforce. For example; a child will never know how to write by a set of rules, however complete; the pen must be put into his hand, and the power acquired by repeated efforts, and continued practice.

FOURTHLY—On regulating our Conduct, with reference to the Formation of the Character when matured, rather than by confining our Views to the immediate effect of our labor.—Premature acquirements, premature quickness of mind, premature feeling, and even premature propriety of conduct, are not often the evidences of real strength of character, and are rarely followed by corresponding fruits in future life.

LASTLY—On bearing in mind a just sense of the Comparative Importance of the objects at which we aim.—As in the general conduct of life, it is the part of wisdom to sacrifice the less to the greater good, so is this eminently the case in the subject before us. Now the primary, the essential object of education is this—to form in children a religious habit of mind, founded on the divine principles of Christianity, and leading to the habitual exercise of practical virtue. To this, all other attainments are wholly subordinate.

THIRTY YEARS CORRESPONDENCE BETWEEN BISHOP JEBB AND ALEX. KNOX. 2 vols. 8vo. Edited by the Rev. CHARLES FORSTER, formerly domestic chaplain to Bishop Jebb. Philadelphia, CAREY, LEA & BLANCHARD. For sale in N. York by WILEY & LONG.—A correspondence through the space of nearly the third of a century, between two men of warm attachment to each other—in the most unreserved confidence—and discussing matters of taste, literature, but mainly religion, with open hearts and minds, could not fail—even if the writers were only men of ordinary capacity—to be a record of deep interest and attraction. But here the parties are profound scholars—admirable writers—discriminating critics: add to this, the charm of feeling that what you read in these letters, is the honest outpouring of one tried friend to another—not written for effect—not dreaming of future publication, as Lord Byron, in all his letters to Murray and others, so manifestly was—but written as the friends would have talked, if together, in the fulness of their understanding and their hearts.

The general and most frequent topics of the letters is, of course—religion—and the various duties enjoined upon Mr. Jebb by his different stations in the church, first as Curate, at 50l. a year, till he rose to the Bishopric of Limerick. There is, moreover, a great deal that all readers of taste will be interested in—so, at least, we feel quite authorized in pronouncing, from the casual and interrupted perusal we have been able to give to these volumes,

THE INFIDEL OR THE FALL OF MEXICO: A ROMANCE, BY THE AUTHOR OF CALVARY, 2 vols. PHILADELPHIA, CAREY, LEA & BLANCHARD. We have read these volumes through with unflinching interest; they evince power of a high order, and thorough preparation for the work undertaken. They embody the very spirit of the times in which the story is laid, and reproduce life and the scene, as though they were living before our eyes. The style of the work is indeed, as they strike us, are superabundant of incident and detail, arising, however from a richly stored mind.

The story is that of the fall of the island empire of the city of Mexico, after the long and bloody operations against it conducted by Cortes in person, and the gallant, protracted, but eventually unavailing defence of the youthful and intrepid Cuatimozin. The hero of the story, however, is Juan Lerna; the heroine, a very remarkable creation, La Morgonessa; and not least, the noble dog

Befo—a type not overdrawn, of the incorruptible fidelity, and courageous affection, of that trust of the friends of man—among the brute creation—and hardly limited to that.

THE AMERICAN MONTHLY, for May: New-York, D. K. MINOR.

THE KNICKERBOCKER for May: New-York, WILEY & LONG.

THE TURF REGISTER, for May: Baltimore, I. SKINNER.

We have only had time to skim over the pages of the Monthlies,—but found wherewithal to be well pleased. There is in the American Monthly, both variety and ability.

NATIONAL ACADEMY OF DESIGN; 10th Annual Exhibition.—We conclude our Review to-day, with a notice of a portion of the pictures in this exhibition, which, as a whole, is creditable, though we are by no means a convert to the opinion expressed by some knowing members of Congress, in the debate respecting the vacant panels in the Capitol, that in this country painters in all the highest departments, are plenty as blackberries.

SUMMARY.

The annexed Acts are of general interest:

An Act relating to the privileges of Firemen of the respective cities within this State, passed May 8th, 1835.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The firemen of the different cities within this State, in case of removal from one city to another, shall be allowed the time which they may have served as such firemen in the city they left, in the city to which they removed, upon producing a certificate of such service, signed by the chief engineer of the city so left, and being reappointed a fireman in the city to which they have removed.

§ 2. When every such fireman shall have served as such for so long a time thereafter as shall make the whole term of service the same as required by the law of Firemen residing in the city removed to, they shall be entitled to all the privileges and exemptions now secured by law to the firemen of the cities of Albany and New York.

An act in relation to the assessment of highway labor. Passed April 24, 1835.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The real property of non-resident owners, approved or occupied by a servant or agent, shall be subject to assessment of highway labor, and at the same rate as the real property of resident owners.

§ 2. The twenty-second section of title first, chap. 18th, part first, article second of the Revised Statutes, shall be amended so as to read as follows:

§ 22. The commissioners of highways in each town, at their first or any subsequent meeting, shall make out a list and statement of the contents of all lots, pieces or parcels of land within such town, owned by non-residents therein; every lot so designated shall be described in the same manner as is required from assessors, and its value shall be set down opposite to such description; such value shall be the same as was affixed to such lot in the last assessment roll of the town; and if such lot was not separately valued in such roll, then in proportion to the valuation which shall have been affixed to the whole tract of which such lot shall be a part.

§ 3. The twenty-fourth section of the same chapter shall be amended so as to read as follows:—

§ 24. In making such estimate and assessment the commissioners shall proceed as follows:—

1. The whole number of days' work to be assessed in each year shall be ascertained, and shall be at least three times the number of taxable inhabitants in such town;
2. Every male inhabitant being above the age of twenty-one years, (excepting ministers of the gospel and priests of every denomination), paupers, and idiots and lunatics,) shall be assessed at least one day.
3. The residue of such days' work shall be apportioned upon the estate, real and personal, of

every inhabitant of such town, as the same shall appear by the last assessment roll of the said town; and upon each tract or parcel of land, of which the owners are non-residents, contained in the list made as aforesaid.

4. If, after such appointment, there shall be any deficiency in the number of days' work determined by the commissioners to be performed in their town, the then ensuing year, such deficiency shall be assessed upon the estates, real and personal, of the inhabitants of the town, and upon each tract or parcel of land of which the owners are non-residents, according to the last assessment roll.

5. The commissioners shall affix to the name of each person named in the list furnished by the overseers, and also to the description of each tract or parcel of land contained in the list prepared by them of non-resident lands, the number of days which such person or tract shall be assessed for highway labor, as herein directed, and the commissioners shall subscribe such lists and file them with the town clerk."

THE MICHIGAN WAR SUSPENDED.—The Buffalo Commercial Advertiser of the evening of the 11th, has this paragraph:

Messrs. Rush and Howard, who have been acting as Mediators between Ohio and Michigan, left this city yesterday, on their return to Washington. We learn from them the important fact, that Gov. Lucas with his suite, and the militia who were assembled at Perryburgh, have returned to their respective homes.

The Commissioners for running the northern boundary line of Ohio, have also returned, and will suspend their operations until after the meeting of the Ohio Legislature in June, a special session of which, at that time, has been called by Governor Lucas.

We are much gratified to have it in our power thus to assure our readers, from an official source, that no further difficulties need be apprehended between the two Great Powers—in Cabinet parlance—for some months, at least.

[From the Baltimore Patriot.]

BALTIMORE PROSPECTS.—We mentioned, a few days since, a purchase of a large square of ground in the eastern section of the city, by speculators from abroad. We have now to notice the purchase of the country residence of the late Mr. Didier, within the western limits of the city, about 19 acres, for \$24,000, by a citizen of New York, who has bought, also, a square of ground between German and Pratt streets. It is believed he will more than double his money within a short period. Capitalists can no where make more profitable investments than in Baltimore, at the present time, for the city is destined to "go ahead" steadily and rapidly.

STEAMBOAT EXPLOSIONS.—The National Intelligencer, adverting to the frequency, and fatality, of these occurrences, says very justly:

"There is no certain remedy for these accidents but to make the owners of the boats sweat for them. A penalty of \$5,000 for the death, and \$1,000 for the damage of every individual, caused by the bursting of boilers, would soon put a stop to such occurrences, for they are all the result of negligence, incapacity, or culpable mismanagement."

THE GRAIN AND FLOUR MARKET.—The price of Grain and Flour as a more general concern than that of any other articles of merchandise,—for we all eat bread—naturally attracts attention—just now. It is, we observe, said in some of the Southern papers, that the rise here in these articles, is probably speculative, and partaking of the gambling spirit, which the rise in Stocks and Real Estate, is supposed to exhibit.

According to letters however, we have seen to-day, from the grain growing region of this State, we apprehend there is really too good ground for the rise, in the shortness of the supply left over from last year, and in the injury which the severe winter has done to the wheat in the ground. At any rate, \$1 25 was refused at Geneseo, last week, (on the 9th,) for wheat.

Fodder for cattle is also fearfully scarce. Many head have perished, and at Rochester hay has been

sold at \$30 per ton. Even at the Genesee Flats it commands \$14—and in many places, farmers are doling out with a scanty hand to their cattle, the wheat which was reserved for their own use.

The New York spirit of speculation seems to find itself too much circumscribed within the narrow limits of this city and its vicinity, and is extending itself, as will be seen by the annexed paragraph, to Albany, and even to Baltimore.

[From the Albany Argus.]

REAL ESTATE SALES IN THE CITY OF ALBANY.—The recent sales of real estate in this city, although extending in the aggregate to a large amount, are by no means in advance of the actual value of property.

The sale of the extensive and valuable estate of Mr. E. C. Delevan, for some \$250,000, is a purchase that promises to return, ultimately, if not immediately, a large profit to the company into whose hands it has fallen. During the past and previous year, real property in this city has not advanced in value with the progress of population and the upward tendency of rents. It may be said to have been stationary. It could not be doubted, however, that the increasing business of the city, the multiplied travel and intercourse, and particularly the prospect of the removal of the obstructions to the navigation, would give an impetus to real property. It was obvious that it would start forward as soon as these combined causes should become in any degree operative. And such has been the case. The purchase of this large estate was made just at the turning point, and will scarcely fail to prove advantageous to the new owners and to the city. The south lots alone must be soon worth the entire purchase money.

The purchase of the property of Jas. Stevenson, Esq., for \$42,000 was also judiciously made. It is in the heart of the city, and among the most valuable real estate on State street. We suspect that more than one of our citizens would be glad to take the property at the price paid by the New York purchasers.

Other sales of lots and property in the city indicate a decidedly upward tendency in value and demand.

GREAT SALE OF REAL ESTATE.—The Country Seat of Com. Chauncey near Hellgate, which was sold by the Commodore a few months ago for fifty thousand dollars, was re-sold in city lots yesterday, for nearly one hundred and twenty thousand dollars.

It is distant about five miles from the City Hall, and contains about 15 acres, we believe.

STEAMBOAT CASE—A POINT TO BE MOOTED.—

It is stated in the Richmond Whig, that the steamboat *Columbian*, plying between Baltimore and Norfolk, on a recent occasion, meeting on her way up, off the mouth of the James River, a new boat, the *Thos. Jefferson*, built to run between Richmond and Norfolk, refused to receive on board—as was usual, and as had been done we presume hundreds of times, from other boats belonging to the same parties as the *Columbian*—passengers bound to Baltimore. The objection was, not want of room, nor stress of weather, which prevented the boats coming to, with safety—for the passengers from the *Thos. Jefferson* were alongside the *Columbian*—but that they were from a rival boat. They were accordingly driven back.

Now the point we desire to moot is, whether—if in virtue of advertisements, or common usage, the *Columbian* was known, and relied upon, to take passengers from the Richmond boats when meeting between Norfolk and the mouth of the James River—there would not lie an action against the proprietors, or master, for breach of contract, in the case referred to by the Whig?

They who undertake for hire, to run public conveyances, whether on land or water, do contract engagements towards the public, from which they should not be, and we presume are not, at liberty, from any capricious, or selfish, or spiteful motives, to moderate themselves, without due notice. While

they are common carriers of goods or passengers, they must abide by their own undertaking, or be subject to penalty for not doing so. This, at least, is the common sense view of the case, and therefore possibly the common law—though between common sense and law there be, sometimes, sad discrepancies.

Pennsylvania Loan.—The loan of \$953,000, authorized by an act of the last session of the Legislature, and for which proposals were received at the Office of the Secretary of the Commonwealth until the 9th inst., was taken by Elihu Chauncey, Esq., for the Bank of Pennsylvania, at one hundred and twelve dollars and two cents for every one hundred dollars of stock. We understand that the Messrs. Phillips bid \$111 74.—[U. S. Gazette.]

[From the Globe of Yesterday]

The following gentlemen have been invited by the Secretary of War to attend the next General Annual Examination of the Cadets of the Military Academy, which will commence on the first Monday in June:

Maine.—Hon. M. Mason.
New Hampshire.—Col. S. Collins.
Massachusetts.—*Hon. N. Bowditch.
Connecticut.—Rev. J. Cogswell, *Rev. H. Crosswell.
New York.—Hon. B. Green, Hon. C. C. Ferris, Gen. Geo. R. Davis, *George W. Clinton, Esq., John Hunter, Esq.
Pennsylvania.—Dr. C. D. Meigs, Gen. W. S. Rogers, Wm. Robinson, Jr., Esq., Wm. J. Leiper, Esq., Wm. C. Frazer, Esq., *Hon. Geo. M. Dallas, Hon. Calvin Blythe.
Virginia.—Dr. E. H. Carmichael, Col. John Heth, Hon. P. V. Daniel.
North Carolina.—John Bragg, Esq.
South Carolina.—Dr. E. S. Davis.
Georgia.—Col. Wm. C. Lyman.
Kentucky.—Thomas J. Pew, Esq.
Tennessee.—Right Rev. J. H. Otey, Bishop of Tennessee.
Indiana.—*Dr. E. Newland.
Alabama.—Col. Peter Martin.
Army.—Brig. Gen. Henry Atkinson.

*Those gentlemen who have this mark before their names have declined.

[Hudson's News Room Correspondence.]

STEAM BOAT DISASTER.—The Steamboat William Parsons, on her passage from New Orleans to Little Rock, was snagged and sunk, in Arkansas river, about 40 miles above port Arkansas. She had a cargo worth about \$60,000, fully insured; part of it has been saved in a damaged state. No insurance on the boat, which, it is supposed will be lost.

The Brig Maese, hence for Sisal, is ashore at Barnegat, and will probably be lost.

[From the Nat. Gazette.]

The annexed article is "going the rounds" of the newspapers.

"An English paper speaking of honor, the soreness of which, it says, is betrayed by the sensitiveness, makes this just remark: 'The common sense of mankind instructs them that a sound robust honor is never touchy; it is when it becomes weak and tender that it goes about querulously asking this man and that man whether they intended to hurt or offend it.'"

Neither the common sense nor common experience of mankind warrants this theory, supposing touchy to mean sensitive. The most pure and delicate—those who have labored most earnestly to deserve the best reputation—are apt to be "tremulously alive" to every kind of obloquy or injurious suspicion. Honor may be thoroughly sound and incorruptible, but not robust so as to be unaffected by opinion. Falsehood alone can annoy it, and does severely in the plurality of cases. There are, indeed, public pursuits and situations, so particularly and constantly able to obloquy, that the natural susceptibility of true honor is gradually lessened; yet, eminent men of the noblest virtue, public and private, have even perished, in advanced stages, from tenderness or irritability with regard to their fame. Few are content or able to live down merely the judgments of ignorance and the inventions of malice. Quertulousness, indeed, is never thanly, and rarely servicable; but sensitive

ness is common where firm, conscious honor and high moral courage are united. On this account slander is doubly mischievous and detestable.

THE HONORED CHIEF JUSTICE.—The National Intelligencer of yesterday, referring to the rumors of the ill-health of Chief Justice Marshall, has this cheering paragraph:

We are happy to say that a letter from the Chief Justice, upon business, was yesterday received at the office of the National Intelligencer, the contents and appearance of which indicate nothing like indisposition of either mind, or body, in the writer. The hand is as firm, and matter as germane to the purpose, as usual with him. Furthermore, the Richmond Compiler of Friday last states, that the Editor saw the Chief Justice on the previous day, taking his accustomed walk, half a mile distant from his residence.

The funeral ceremonies yesterday, in honor of the late General Leavenworth, were altogether creditable to the feelings of the city, and to the arrangements and precision of the military. The day was hot, but fine, and the crowd of spectators great.

The Journal of Commerce gives these particulars:

The Superior Court room was reserved for the Judges of the Law Courts, Members of Congress, and State Legislatures, Society of Cincinnati, &c. The Common Council room was reserved for the reception of the Common Council, Clergy, Pall bearers, Officers of the Army, Recorder, Ex-Mayors and Recorders, Ex-Aldermen and Assistants, and the Corporation of Brooklyn. The remains of the deceased lay in state in the Governor's room. On the plate of the Coffin, which was a very superb one, was engraved the words, "BRIGADIER GENERAL HENRY LEAVENWORTH, DIED, JULY 21ST, 1834, AGED 51 YEARS." About 4 o'clock the funeral procession left the City Hall, and proceeded to the Steamboat, amidst discharges of cannon. The following is a brief memoir of the deceased, for which we are indebted to the kindness of one of his relations.

General Leavenworth was born in the State of Vermont, and in the year 1806 came to the town of Delhi, in Delaware Co., N. Y., where he studied law under General Root, and continued practicing it until the year 1812, when he entered the army as a Captain, at the head of a volunteer corps which he raised himself, and from that period till his death he remained in the army. He commanded a battalion in the 9th regiment at the battles of Chippewa and Bridgewater. After the first of these battles, he was made Lieutenant Colonel, and after the second, where he particularly distinguished himself for his gallantry, he was made Colonel. At this battle most of the officers were wounded, and for a part of the day nearly the entire command devolved upon him. He was however at last wounded himself. Whilst he was holding out his arm pointing towards the enemy, a cannon ball struck his arm and knocked him off his horse. After the battle, he retired to Delhi, where he remained five or six months, and then rejoined the army. When peace took place, he was appointed to the command of Sackett's Harbor, and was subsequently stationed at Jefferson barracks, a little below St. Louis on the Mississippi, afterwards at the Falls of St. Anthony on the Mississippi, and other outposts, until the summer of 1834, when he marched in command of the dragoons, on an expedition to the settlements of the Pawnee and Comanche Indians. This was unfortunately his last campaign; he died on the 24th of July, 1834, of fever, at a place called Cross Timbers, on the False Washita. His remains were at first taken to Cantonment Jessup, and from thence to New Orleans, from which place they were shipped for this port about six weeks ago. Prior to the shipment the flesh was separated from the bones and nothing but the latter was brought her. They arrived a few days since, and were yesterday put on board a steamboat, to be conveyed to Delhi, where his wife, who died in 1811, lies interred. She was the sister of Doctor Knapp of this city. In all his different relations in life he sustained the character of a brave, amiable, intelligent and highly honorable man.

MISSIONARIES.—The ship *Shepherdess*, which has sailed from Boston for India, has on board the

Rev. John M. S. Perry and lady, of Mendon Massachusetts, and Rev. J. J. Lawrence and lady, of Genesee, New York, destined for Ceylon; Rev. Henry Ballentine and lady, of Marion, Ohio, and Mr. E. A. Webster (Printer) and lady, from Utica, New York, destined to Bombay—all sent out by the American Board of Missions.

BALTIMORE, May 13.—*Naval.*—The Board for the examination of Midshipmen, consisting of Captains Ballard, Dallas, Bolton, Claxton, and Kearney, convened yesterday, in this city. Between forty and fifty Midshipmen have reported themselves, prepared for the ordeal, and, with good wishes for their success, we bid a "pleasant passage."—[Patriot.]

The Astor Hotel, N. York.—The Boston Atlas says, that this House has been taken by the Messrs. Boyden, of the Tremont House, Boston.

Shocking Accident.—We learn that as the Northern Stage was passing over Culpepper's Bridge, between Halifax and Louisburg, on Saturday last, on its route to this city, the feet of one of the horses got caught in a hole, which so alarmed the others that they started to run and upset the Coach. Several of the passengers were seriously injured. One had his back broken, and, it is said, cannot possibly survive; the driver also, we are informed, was in a dying state. Two or three of the horses were either killed or drowned. These are all the particulars we have been able to glean.—[Raleigh Reg., 12th May.]

Capt. Douglas, (of brig *Elm*, from Guayama, P. R.) was informed by the Am. Consul, and his merchants at Guayama, that there was a report that 14 plantations at Santa Croix had been destroyed by fire.

In a short time will be published, by Messrs. Carey, Lea & Blanchard, "The Conquest of Florida, by Hernando Soto," a work in two volumes, derived from original and authentic chronicles, by Theodore Irving, Esq. the nephew of Washington Irving.—We congratulate the author upon the success of this his first attempt to follow in the footsteps of his distinguished uncle. It furnishes conclusive evidence that he will do no discredit to his name, and that we may expect much from his devotion to literary pursuits. The subject is one of considerable interest both from its historical importance, and its romantic character, and is treated in a way that cannot fail to engage the attention of every reader. The dedication to the author's uncle, does equal honor to his head and heart.—[Nat. Gazette.]

Navigator Islands.—This group lies in about 13 south latitude, and 171 West longitude. Captain Worth, of the *Howard*, informs us, that having visited most of the islands in the South Pacific, he considers the Island of Oteewhy as presenting advantages and facilities to whalers, superior to those of any other island in that Ocean. It affords fruit, yams, poultry, swine, &c. in the greatest abundance; plenty of wood, and excellent water. For a musket the natives give 13 hogs, or 800 to 1000 yams; and great quantities of fowls, coconuts, bananas &c. may be purchased for a few pipes, flints, and blue glass beads. The fruit is generally obtained at the N. W. part of the island; but hogs, wood and water are procured from the north side.—Sufficient supplies may be taken on board in the short space of four days; and no danger need be apprehended from the natives, provided the precaution be taken to keep the head chief on board as a hostage, day and night—a requisition very willingly complied with when two or three of the natives, and an interpreter, are also allowed to remain. By pursuing this course in both of his visits to this place, Capt. W. passed and repassed unarmed in his boats with perfect safety, and found the natives extremely civil, never attempting to steal from the boats on shore, nor while on board his ship. He thinks however, that without this precaution, they would not hesitate to seize a boat and crew, merely for the sake of two or three muskets—which article they seem very anxious to obtain, though they never inquired for shot or ball. The white residents (of whom there are only two, who are chiefly engaged in agriculture) informed Capt. W. that they made no other use of the muskets than to discharge them at their great feasts—considering those the best which made the loudest reports!—[Nantucket Enquirer.]

Bonin Islands.—These Islands are about midway between the Ladronez, and the coast of Japan—say lat 27 N., lon. 143 E.—Plentiful supplies of yams, potatoes, corn, hogs, water and wood—together with fine green turtle, weighing from 400 to 600 pounds each, may here be procured. The ship *Howard*, during her recent voyage, cruised several weeks in the vicinity, between the 25th April and 8th June last, and obtained considerable oil, though the weather was unfavorable most of the time. Great numbers of whales were seen during this period. The *H.* took on board 40 bbls yams, and 30 do potatoes—also, from the South Island, 38 large turtle. There are at the North Island, on the western side, some thirty inhabitants consisting of five industrious white men, and 90 to 25 men and women from the Sandwich Isle.—These settled there in 1828, and have cleared about 1000 acres of land—the soil of excellent quality—though in the months of April and May their plantations suffer much from the heavy rains. At the date above mentioned, they had on hand about 1000 bbls yams and as many bushels of good corn, ready for disposal to such vessels as might call for recruits, and at prices similar to those of the Sandwich Islands.

This island (the North Island) affords one of the best harbors in that ocean. Supplies may be obtained by lying off and on; but near the shores of each island there are strong currents setting in various directions. A ship can stand into the south island, send her boats on shore, and in two hours they can return, each bringing five turtle, being as many as a boat can float with. For the prevention of scurvy, a fresh stock of vegetables of almost every kind, and abundance of the finest melons, may be obtained in the months of June and July—being a convenient time for the ships in that region, as the whaling seasons on the coast of Japan grows later every year.

Capt. Worth, from whom we derive the above details, is of opinion that an error exists in the location of these islands as laid down on most charts. From his observations, carefully and repeatedly taken, he judges them to be at least 30 miles South, and 70 miles East, of their places on the charts. On comparing his observations with those of several other shipmasters who were there at or about the same time, he came to the same result.—[Nantucket Enquirer.]

THE WEST INDIA EXPERIMENT.—The Gazette, of this morning, publishes a letter from the Island of Jamaica, of the 18th ult., which, after acknowledging the receipt of some newspapers from this city, gives this encouraging account of the conduct of the emancipated slaves in that island.

"I observe some of them are very incorrect regarding the conduct of the negroes, and the aspect of the country in general; by those representations it would appear, that the Island was all in confusion—the estates and plantations all destroyed—horror and dismay staring us in the face, dreading butchery and bloodshed at every step—but I am happy to say, it is not only far, but altogether otherwise. We are all, God be praised, quite well and happy,—my negroes conducting themselves with every propriety and decorum, and I never had less trouble with, or more work done by, them."

The Canton (Chinese) Register says—

"Of all the frontier parts of the Chinese empire, the coast is, perhaps, in the most defenceless state. An inefficient navy with dismantled forts can afford little protection. From the Choo-keang (Pearl river) of Canton to the frontiers of Manchoooria there are numerous navigable rivers which lead to the most flourishing cities of the empire; spacious harbors to contain whole fleets, and water communication by means of canals to the most distant parts of the empire. They cannot be ignorant that six provinces are assailable, and that the most important parts of the empire lie open to the grasp of a superior maritime power. If the government officers therefore tremble at the sole thought of irritating a foreign power, which has the means of punishing their arrogance, we must not consider their fear unfounded. They may have recourse to haughty edicts and a show of power; but when all stratagems and expedients are exhausted, they will sue for peace as humbly from, as they formerly, in the height of pride, announced their decrees to, the barbarians."

[From the N. Y. American.]

ARTIFICIAL MARBLE OR STONE COFFINS.

We some time since alluded to the fact of Parker's cement having been proposed to be applied to the making of coffins. We have since had an interview with Mr. White, one of the gentlemen who have obtained a patent for this novel species of manufacture. Mr. White has left a sample of the cement thus prepared, at our office, where the curious may call and see it. It is certainly another extraordinary evidence of the success and rapidity with which the inventive genius of our countrymen strikes out new paths and new discoveries in the arts, while the older nations of the earth are creeping behind us at the slow and crawling pace of the snail or sloth. The sample of cement in question is almost two thirds of an inch in thickness, solid and hard, yet light in its texture, and on the outside polished, and afterwards varnished of a dark walnut color.—This glazing or varnish, Mr. White informs us, may be made, as we suggested to him, in imitation of mahogany, maple, rose, or any other elegant wood. The coffins, it is presumed, are to be made with the lids separate. After the body is placed in it, a thickness of cement is to be laid on the edge of the coffin, to connect the lid, leaving a small opening, to be used temporarily until the air is exhausted by a receiver. This opening also being filled in, the whole is perfectly air and water-tight. The interior being deprived of air, decomposition of the body, and the breeding of those germs of insects which are supposed to be inherent in our flesh, cannot, of course, go on, and must be suspended. We know how deeply interesting this subject is to the feelings of the world, and how few there are so callous as not to wish to preserve unaltered, after death, "this sensible warm being," and still to gaze on its cold tenement as the silent but eloquent image of the spirit that once animated it, and which we know may be effected, by exclusion from air and moisture, from the opening of the leaden coffin of the unfortunate Charles I. during the time, and in the presence, of Geo. IV. Though two centuries had elapsed from his death, the very color of the complexion, and the pleasant smile of the features, were the same as in the best portrait of him taken at the time, from life, by the celebrated Vandyke. The Egyptians, deprived of convenient burial places by the inundations of the Nile, and admonished by their belief in transmigration, resorted to embalmment. Catacombs and pyramids were built in honor of the dead, whom they respected more than the living.—The invention of which we speak far excels this complicated process, and we doubt not it will be entirely substituted for destructible wood, and come into general use, not only for coffins, but for the kinds of vessels and receptacles in which it is desirable to preserve the contents from dampness, from the external air—thus, for records, public documents, books transported to great distances, over the sea, &c. It is also proper to add that, in these air-tight coffins, Mr. White proposes to insert in the lid, over the face of the corpse, a thick plate of transparent glass, while the cement is soft, and which thus, on hardening, becomes a part of the lid. Thus, the friends and relatives of the deceased may here view, after death, at their discretion, the revered face itself on which they doted, in life, with a parent's devotion, a brother's affection, or a sister's love.—In fact, not only might the body be thus visited in its vault, but, so far as its freedom from taint is concerned, might be kept in the residence of the living. If buried, the grave need not be deeper than the surface.

Mr. White, and Doctors Hoyt and Dayton, of Syracuse, are owners of this improvement.

Mr. White is joint owner with Mr. Parker in the cisterns of this material, and some other improvements. Those going into either branch, would find their interest, therefore, in the opportunity of embracing the whole. Will not undertakers, as a matter of interest, be disposed to adopt the stone coffins at once, in preference to those of wood?

We take the above extract from the "Star"—embodying many of the considerations in favor of these coffins. We, however, shall speak further on this subject, and in relation to the immense value of this cement generally, as soon as our time will permit. One of the proprietors, Mr. White, (who can be found at Howard's Exchange, or at the Office of the American Cement Company, Broad

street, New York,) has exhibited to us a specimen of the coffin spoken of, which embraces all qualities of safety, duration and imperviousness to air and water—and is not, withal, much heavier than the heavier woods.

The material is one, which must, as it strikes us, come into very general use for cisterns, &c.

EXQUISITE ART.—It is generally urged as a reproach to the works of art, as contradistinguished from those of nature, that they cannot bear the scrutiny of microscopic examination. Mr. Charles Toppan, of the house of Draper, Toppan, Long-acre & Co., of Philadelphia, has, however, produced a specimen of attenuated workmanship, that not only challenges this test, but is absolutely inaccessible to any other. With a degree of minuteness, scarcely conceivable by the uninitiated, and not easily rendered credible even to the artist, he has contrived to engrave, beautifully and distinctly, the whole of the Lord's Prayer and the Ten Commandments, in the area of a circle only three-eighths of an inch in diameter. In this version—which is precisely that of the Episcopal Church, except that he has accidentally added the word *done*, and repeated the word *him*—there are no less than fifteen hundred and nine letters and figures. The space occupied, is one-tenth of a square inch; and the whole Bible, printed in a character equally minute, would only cover a space of seventeen inches square. This may seem incredible; but as a square inch, by accurate calculation, will include fifteen thousand of Mr. Toppan's letters, 263 square inches will include all the letters in the Bible. The Lord's Prayer forms only one-fifth part of this little wonder, and occupies a space less than one-fifteenth the size of an average sixpenny piece—so that instead of one copy of this prayer within the compass of a sixpence, Mr. Toppan's graver would produce fifteen. I have seen the Prayer and Ten Commandments, copied from Mr. Toppan's version, covering a circle of five inches in diameter; it contained, as his does, thirty-eight lines, and was in a character quite as minute as it could be, and continue pleasantly legible by the naked eye, and yet each letter occupied as much space as one hundred and sixty-six of Mr. Toppan's. Can there be a greater security against counterfeits than the exquisite skill of such an artist? N. W.

We have seen the very extraordinary specimen of minute engraving above referred to—and certainly, nothing but the evidence of our own senses could have satisfied us, of its perfect distinctness, and beauty, of execution.—[Ed. N. Y. Am.]

Mr. Whittemore's Cotton Gin.—We had the opportunity this morning of inspecting Mr. Whittemore's Gin for Long Staple Cotton. Mr. W. after several attempts has at length brought his Gin to that state of improvement, that leaves nothing to be desired. The little space occupied by it, the ease and rapidity with which it is propelled, the economy of its cost, its little liability to injury, and the facility with which the wear and tear to which it is incident may be repaired, will render it a great acquisition to the Sea Island Planter.—[Charleston Patriot.]

Niagara Hose Company, No. 2.—We called yesterday afternoon, to view the new carriage of this company, which is well worthy of notice, being incomparably superior in point of splendor to any we have yet seen, and excelling by far in regard to taste and richness of embellishment, any hose carriage in the city. It was built at the Corporation yard, at a cost of nearly \$4000, including the hose, which is 800 feet in length, being longer by 600 feet than the hose of most of the other companies. The silver plating was done by John Boardman, 249 William street; the boxes were painted by John Quidor, 46 Canal street, who certainly deserves great credit for the performance, exhibiting as it does the hand of an accomplished artist;—the carving, painting, and bronzing, is the work of Messrs. Boeckel & Moriarty, 34 Canal street, and entitle these gentlemen to much praise, too;—the leader-jacket, is the work of Messrs. Wilson & Roberts, 131 Bowery—the carving by Watkins & Barry, Chatham-square. The cost of ornamenting was about \$1000; defrayed, of course, by the individuals composing this enterprising and spirited company.—[Mercantile Adv.]

This year has been more than usually fatal to the *Moose Deer*. The Loretto Indians have killed

about thirty this spring, and probably an equal number has been killed by other hunters. The deep falls of snow, and the prolonged frosts of the spring which form a crust on its surface, afford a very favorable condition of things for this description of deer hunting, which is probably peculiar to North America. The Moose has a loose hoof, not spreading like that of the Rein Deer, it consequently sinks to the ground at every footstep. In the fall, the brood choose their beat where the shoots of their favorite trees are most abundant, and treading the snow at each fall, they manage to pass the winter, if undisturbed. The parties who seek them, first find their beat, and if the crust and snow are favorable, they start the deer and pursue them on snow shoes. The exceedingly timid animal, first rushing off with a strong and bold full speed, soon flags, and a couple of miles, or rather more, according to the state of the snow, brings up his pursuers, to despatch him with a gun, or to cut the sinews of his hind legs with the tomahawk. Its senses of smelling and hearing are exceedingly acute, and it is almost impossible to surprise it, but it easily thus falls overpowered by its own struggles, claiming the pity of its pursuer with a submission so unresisting, that it sometimes draws a tear even from the savage.

A MAN LOST OVERBOARD.—Extract of a letter from on board the United States ship Constitution:—

Four days out, as I was standing at the galley listening at the dash of the waves against the bridge ports, and watching the foaming flood that poured across the gun deck, I heard an unusual stir upon deck, and presently the cry of "a man overboard" was echoed throughout the ship.

It appears that the poor fellow was stationed upon the mainyard, and that in endeavoring to toggle the maintop bow line, he was struck by the flap of the sail and knocked overboard. The life buoy was cut adrift, the ship hove to, and the boat lowered as soon as possible, but alas! He gained the buoy worn out with his extraordinary exertions, gave it one slight grasp, and then went down to rise no more. And shall no one trace the epitaph of the seaman lost in the discharge of his duty? Shall the wild blast and the stormy petrel alone sing his requiem when the storm-cloud settles, and

"The Ocean leaps to own its God."

No! heaven forbid, the white stone shall yet rise in the corner of the village church yard in remembrance of him; and the aged mother as she stoops beneath the waving willow and reads—"Sacred to the memory of William Shaw, seaman, lost at sea,"—shall shed the tear of maternal sorrow there; and the young widow shall keep green the sod that covers the ideal grave of him, whose return she long expected when a foot trod heavily upon the threshold; or a voice unusual awoke the pensive stillness of the quiet home.

The frigate continued on her course, and for several hours a deep gloom prevailed every part of her: this dejection became more apparent when the name of the unfortunate man was called out at the grog-tub, and the old caterer of his mess answered in a low husky voice, "*He is drowned Sir.*"

Soon, however, the cheerfulness resumed her sway; then a violin was heard upon the berth deck, and then the dead and the peril of the storm were alike forgotten.

Sailors are a strange race—they weep when they do weep, as they pull a rope—that is with all their might; but when any one pipes belay, the grief of their spirit passes like a shadow away, and the future is no longer cared for; while the past is entirely forgotten.

The steamboat "Albany," which left Albany yesterday morning, was obliged to anchor at Catskill, in consequence of the breaking of some of the machinery; the passengers, 160 in number, were brought into this city by the North America, which arrived this morning.

The North America returned almost immediately, taking the day route of the Albany.

§ The President, it is said, has renounced his first purpose of going to Tennessee this summer, and will pass the hot months, instead, at the *Rip Rap*; where the sea-air and sea bathing will, it is hoped, reinvigorate his system.

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
MAY 22, 1835.

	Per.	Ask.	Offer.
Mohawk and Hudson.....	100	125½	125
Pateron.....	50	107	106
Ithaca and Owego.....	—	—	—
Saratoga.....	—	128	117
Harlem.....	—	109	108½
Boston and Providence.....	100	120	119½
New-York and Albany.....	—	—	—
New-Jersey Railroad and Transportation Line...	100	124	117
Camden and Amboy.....	100	—	—
Providence and Stonington.....	100	106	105
Boston and Worcester.....	—	105½	105½
Philadelphia and Trenton.....	100	101	100
Utica and Schenectady.....	100	129	128
Jamaica.....	—	117	115
Saratoga and Washington..	—	—	—
Berkshire.....	—	107	106

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

**RAILROAD JOURNAL AND ADVOCATE OF
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This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, on 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Vols. 6 and 7, or 1 and 2, new series, \$3 per volume.

**QUARTERLY JOURNAL OF AGRICULTURE,
MECHANICS, AND MANUFACTURES.**

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher, D. K. MINOR, 35 Wall street, New-York.

PUBLIC NOTICE.

THE undersigned, Commissioners for the amelioration of the navigation of the Richelieu or Chambly River, will receive at their office, in the borough of St. Denis, on the 15th of June next, sealed propositions for the construction or erection of a Dam or Chaussee, with a Lock, to be erected about three miles above the village of St. Ours, either in Cut Stones, Common Stones, *Pierres Brutes*, or in Wood, according to the plans and specifications issued by W. R. Hopkins, Esq., Engineer, deposited and where they can be seen at any time, in the hands of Joseph Cartier, Esq., one of the said Commissioners, at St. Antoine.

All propositions addressed by the mail must be sent free of postage.

Two good securities will be required for the due execution of the aforesaid works.

Further information can be had at any time, from the undersigned, in addressing them at their respective residences, or from the said W. R. Hopkins, Esq., at Bunker's Hotel, at the Chambly Basin.

Rock on St. Ours, at St. Ours.

Joseph CARTIER, at St. Antoine.

Jos. T. DROLET, at St. Marc.

La. C. DUVERT, at St. Charles.

L. F. DESCHAMBAULT, at St. Denis.

Office of the Commissioners, } 20—4t
St. Denis, May 11, 1835.
The above Dam and Lock are in dimensions as follows:
Lock 200 feet, Chamber 50 feet wide; Dam 675 feet long,
8 feet high.

Engineer Department of the New York

and Harlem Railroad, May 2d, 1835.

TO RAILROAD CONTRACTORS.—Proposals will be received at this Department until the 26th of May, for Excavating a Tunnel through rock at Yorkville, from 18 to 24 feet in height, 24 feet wide, and 844 feet long.

For 13000 yds. of Rock, and 6000 yds. of Earth, north and south of the same.

Proposals will also be received for making an Open Cut Excavation where said Tunnel is proposed, which, together with other excavations, will amount to about 65,000 yds. of Rock, and 12,000 yds. of Earth.

Plans and specifications will be furnished 10 days previous to the time above mentioned.

The work will be required to proceed immediately after being put under contract, and to be completed by the 1st of December, 1835. Satisfactory security will be required of the contractors for the faithful performance of the work.

Communications may be addressed to the Engineer, at his office, No. 9 Chambers street. By order of the Board of Directors,
JOHN EWEN, Jr., Engineer
m2c28 of the N. York & Harlem Railroad Co.

MILL-DAM FOUNDRY

ON MONDAY, June 1, at 12 o'clock, at City Hall, (unless previously disposed of at private sale,) will be sold by auction, the above well known establishment, situated one mile from Boston. The improvements consist of—

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 20, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 120 feet by 45, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 60 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotives and other Steam Engines, Lead Mill Rolls, Grinding Shafts, Saws, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 35, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

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The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee" now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and wagons, could be made per annum.

For terms, apply to
THOS. J. ECKLEY, Treasr. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston. April 21, 1835.

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MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly 1614

**RAILROAD CAR WHEELS AND BOXES,
AND OTHER RAILROAD CASTINGS.**

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

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RAILROAD SPIKES.**

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. BRASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-17

RAILWAY IRON.

95 tons of 1 inch by 1 inch, Flat Bars in lengths of 200 do. 1 do. 14 to 15 feet, counter sunk 40 do. 1 do. do. holes, end cut at an angle 800 do. 2 do. do. of 45 degrees, with splicing plates and nails to 800 do. 3 do. do. suit.

250 do. of Edge Rails of 25 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 26, 28, 30, 32, 34, and 36 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

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Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7mccowr

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Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by
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The subscriber manufactures all kinds of Instruments in his profession, warranted equal if not superior, in principle of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.
Having recommendations are respectfully submitted by
Engineers, Surveyors, and others interested.
Baltimore, 1832.

In reply to the inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLER, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad.
Chief and Senior Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, MAY 30, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 30, 1835.

On our second page will be found another communication on the subject of *Railroad Locks*. We ask the attention of engineers to the subject, and should like to have the Journal made the medium of a discussion of its merits.

The observations on the Liverpool and Manchester Railroad will be found interesting.

The Report of a committee of the New-York Legislature recommending a geological survey of the State, should be read by all who take an interest in the development of the resources of the State.

Potomac Aqueduct.—A recent visit and personal inspection of the works of the Alexandria Canal Company at the Potomac Aqueduct, has given us new ideas of the magnitude of that undertaking—the extent of the difficulties that have been surmounted, and the labor and skill required in its construction. Scientific gentlemen, who have travelled much in this country and in Europe, assure us that no similar work was ever constructed in the United States, and in Europe but few of the governments have undertaken any thing to compare with it. What an exhibition does this present of individual enterprise!—we were about to say of heroic determination on the part of a community to sustain itself. If Congress does not come to the rescue of such a community and such a work, it will be lost to every principle of justice ; it will have forgotten the first of its duties.

Those of our citizens who have leisure and op-

portunity, ought to examine this great work in which we are now all engaged.—[Alexandria Gazette.]

[This stupendous work, being nothing less than a structure for carrying a large navigable canal over the Potomac river, at an elevation of some thirty or forty feet above its surface, is under the direction of Capt. William Turnbull of the U. S. Corps of Topographical Engineers, who, by the skilful manner in which he has so far overcome every difficulty in the prosecution of the work, has gratified all its friends, and removed the doubts of some who apprehended that the natural obstacles were too great to be surmounted.—[National Intelligencer.]

SCHOOL OF CIVIL ENGINEERS.—The trustees of Rensselaer Institute met on the 22d instant, to receive the statute passed the 9th instant, empowering them to organise a school of civil engineers as a branch of the Institute. Regular degrees of Civil Engineer are to be conferred by the President, Rev. Doct. Nott, in October annually, on those who are qualified theoretically and practically, and over 18 years of age. This is the first school of the kind ever organized on this continent. The Royal Military Academy at Woolwich, England, and the Polytechnia, in Paris, have branches nearly similar. Professor Eaton takes the immediate charge of this department ; Adj. Prof. Hall having been appointed to take the chief charge of the Natural Sciences. A very spirited corps of 6 or 8 young gentlemen have already entered the division, and will probably offer themselves for the degree of Civil Engineer in October. Two afternoons in each week will be devoted to the application of elementary principles to works in this vicinity, such as railroads, canals, bridges, water-works, mill-works, factories, &c. &c.

The Board of Trustees now consists of the eight appointed members from Albany, Troy, Lansingburgh and Waterford, (two from each,) with the addition made by the late statute of the Mayor, Recorder, and one Alderman of this city. The list of officers stands thus : Rev. E. Nott, D. D., President ; Judge David Buel, Vice President ; Hon. George Tibbitts, Hon. J. P. Cushman, William D. Haight, Esq., *ex-officio* ; Hon. Jesse Buel, and Philip Van Rensselaer, Esq. of Albany, Hon. J. D. Dickinson, and R. P. Hart, of Troy, are the Prudential Committee ; Elias Parmelee, Esq. and Rev. Phineas L. Whipple, of Lansingburgh, Gen. Gaert Van Schoonhoven, and the Hon. John Cramer, of Waterford, constitute the Board

of Trustees ; Amos Eaton, Senior Professor, or and Agent, also Acting Professor of Civil Engineering ; Ebenezer Emmons, of Williams College, Junior Professor ; James Hall, Adjunct to the Junior Professor, and performing the duties of that office. Special Assistants are appointed temporarily. Dr. Moses Hale, Secretary, and H. N. Lockwood, Esq. Treasurer.

The degree of Bachelor of Arts, heretofore conferred on the general graduate, is changed to *Bachelor of Natural Science*. We consider this a good change, as the name is now more appropriate. The degree of Master of Arts is still retained as an honorary diploma for the general graduate, as well as the engineer, after three years of successful improvement in the useful application of his talent. E.—[Troy Daily Whig.]

To the Editor of the Railroad Journal:

DEAR SIR: In the statement which I gave you a few days since, relative to the route, as examined, of the Auburn and Syracuse Railroad, a comparison was instituted between that and some other roads. In that comparison the maximum inclination upon the portion of the Mohawk and Hudson Railway, between the inclined planes, was represented to be 37 feet per mile. This I obtained from a communication by L. De Witt Bloodgood, Esq. of Albany, to the Editor of the American Journal of Science, vol. xxi, p. 385. The facts in this article were "furnished by Mr. Jervis;" and being the only document to which I had access at the time of writing, I could not question their accuracy.

I have since ascertained by reference to the Railroad Manual, and to Smith's Appendix to Woods Treatise on Railroads, that the maximum inclination of the Road mentioned is 22 instead of 37 feet per mile, or 8 feet less per mile, than on the Auburn and Syracuse Road, instead of 7½ greater. This brings the average inclination upon the former 10½ feet per mile, differing insensibly from that of the latter, which is 10½.

The general conclusion in my communication will not be very materially affected by this correction—but believing that the maximum inclination on the Mohawk and Hudson Road was overrated, I am desirous of correcting the error.

Yours, very respectfully,

E. F. JOHNSON.]

[For the American Railroad Journal.]

On the Substitution of Locks for Inclined Planes on Railways, as applicable to the New-York and Erie Railroad.

In a communication last week I endeavored to show the superiority of the railroad lock over any probable improvement of the locomotive engine, enabling it to propel its load over any considerable elevations. For in the latter case, there would be a liability, when the rails became smooth, and especially when covered with snow and ice, that the wheels of the engine would slide around in their places without rolling forward; and, even if this liability could be obviated, there must be a great waste of power. The engine must be sufficiently strong to carry its train up the steepest ascents on the road, and a greater part of its energies would therefore lie idle during the more level part of the journey.

These objections have heretofore been obviated by providing additional power to assist in these ascents; but the inclined plane generally employed in this case is liable to the greatest objections. Aside from the jeopardy in which life and property are placed in passing over these constructions, they have long been the subject of loud but almost hopeless complaint, and have even been characterised by writers on the subject, as "an opprobrium to the present advanced stage of civil engineering."

To say nothing of any other objection, the expense necessary to provide and keep in operation a stationary engine and its appendages is so enormous, that the necessity of constructing a very few of these is sufficient to render any contemplated route impracticable. I hardly need repeat, that the lock in question completely obviates this as well as many other difficulties. The locomotive engine raises itself and all its load at once, and by its own unassisted power. In this point of view, therefore, it will prove of almost incalculable importance.

This obstacle being thus removed, railroads can be constructed over routes now condemned as impracticable. But this is not all: the advantages arising from the successful introduction of these locks will not only appear from the change produced as to the practicability of entire routes, but also in that of their separate portions, where a road is deemed practicable. Still, in many of its sections, the difficulty of effecting a change of level occasions a very great circuitry of direction. Much of this may be avoided by the adoption of the locks in question, and the length as well as the expense of construction of the road be very materially diminished.

According to Williams' Register, the surveyed route of the New-York and Erie Railroad is 505 miles in extent, while the length of the mail route, passing through Newburgh, is only 415 miles. Now, had the latter left the Hudson at the same point as the contemplated railroad, that is to say, 24 miles from this city, the distance would have been still less, passing along one side of a triangle,

instead of two. I think therefore we may safely say, that the length of the surveyed route is 100 miles greater than a turnpike would be which should pass along the same general direction. This increase of distance has resulted, according to the report of the chief engineer upon the survey, from going around the high grounds instead of passing over them. Probably it would not be advisable to construct a railroad as direct as a turnpike. But suppose even 50 miles to be saved by the use of a moderate number of locks, and the mode of effecting this becomes an object of the most serious consideration. A diminution of one tenth of the whole length of the road, and of six or seven hundred thousand dollars in the expense of its construction, need only to appear practicable, to be regarded with the highest favor, not only by the proprietors of the work, but also by the public at large. The interest of the former in such a result is direct and immediate; that of the latter, although more remote and consequential, is nevertheless equally certain, since every diminution of the length of the road, or of the amount of expenditure, tends inevitably to diminish the cost of transportation.

It may be said that the increased accommodation afforded to the people of this State, from the increased length of a road winding through the valleys, removes the objections to this circuitry. Such a consideration would be of weight were the work intended merely for the benefit of those residing along its margin. But since it is designed as one of the great thoroughfares between the fertile and growing west, and its natural commercial emporium—since it must necessarily be brought into immediate competition with the other avenues of traffic between the Atlantic and the valley of the Mississippi,—and since the attainment of the object for which it is to be constructed consequently depends upon its presenting the most direct—convenient and economical channel of communication,—every mile by which its length may be diminished, every penny and every moment which may be subtracted from the expense and time of transportation, every facility and inducement for the direct conveyance of property from one extremity of the road to the other, becomes a matter of moment. Instead therefore of forcing the trade of the broad and productive regions of the west to flow through a circuitous channel, for the bare accommodation of a few New-York merchants and farmers, let that channel be made as straight as practicable, and let the convenience of our people at home be provided for by branches and auxiliary railroads.

It will also be objected, that the expense of constructing the locks themselves has been altogether omitted in the preceding general estimate. It will be seen on a future occasion that this expense will be far overbalanced by an advantage not yet enumerated, resulting from the introduction of the machine in question. M.

Observations on the Liverpool and Manchester Railway. By Mr. David Stevenson, Edinburgh—Read before the Society of Arts for Scotland, on the 25th February, 1835.

The improvement of railway communication is now a subject of so much importance, that any observations relative to the construction of railways, or the best mode of conducting traffic on them, especially such as are elicited in the course of practical trials, will generally meet with some share of public attention. I, therefore, venture to address to this Society a few observations upon the Liverpool and Manchester railway, the most remarkable work of the kind hitherto executed, both as regards the railway itself, and the means of traffic employed on it. These observations occurred to me during a late professional engagement on that work under Mr. Mackenzie, of Liverpool; and though I do not think it necessary to give a lengthened account of the railway, I trust some of the facts which I have collected will be found sufficiently interesting to excuse me for having brought them under the notice of the Society.

The Liverpool and Manchester railway was opened on the 15th of September, 1830. Its formation and construction, including the erection of lodges, depots, and offices, is said to have cost about one million sterling, or at the rate of £33,300 per mile; but as much of the work was not done by contract, this railway cannot be taken as a criterion of the expense of operations of this nature, which now are executed at a much lower rate.

The whole length of the main line is thirty miles. It forms a double way, composed of four single tracks of rails, having several branches to towns and collieries on either side. These branches, in most instances, consist of only a single way, with passing places. Connected with the main line, there are many works of importance and interest, including three tunnels, sixty-three bridges, and several cuttings and embankments of great extent. The drainage of Chert Moss, and the conveyance of the Railway over that bleak and uncultivated tract of country, are also particularly worthy of notice; but as accounts of these works have already been made public, I shall not farther notice them.

Excepting at Whiston and Sutton inclined-planes, where the inclination is at the rate of one foot perpendicular to ninety-six horizontal, there is no part of the Liverpool and Manchester Railway more than one in 880; and the curves in no instance deviate from the straight line more than four inches in the chain, or 66 feet. The inclination of one in 880 is hardly felt by the locomotive engines, and the curves are so gentle as to affect their progress very little. But the inclines of one in 96 on the main line, and several of the curves on the branch lines, prove formidable impediments, by diminishing the speed of the engines, and occasionally causing them to stop. The distance between the rails forming the tracks is 4 feet 8½ inches, and the distance between the two railroads or ways is the same. The rails are of that form technically called "fish-bellied" edge rails; they are made of malleable iron, in lengths of 15 feet, and weigh at the rate of 35 lbs. to the yard. They measure 2 inches in breadth at the top, 2½ inches in depth at the chair, and 3½ inches in the middle.

It is worthy of remark, that, when these rails break, the fracture is generally a few inches from the part resting in the chair,

and never in the thick part of the rail, between the points of support, which has led to the adoption of a parallel rail in all cases of repair. This rail weighs at the rate of 40 lbs. to the lineal yard. At every 3 feet the rails rest in a cast-iron chair, which, including keys and spikes, weighs about 16 lbs. The chairs rest upon stone blocks in the cuttings where the ground is solid, and upon wooden sleepers on the embankments. The resting blocks contain 4 cubic feet of stone; two holes, 6 inches in depth and 1½ inch in diameter, are drilled in them, and into these, oak treenails are driven, to which the chairs are spiked. The sleepers are of oak or larch, and contain about 1½ cubic foot of timber; they measure from 9 to 10 feet in length, and being laid across the road, each sleeper gives support to both rails. When sleepers are used, a seat is cut in them for the chair, which is spiked down to them. A piece of cloth or felt dipped in pitch is generally interposed between the chair and the stone blocks, to make the seat more solid. The blocks occasionally split when the treenails are not driven home with care, but the sleepers are most frequently in want of repair and renewal.

The repair and keeping of the way was this year (1834) let by contract for £6000, being at the rate of £200 per mile. The contractor furnishes labor, chairs, keys and spikes, while the Railway Company furnish rails, blocks and sleepers. They calculate upon having to renew one chair per mile per day, and £720 per annum is taken as the outlay for keys and spikes. The workmen employed in repairing the rails, and keeping the road in good order, are called plate-layers, and the tear and wear is so great, that there is constant employment found for three men on every mile of the railway. The ballasting, in which the blocks and sleepers are embedded, consists of sand and broken stone, and forms a stratum two feet in thickness.

The Railway Company have had thirty-two locomotive carriages made, five or six of which are now out of use, and many of those at present on the road have been almost totally renewed. These carriages are all numbered and named. No. 1 is called the "Rocket." This engine was made by Messrs. Stephenson, the engineers, and is that which did them so much honor in carrying off the prize of £500, given by the Directors of the Liverpool and Manchester Railway for the best locomotive carriage. It has been little used, and is still in good repair.

The locomotive carriages used at present on the Railway are of three kinds, and are called train, luggage, and bank engines. The train engines average about 30 horses' power. They weigh about 8 tons, and cost about £900. The luggage engines are in general 35 horses' power, and weigh about 9 tons. They cost about £1000. There are only 2 bank engines, the "Goliath" and the "Samson," which are used for assisting the trains with passengers and luggage upon the inclined planes at Whiston and Sutton. They are about 50 horses' power, weigh about 12 tons, and cost about £1100. The cylinders of these different engines measure from 11 to 14 inches in diameter, and the length of stroke varies from 16 to 20 inches. The carriages used for conveying water and fuel for the engine are called tenders; they have 4 wheels, and are yoked behind the engines. They average, when loaded, about 4 tons weight, and cost about £150 each.

The principle on which the boilers are constructed is simple, and at the same time

very efficient. For this invention it is believed the Railway Company are indebted to their treasurer, Mr. Booth. The shell or outside coating of these boilers consists of sheet-iron, ¼ an inch in thickness. Brass tubes, 1-8 of an inch in thickness, and from 1 to 3 inches in diameter, are rivetted or fixed into the end plates of the boiler, and being open at both extremities allow the fire to pass freely through them. By this means a great surface of the water contained in the boiler and surrounding the tubes is exposed to the heat, and the steam is more quickly generated than in the common boilers. A steel ring, about 1-8 of an inch in thickness, 1 inch in breadth, and slightly tapered, is driven into the brass tube, after it is fitted into the boiler plate, by which means the tube is wedged against the plate, and thereby rendered water and steam tight. The tubes are proved by means of a water pressure of 50 lbs. on the square inch, and notwithstanding this, they frequently burst. When this accident happens, the engineer stops both ends of the broken tube with wooden plugs. The mechanics connected with the Railway prefer large tubes of 3 inches bore to the small ones, which are more apt to get choked with soot and ashes. The boilers are generally 7 feet long, and 4 feet in diameter, and contain about 70 or 80 of the small sized tubes. Round the boiler there is a lagging or casing of ½ an inch deal timber, fixed with iron hoops, which being a non-conductor, prevents the radiation of heat, and greatly facilitates the generation of steam, especially in frost, or in a damp state of the atmosphere. The time required for getting up the steam, even in the most improved boilers, is generally above an hour, when every thing is in a cold state. The Act of Parliament, in consequence of the smoke raised by pit coal, enforces the exclusive use of coke, which increases the expense of fuel about 40 per cent.

The cylinders are horizontal in all the locomotive carriages, with the exception of two, in which they are vertical, and these are not found to answer so well, and require more repair, the cause of which may be satisfactorily explained in the following manner:—When the cylinders are vertical, the machinery cannot yield to the up and down motion of the piston rod, and has consequently to bear the whole shock; while, on the other hand, when the cylinders are placed horizontally, the motion of the piston tends to impel the carriage along the rails, by which the shock is deadened, and has not so injurious an effect upon the machinery. The objection to horizontal cylinders, founded upon the more rapid abrasion of the lower side of the piston by the effect of gravity, is not found to have much force in practice. In some carriages the piston rods are connected to the outside of the two fore wheels; but in the improved engines they are connected to cranks on the axle of the carriage, in which case the cylinders are placed below the boiler, and are quite hid from view. On these engines also the wheels themselves are connected by rods, by which means the moving power is applied to four wheels instead of two, which doubles the adhesion of the carriage to the rails. The cross head at the end of the piston rod, working in a slide, produces the parallel motion. I may add, that some experiments were made on the Liverpool and Manchester Railway with Lord Dundonald's rotatory engine, which were so favorable a nature as to induce the Railway Company to construct a locomotive carriage on that principle. I have not, however,

heard whether their efforts to introduce the rotatory system have proved successful.

The fire-box consists of a double casing of metal, with an intervening space of about 4 inches. This space is filled with water, and has a free communication with the boiler, of which it may be said to form a part. It has a grated or ribbed bottom for holding the fuel, about 9 square feet in surface. The smoke-box and the funnel are made of iron, and are indispensable for catching the dust and embers blown through the tubes, carrying off the smoke and steam, and causing a draught for the combustion of the fuel. In the improved engines, the waste steam is ingeniously blown into the tender, and heats the water for the supply of the boiler.

The framing in some instances is made of cast iron, but more generally of wood. It rests upon the axles, and supports all the machinery, together with the boiler and its accompaniments. Connected with it, also, are the springs for rendering the motion as smooth as possible for the machinery. The carriages have generally 4 wheels; the "Atlas," however, and some others, have 6. In some carriages all the wheels are of the same size, and about 5 feet in diameter, while others have 1 smaller pair of wheels about 4 feet in diameter. The naves and rims are of cast iron, and the spokes and tires of malleable iron. Sometimes, however, the greater part of the wheels, like the framing, is made of wood.

It was lately suggested, as an improvement on locomotive carriages, to work the engines more slowly, and to produce the same or a greater speed by increasing the size of the wheels. Wheels of 6 feet in diameter were accordingly applied to one of the engines, but were found to produce an unsteady motion, and so greatly to increase the liability of the carriage to start off the rails or break down, that they were immediately discontinued. The Railway Company at present allow no wheels more than 5 feet in diameter to be used on the line. The greatest speed which the engines have been able to attain on a level is 60 miles per hour, without a load. The Planet engine, with her tender, went from Liverpool to Manchester in 40 minutes! being at the astonishing rate of 45 miles per hour, including time lost in stoppages and ascending the inclined plane.

During wet weather the engine wheels are found to adhere better to the rails than in dry weather, but if the rails are only damp or greasy, the wheels have a tendency to slide instead of rolling, and the carriages then have considerable difficulty in dragging along their loads. According to Mr. Booth's experiments, the adhesion of the wheels, in the most unfavorable state of the rails, is equal to ¼th of the weight supported by them. During frost, a loaded wagon is generally placed before the engine to rub off any ice or hoarfrost that may adhere to the rails. After the steam is thrown off, and the brake or drag applied, in order to stop the trains, the time that elapses before they cease to move is generally from 40 to 60 seconds, but this depends entirely on the state of the rails, and the rate at which the carriages are moving.

There are generally eight or ten engines at work on the line, each of which makes 4 trips a day between Liverpool and Manchester, and on coming in at night the steam is blown off, and the machinery is thoroughly cleaned. At each end of the line the company have a depot, consisting of sheds, where the engines are repaired at the sight of an overseer or manager, and it is not a

little remarkable that 200 men are employed in keeping these engines in good order. The carriages are daily in want of some small repair, but they generally run about eighteen months before receiving a renewal, or thorough repair. The "Vulcan," a train engine, ran no less than 47,000 miles before it required to be taken into the shed for repairs, and the "Fire Fly" ran 50,000 miles. I have never seen any correct account of the work done by the several engines, or the repairs made on them. According, however, to the Railway Company's reports, the expenditure connected with locomotive power, exclusively of outlay for new engines, amounts to the extraordinary sum of about £28,000 per annum. On visiting the Stockton and Darlington Railway in the month of November last, I learned through the kindness of Messrs. Pearce, the promoters of this undertaking, that the engines running on that railway very seldom required repair; although in their construction, and the workmanship employed on them, they fall greatly short of those in use on the Liverpool and Manchester line. But at Darlington the rate of travelling is only 8 miles per hour, while at Liverpool 25 miles per hour is the usual speed; and hence we are fully warranted in supposing that the great wear and tear on the Liverpool and Manchester Railway may be chiefly attributed to the speed at which the engines are worked. Notwithstanding the smooth surface on which the carriages run, and application of springs, the tremor or shaking of the engines is very considerable, and is much increased with the speed. When moving at the rate of 25 or 30 miles per hour, the tremulous motion of the engine becomes quite alarming to those unaccustomed to it.

The luggage engines perform a great deal of work, and generally bring in 20 loaded wagons, averaging $3\frac{1}{2}$ tons each. With this load they move easily at the rate of 20 miles per hour on every part of the Railway, excepting at Whiston and Sutton inclined planes, where the effect of gravity reduces their power 2-3ds, and forces them to bring their load to the summit at 2, and sometimes 3 trips, although assisted by the bank engines. They nevertheless make the journey between Liverpool and Manchester in about two hours. Upon one occasion, I saw the "Fury" engine with 12 loaded wagons, averaging $3\frac{1}{2}$ tons each, ascend the Whiston inclined plane without the aid of the bank engine; its speed on the level was about 30 miles per hour, and when it reached the top of the incline, the velocity was diminished to about 2 or $2\frac{1}{2}$ miles per hour. This inclined plane is a mile and a half in length, and its rise is at the rate of 1 in 96.

Some idea may be formed of the load these engines are capable of taking, and of the rate of charges and expense of fuel, from the fact, that, during my stay in Liverpool, the "Atlas" engine brought in 47 wagons, being a load of 160 tons, for which the Company's charge would be £70 sterling, or at the rate of £1.10s. per wagon. It is, I believe, calculated that the combustion of half a pound of coke will produce steam sufficient to carry 1 ton 1 mile, at the rate of travelling adopted on this Railway, so that the conveyance of 1 ton from Liverpool to Manchester requires about 15 lbs. of coke, the cost of which is about 2d. The expense, therefore, of fuel for bringing 160 from Manchester to Liverpool, according to this calculation, may be taken at £1.10s. while the Company's charge for carriage is £70, so that the chief expenditure, after the interest of the first cost of the Railway, is

in keeping the engines and Railway in repair.

The second-class train makes the journey in two hours, and has generally eight or ten carriages, which are open, and each seated for twenty-four persons. There are nineteen stations on the line where this train regularly stops, for the accommodation of passengers; and at each station there is a watchman, who makes signals if he sees cause for stopping the train. The signals are made during the day by red flags, and by lights after sunset.

The first class train makes only one stoppage, at Newton, to take in fuel and water, and performs the journey of thirty miles in an hour and a half. The coaches in this train are framed and covered like handsome road carriages, and are seated for eighteen passengers, with the exception of the railway mail coach, which goes at the end of the first class train, and is seated for twelve persons. The charge for passengers from Liverpool to Manchester by the first class train in the mail is 6s. 6d., and in the other carriages 5s. 6d. In the second class train, the fare, by the close carriages, 5s. 6d., and by the open ones 4s. The weight of luggage allowed to each passenger is 60 lbs., beyond which a charge is made at the rate of 3s. per cwt. The charge for conveying a four-wheeled road carriage is 20s., and a two-wheeled carriage 15s. On horse is charged 10s., two horses 18s., and three horses 22s. About one thousand and twenty passengers, and six hundred and forty tons of goods, are daily transported along the railway.

Each engine carries two men, an engineer and a fireman, who have respectively 5s. and 2s. 6d. a day. As a check upon their regularity, a fine of 2s. 6d. is imposed on the engineer for every fifteen minutes he arrives before his time. There is a brakeman with the luggage train, and the trains for passengers carry two guards.

The occurrence of accident is not so frequent as might be imagined, as the great weight of the carriages prevents them from easily starting off the rails; and so great is the momentum acquired by these heavy loads moving with such rapidity, that they easily pass over considerable obstacles. Even in those melancholy accidents where loss of life has been sustained, the bodies of the unfortunate sufferers, though run over by the wheels, have caused little irregularity in the motion, and the passengers in the carriages have not been sensible that any impediment has been encountered on the road. For the prevention of accident, some arrangements have been adopted, by which the north rails are exclusively allotted for engines going towards Liverpool.

The railway business is conducted by twelve directors, who give a half-yearly report on the income and expenditure; and a dividend of nine per cent. per annum has been declared for payment. At present, the railway is in use only during the day; but by conveying goods during the night, provision may be made for a great increase of traffic without incurring expense in the execution of new works.

Pittsburgh, Feb. 21, 1835.

The following report on the subject of a geological survey of this State ought to be generally published in the papers throughout the States. It abounds with sound, liberal, and enlightened views, and does honor to the committee who prepared it. In a word, it is full of truths of interesting

import, accurately and forcibly expressed. The memorial which drew forth this report proceeded from the American Institute of this city—an association of gentlemen unsparing in their exertions to promote science, as well as the useful arts. It is much to be regretted that their memorial for the construction of the Rochester and Olean Canal had not been favored with a sprinkling of the same intelligence and liberality.

Report of the Select Committee on the Memorial of the American Institute.

Mr. Clinch, from the select committee to which was referred the memorial of the American Institute of the city of New-York, praying for a geological survey of the State, reported:

The memorialists do not enter upon any detailed examination of the subject which they have presented for our consideration, but allude in general terms to the acknowledged obligations of government to advance the cause of science and of learning; and strenuously urge that efficient measures ought to be taken to promote the progress of this important branch of knowledge, inseparably connected as it is with a thorough disclosure of the internal resources of the State, and with the industry and enterprize of its citizens.

They remark that New-York has yet taken no steps towards an examination of the geological features of its extensive territory; and they forcibly present to the attention of the Legislature the example of our sister States of Maryland, Tennessee, New-Jersey, Massachusetts, and Virginia, in all of which scientific researches of this character have been instituted by law, and have resulted beneficially to the various interests in which the population are engaged, and with signal advantage to the promotion of the cause of science, particularly as regards the latter service, in the course pursued by Massachusetts; an enlarged edition of the geological researches of which State has been published by legislative authority, and presents a noble evidence of the liberal and enlightened policy of the government of that Commonwealth.

The memorialists further urge that the geology and mineralogy of our extended territory are prominent objects of useful and interesting inquiry, both in an economical and scientific point of view; and that a knowledge of the localities and extent of the different formations of quarries and minerals can only be acquired by the scientific researches of competent persons, the labor of which is altogether too onerous to be undertaken by individual enterprize, and involves an expenditure of time and money in the public service which can not be reasonably expected from the scientific institutions of the State, which have been established by private exertions and with limited means.

The memorialists conclude with suggesting the propriety of employing a commission, to be composed of three or four competent persons, under the public authority of the State, to make a complete geological and mineralogical survey of the whole of our territory; and to present the result of their labor and researches in a report to the Legislature, at as early a period as may be consistent with the full and just discharge of the task assigned to them.

In the last annual message of Governor Clinton, (and repeatedly in former messages,) legislative encouragement is earnestly recommended to be given to mineralogical

researches throughout the State, with a view to the discovery of coal, which, from various geological indications, it is asserted must exist within our limits. The importance of these investigations is dwelt upon with apparent anxiety, and made manifest by all the cogency of argument and perspicuous array of facts which usually accompanied the recommendation of measures of public policy from the same enlightened source. A select committee, to which this part of the message was referred, made an elaborate and learned report upon the subject, confirming by unerring evidences the fact of the existence of bituminous coal and other mines of mineral wealth in various sections of the State; and clearly demonstrating that there is a general uniformity and analogical connection prevailing in Europe and in this country with regard to the fossil and other geological formations, as yet known to both.

During the session of the Legislature of 1829, a memorial was presented from the Lyceum of Natural History in the city of New-York, praying for an inquiry into the expediency of instituting a search for bituminous coal within this State. This memorial was accompanied with a resolution recommendatory from the Common Council of that city. The select committee to which the memorial and resolution were referred, reported favorably and at length upon the subject. That committee ardently endeavored to impress upon the Legislature their own conviction that this department of science peculiarly deserves the encouragement of the government, inasmuch as the beneficial results of its pursuits, whatever degree of success may attend them, cannot be otherwise than shared by the whole community—opening new sources of power and profit to the State, through the genius, and industry, and enterprise of the people. It is well remarked by that committee, in reference to the particular branch of one subject to which their attention was directed, that Legislative authority and munificence would be nobly employed in giving encouragement to discoveries in that department of science which would find their way to every man's fire-side.

The reports of the committees above alluded to, dwell with great fluency upon the utility and necessity of instituting these examinations into the "bowels of the earth;" and eloquently appeal to the intelligence and patriotism of the Legislature for unprejudiced measures and liberal appropriations to accomplish such objects. (See Assembly Journal, 1828, 1829.)

Knowledge is power! If this be true in its general sense, how peculiarly forcible is its application to the scheme of political economy pursued by the government of every Commonwealth? The power to be derived from a thorough manifestation of the sources of industry within its own sphere of control, is a pre-requisite to the perfection of every system devised for the well-being of the governed. Tested by this sentiment, the power possessed by the State of New-York is yet in its infancy. The knowledge to be acquired from a complete geological survey of our territory cannot all to have the happiest influence upon our increasing prosperity; and as a director of the energies of our inventive and spirited people; as furnishing a varied choice of pursuits to the indolent and capricious; or, to the partially incapable portion of a population, composed, and likely to be forever composed in some degree, of the adventurous and unfortunate of all nations, it will be an unceasing source of wealth to the State,

and of grace to the condition of its dense and variously characterized community.

It would be as difficult as it is believed to be unnecessary, to enumerate all the benefits which would accrue from a faithful geological survey of the State of New-York. Your committee are satisfied that legislative patronage cannot be extended to any one department of science that will conduce more decidedly to the individual interests of every inhabitant within our borders. Every man who cultivates an acre of land amongst us, must find himself wiser and wealthier in the sequel of an investigation, which will teach him where to direct his search for useful and valuable, though secret products of his land, and prevent his continuing to throw away time and money in fruitless exertions, which a proper knowledge previously obtained would have taught him never to have commenced.

The States of North Carolina, South Carolina and Pennsylvania, in addition to those already enumerated, have made legislative provisions for geological surveys within their respective territories; the results of all of which, as far as is known to your committee, have invariably been of a useful and valuable character.

Unerring data, acquired by the exertions of scientific men of both hemispheres, have satisfied them that the hidden riches of our own soil are as valuable and various as those already discovered in Europe.

We are as yet thoroughly acquainted with but a small portion of our salt district; and the bringing to light of vast beds of bituminous and anthracite coal, which are reasonably conjectured to exist in the neighborhood of our navigable streams, would in itself be a popular source of pride and profit to the State.

The geological features of our soil present in many particulars a very extraordinary aspect. The incongruous mass of materials, and the multitudinous variety of forms and things, of which the hills and valleys of a portion of our State are composed, were most graphically exhibited to our view by an eloquent member of this House, in a recent debate on the subject of internal improvement. It was ably and admirably said on that occasion, that this section of the State suggested to the mind of the intelligent observer, the idea of a "DEPOSITORY OF MATERIALS OUT OF WHICH TO MAKE WORLDS!" What mines of wealth may not this combined compression of nature's works now nurture in its bosom? A speculative and inquiring spirit may pursue this thought to the most brilliant conclusion, and yet not overstep the modesty of reality; for, as far as they are known, the certainties of science and the images of the imagination, in the contemplation of this subject, present the same picture to the mind.

It may not perhaps be available to inquire what influence an ample knowledge of the geological features of our whole State would have had upon the location of our great public works; but its important bearing upon the route of canals and railroads hereafter to be constructed, will be evident to all. The facility of excavating, the probable amount and materials of transportation, the economy and feasibility of the proposed works, and the proper character of them, are all subjects that will be most effectually illustrated by a general geological and mineralogical survey.

Another valuable consideration is, the beneficial effect which an intimate knowledge of our internal resources will exercise, in solving the doubts of those who ex-

perience difficulty in deciding upon the expediency of establishing the several prominent public improvements now under discussion.

But the most impressive view in which this subject presents itself to the minds of your committee is, that the principle of self protection, which justly receives so large a share of consideration in determining the public policy of the State, would be materially enlightened by the data derived from the proposed survey.

The question of defending ourselves against the internal improvements of our neighbors, by constructing works which will command the trade of adjacent territories, while it would lose none of its propriety, might cease to be a matter of paramount importance, in consequence of the disclosure of these fountains of industry and wealth now hid in darkness within our own soil.

Taking these general views of the subject, your committee are of opinion that the suggestions of the memorialists are in accordance with the soundest policy and best interests of the State; but your committee are not prepared to decide upon the best means of carrying these suggestions into effect.

Considering the late period of the session, they are willing to give the subject a progressive action during the recess of the Legislature, and have no objection to such disposition of it as will bring to its support the fostering care of an accomplished guardian; attract towards it that degree of general attention to which its importance is entitled; and give it the advantage of the volunteer aids of scientific men in all parts of the State.

Your committee have therefore unanimously agreed to propose the following resolution:

Resolved, That the Secretary of State be requested to report to the Legislature, at its next session, the most expedient method of obtaining a complete geological survey of the State, which shall furnish a scientific and perfect account of its rocks, soils and minerals, and of their localities, a list of all its mineralogical, botanical and zoological productions, and provide for procuring and preserving specimens of the same; together with an estimate of the expenses which may attend the prosecution of the design, and of the cost of publication of an edition of three thousand copies of the report, drawings, and geological map, of its results.

SUSPENSION BRIDGES.—At a meeting of the Clinton Suspension Bridge Committee last week, Mr. West's report on the principle of wire suspension bridges was read and approved. This gentleman has recently been examining the suspension bridges of France and Switzerland, most of which are of wire. He stated that previously to the opening of the Fribourg bridge, in October last, proof was made of its capability of sustaining great weight, by placing 36 horses, 14 pieces of artillery, and 300 people upon it at one time, which did not cause the slightest derangement in the structure. Upon the occasion of opening the bridge, a grand procession of the clergy and municipal authorities took place, when no less than 1,800 persons, estimated at 90 tons, were at once on the bridge. The two largest bridges over the Soane, at Lyons, are of wire, and are crossed by the heavy French diligences, weighing 5,000 lbs. each, and allowed by law to carry 8,000 more.—[English paper.]

[From the Journal of the Franklin Institute.]
**Report to the Board of Directors of
 Bridges, Public Roads, and Mines,
 upon the Use of Heated Air in the Iron
 Works of Scotland and England. By
 M. DUBRENOY, Engineer of Mines.
 Paris, 1884.**

(Continued from our last number.)

CALDER IRON WORKS.

These works are three miles from Glasgow, on the Edinburgh Road; the hot air blast has been used at them for three years past; two of the furnaces are fed by an apparatus like that at the Clyde Works, but at the other two the air is heated by means of a system of small tubes, represented in figures 6, 7, 8, and 9.

This apparatus is composed of two large horizontal tubes, *a c*, and *a' c'*, six feet long, nine inches in diameter in the clear, and one inch thick. Nine small tubes, six inches in diameter outside, and three inches inside, doubling upon each other like syphons, are placed vertically upon the pipes, *a c*, and *a' c'*, and fastened by being driven tight into the throat, *z*. This system of tubes is placed in a rectangular furnace, ten feet long, three feet wide, and twelve or fifteen feet high. To prevent injury to the joints, care is taken to protect them from the direct action of the fire. The joint, *m, n*, of the large pipes, is placed outside of the furnace, and the connexions of the small pipes with the large are shielded by fire brick. The flame is carried through the furnace by the longitudinal flue, *g, h*, passing the whole length; it is then spread among the tubes which it envelopes, gaining the chimney by the openings, *o, o, o*.

The temperature of the air is raised by this apparatus to 612° Fahr., as at the Clyde Works; the consumption of coal is 7 cwt. of coal per ton of iron produced.

This apparatus appears to be preferable to that of the Clyde. It takes less room; the bends in the small tubes, it is true, increase the friction of the air passing through them, but this circumstance appears to have but little influence on its motion. The power expended by the blowing engine is not greater than that at the Clyde Works, and the pressure of the air is two pounds and three quarters per square inch.

The expense of construction is quite small. The greatest part of it is formed of cast iron, which can be replaced at the works in case of accident. The cost of construction is estimated at about \$150, requiring about seven tons of castings—say about one and a half tons for the large pipes, and five and a half tons for the small tubes. By estimating the iron cast into pipes, at \$24 per ton, which is the average cost at the works using coal, the expense of each apparatus will be about as follows: Masonry, \$100; earthen parts of the furnace, \$60; casting pipes, \$168; total, \$328.

The expense will then be about \$656 for each smelting furnace. At Calder they estimate the cost at about \$168 to each furnace. The apparatus at the Clyde

is much more expensive; the quantity of iron required is seventeen or eighteen tons, and the masonry twelve times as much as at the Calder Works.

The working of the furnaces present the same circumstances as those of the Clyde, and it is useless to repeat them; but to exhibit the progress of the introduction of hot air, we shall indicate,

1. The consumption and products of

the Calder Furnace, worked with cold air and coke.

2. The expenses and products of the same furnace, fed with air heated to 300° Fahr., also consuming coke.

3. The same results from the use of hot air and crude coal, during the month of July last.

The results which follow are extracted from the books of the establishment.

Consumption and Produce of Furnace No. 3, in 1828, by the Use of the Cold Blast and of Coke.

	Coke.	Ore roasted.	Flux.	Cast Metal.			Total.
				No. 1.	No. 2.	No. 3.	
	t. c. q.	t. c. q.	t. c. q.	t. c.	t. c.	t. c.	t. c.
From 6th Jan. to 3d Feb.	550 2 0	276 8 0	105 3 1	95 4	39 1	20 3	154 8
From 3d Feb. to 2d March.	545 1 0	274 5 0	101 0 1	100 1	34 2	18 2	152 5
From 2d March to 30th do.	575 0 1	295 6 1	108 0 0	106 6	44 3	15 14	166 3
	1670 3 1	845 19 1	314 3 1	301 11	117 6	53 19	472 16
Loss of Coal in coking, 55 per cent.	2041 6 3	563 18 3	Loss of Ore by roasting, 40 per cent.				
Coal.....	3711 10 0	1409 18 0	Ore, crude—pressure of air, 3½ lbs.				

Consumption and Produce of Furnace No. 3, in 1831. Air heated to 300° Fahr. and Coke.

	Coke.	Ore roasted.	Flux.	Metal.			Total.
				No. 1.	No. 2.	No. 3.	
	t. c.	t. c. q.	t. c. q.	t. c.	t. c.	t. c.	t. c.
From Jan. 2 to 16.	189 12	120 3 0	52 10 1	57 11	11 0	42 2	110 13
From Jan. 16 to 30.	204 3	130 6	64 7 0	46 7	0 0	27 0	73 7
	393 15	250 9 0	116 17 1	103 18	11	69 2	184 0
Loss of Coal.....	481 5	166 19 1	Loss of ore—pressure of air, 3 1-10 lbs.				
Coal.....	875 0	417 8 1	Ore, crude.				

Consumption and Produce of Furnace No. 3 during twelve weeks in 1832 and 1833, by Heated Air and Crude Coal.

	Coke.	Ore roasted.	Flux.	Metal.			Total.
				No. 1.	No. 2.	No. 3.	
	t. c.	t. c. q.	t. c. q.	t. c.	t. c.	t. c.	t. c.
From 4 Nov. to 2 Dec. 1833.	406 0	279 2 0	65 5 0	102 15	62 0	55 10	220 5
From 24 Feb. to 23 March, 1833.	458 8	389 6 1	64 7 1	116 10	31 0	52 10	200 0
From 24 Mar. to 23 April, 1833.	476 4	427 14 1	53 19 1	121 10	36 10	62 0	230 0
	1340 12	1166 2 2	183 11 2	234 15	129 10	107 0	640 5
Loss in Ore.....		797 8 0					
Crude Ore.....		1993 10 2	Pressure of air, 2½ lbs.				

By comparing these tables, we learn that for one ton of iron produced, the furnace No. 3 consumed as follows:

1828. Cold Air and Coke.

7075 of coke, corresponding to 15724 lbs. coal,	t. c. q.
or.....	7 17 0
Ore roasted, 3792 lbs., or.....	1 18 0
Ore crude, 5970 lbs., or.....	2 19 2
Flux, 1330 lbs., or.....	13 0

1831. Air heated to 300° Fahr. and Coke.

4279 of coke, corresponding to 9510 lbs., or...	4 15 0
Fuel for heating the apparatus, valued at.....	6 0

Ore roasted, 2217 lbs., or.....	5 1 0
Ore crude, 4575 lbs., or.....	1 7 0
Flux, 1260 lbs., or.....	2 6 0
	12 2

1833. Air heated to 612° Fahr. and Coal.

Coal crude, 4187 lbs., or.....	2 2 0
Fuel for heating the apparatus, valued at.....	8 0

Ore roasted, 3735 lbs., or.....	2 10 0
Ore crude, 6228 lbs., or.....	1 17 0
Flux, 572 lbs., or.....	3 0 0
	5 2

Note.—The consumption for the steam engine is not considered.

The furnace has produced each twenty-four hours,

1828. Metal, 11,238 lbs., or.....	t. cwt.
1831. " 13,143 " or.....	5 12½
1833. " 16,438 " or.....	6 13

The consumption of combustion has, therefore, diminished from 7 t. 17 cwt. to 2 t. 2 cwt., and the amount of flux from 13 cwt. per ton of iron in 1828, to 5½ cwt. in 1833. This diminution must be charged to the increased temperature in the furnace by the use of heated air. I will indicate at the close of this Report, the reasons which appear to me to account for this increase of temperature, the existence of which is certain, though we have not been able to measure it.

The quantity of air blast has been reduced from 3500 cubic feet per minute, to 2627 feet, the pressure being reduced from 3½ lbs. on the square inch, to 2½ lbs.

The expense of the fuel for heating the air varies from 7 to 8 cwt. per ton of iron.

The consumption for the blast engine remains the same, but as the yield of the furnace has advanced from 5 tons 12 cwt., to 8 tons 4 cwt., the expense, divided on each ton of iron, is reduced from 1 ton 4 cwt., to 14 cwt.; the slack only is used for this purpose.

The consumption of ore has varied much, but, as the scoria never contains more than from .02 to .016 of iron, this

difference depends on the quality of the ore, according as the *Ball ironstone* (mine eu rognous), or *flat ironstone* (mine eu couche), is used.

At Calder, as in the Clyde Works, the daily production of iron has been increased in a great proportion; this circumstance operates powerfully on the price of fabrication, as will be seen by the following statement.

Cost of making one ton of Pig Iron at the Calder Works.

1828. Cold Air and Coke.		
t. cwt.		d. c.
7 17½	coal for fusion, at 4s. 6d. per ton.....	8 50
1 4	coal for blast engine, at 1s. 8d. per ton..	48
2 19½	crude ore, at 6s. per ton.....	4 25
	Expense of roasting, at 10s. per ton....	40
13	flux, at 7s. per ton.....	1 09
	Labor, at 10s. per ton.....	2 40
	General expense, interest, &c.....	1 44
		18 76
1833. Air heated to 322° Fahr. and Crude Coal.		
t. cwt.		d. c.
2 2	at 5s. per ton.....	2 52
14	at 1s. 8d.....	28
8	for heating apparatus, at 1s. 8d.....	16
1 17	ore roasted, at 12s. per ton.....	5 33
5½	flux.....	46
	Labor reduced in proportion to increase of yield.....	1 62
	General expense, interest, &c.....	1 01
		11 38

The blast engine employed at Calder is made with two cylinders, one over the other, with one shaft, so that the pistons of both are attached to the same beam, (fige.) The upper cylinder is fifty inches, and the lower cylinder seven feet, in diameter, each being seven feet long; the stroke of the piston, which is nine inches thick, is seven feet, and it makes sixteen strokes a minute.

MONKLAND IRON WORKS, NEAR AIRDRIE.

The heating apparatus used at this establishment is similar to that at Calder, being formed with two large pipes, and a number of small tubes, jointed in the large ones, the relative positions being changed.

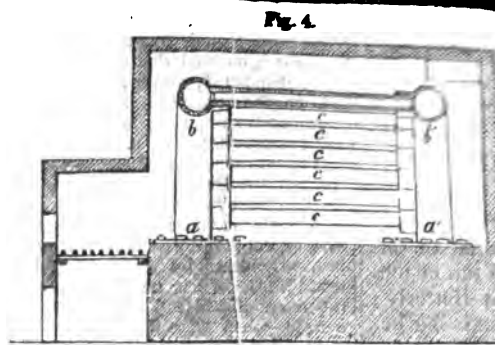
The two large pipes, *a b*, *a' b'*, (figs. 4 and 5,) are vertical, and framed as shown in the plate. The small tubes, *c c*, five feet long, which make the communication between them, are placed horizontal. This difference of position, and diminished length of the tubes, prevent the temperature of the air from being raised so high as at Clyde, or Calder.

At the time I visited Monkland, the air was heated to 450° Fahr., and coke was still in use for smelting.

The economy in fuel and flux obtained at these works, since the introduction of hot air, is nearly the same as at the Calder works, when the air at that furnace was heated to 300° Fahr., and coke still used in the furnace.

Before the adoption of the new plan, the Monkland works consumed from seven to eight tons of coal, for each ton of metal; since that time, there has been consumed 4 tons of coal for smelting; 6 cwt. of coal for hot air apparatus; 3 tons 5 cwt. crude ore; 10 cwt. flux.

The daily yield is now six tons; the pressure of the blast, two and three quarters of a pound.



The metal produced in the three works of which I have given the details, is, for the most part, intended for the foundry; the No. 3 iron alone is made into bar iron, and for this purpose is sold to the forges near Newcastle.

The pig metal, Nos. 1 and 2, though both destined for the foundries, are not employed indifferently.

The No. 1 iron is principally used for castings, which are to be worked as steam cylinders, &c., or for those requiring great strength. The No. 2 iron, though easily cut with a chisel, is nevertheless harder than the No. 1; it is employed, in preference, for cog wheels, and work requiring considerable hardness.

Besides the works of which I have treated, three others exist in Scotland, using the hot air blast; the results obtained in these establishments, by the adoption of the new plan, being similar to those cited, it appears useless to enter into details respecting them.

IRON WORKS IN THE ENVIRONS OF NEWCASTLE-ON-TYNE.

In the coal basin of Northumberland, the largest and richest in the kingdom, which furnishes almost all the fuel used in London, and the vicinity of the Thames, there are but two iron-works.

1st. The *Butterly Iron Works*, six miles from Newcastle, on the London road—the other called the *Tyne Iron Works*, on the banks of the Tyne, three miles from Newcastle. This region does not abound in good iron ore, and the proprietors have been unable, after the most minute search, to procure mineral enough to supply these two works; but their position on the banks of the Tyne enables them, in spite of these unfavorable circumstances, to draw their supplies from Lancashire and Cornwall, at a cheaper rate than they can be obtained, for the most part, in our iron works.

Both these works have used the heated air for a year past.

The *Butterly works*, constructed but three years since, contain two furnaces forty-five feet high, four reverberatory furnaces, and several cupolas; all the iron made is intended for castings.

The results given by the apparatus for heating the air, are not sufficiently important to warrant a particular description and plate. The apparatus consists merely of a tube, returned five times upon itself at right angles, and disposed so that the cross section presents five circles, of which four have for the centres the angles

of a rectangular parallelogram, and the fifth the point where the two diagonals intersect.

The tubes are placed horizontally, and are connected by bolts and nuts through lugs on the outside.

The interior diameter of these pipes is fourteen inches, and the metal one and a half inches thick; the length of the heated part is fifty feet, and the pipe is placed in a rectangular furnace, a little shorter than it, so that the joints and angles may not be exposed to the action of the fire.

The expenditure in fuel of this apparatus is about six hundred weight to the ton of iron produced. The pressure of the air is one and a half pound, being the same as before the introduction of the hot air. The velocity of the blast is a little less.

The charges of the furnace are as follows:

700 lbs. coke, (this coal gives 45 per cent. of coke;) 650 lbs. mineral roasted, being a mixture of equal parts of ore, (*minerai houiller*), and the red oxide of iron from Lancashire; 400 lbs. flux.

From the register, it appears that there were made, in furnace No. 1, July 10, 40 charges; July 11, 42 ditto; July 12, 38 ditto; or an average of 40.

The same furnace produced, in these three days, 23 tons 11 cwt. of metal, or a daily average of 7 tons 17 cwt.

By taking this data, we find that, to make one ton of iron at *Butterly*, they consume 4 tons of coal for fusion; 6 cwt. coal in lumps to heat the air; 1 ton 13 cwt. ore roasted; 1 ton flux.

The quantity of flux employed is very considerable, because it is much charged with water, being a marly chalk, brought from the banks of the Thames by the coal ships.

The mixture of ore, when roasted, contains 60 per cent. of iron.

To appreciate the saving which has resulted at the *Butterly works*, from the use of hot air, it is necessary to know exactly the consumption for a ton of iron, before the introduction of the plan. I have not been able to procure documents which would furnish this; but Mr. J. Hunt, the manager, assured me that the expenditure was seven tons of coal.

If we compare these results with those obtained in Scotland, we shall find that the consumption at *Butterly* corresponds nearly with that at Calder in 1830, when the temperature of the air was raised to 300° Fahr. and coke was still burned.

At Newcastle, the price of coal forbids

its use in the crude state, because the lumps, which are worth one dollar and forty cents the ton, must be used; while the slack, at forty cents, may be used to make coke for this purpose. It is nevertheless advantageous to give the air a higher temperature.

TYNE IRON WORKS.

The consumptions of material in this work, for the production of a ton of metal, are nearly the same as at Butterly; but an important difference existing between these establishments is, that, at the Tyne works, a great portion of the pig metal is made into malleable iron. This iron, which is of a superior quality, is almost exclusively rolled into boiler plates. In the same furnaces, and with the same minerals, the two kinds of iron are made by varying the relative proportions of ore and coke.

Cupolas are also fed with heated air to great advantage, 225 pounds of coke being sufficient to melt a ton of metal.

The furnaces having been constructed since the adoption of the hot air plan, no comparisons in regard to economy could be instituted.

ENVIRONS OF MANCHESTER AND LIVERPOOL.

The *Rant* iron works, near Wrexham, in Flintshire—the *Apdale*, the *Laneend*, and the *Silverdale* works, near Newcastle-under-Line, Staffordshire—have adopted the hot air plan.

The apparatus used in these establishments are very like those represented at figures 7 and 8. At Apdale, precisely the same apparatus is used, and the results obtained since its introduction are almost identically the same as at Calder, the temperature of the air being raised to 600 or 612° Fahr.

The consumption of coal, formerly six tons to the ton of iron, is now reduced to three and a quarter tons. They still employ coke, the coal being sulphurous. The expense of the heating apparatus is 7 cwt. of coal to the ton of iron.

The quantity of flux is reduced in the same proportion. In July, when I visited Apdale, only one furnace was in blast, which had been five years at work, but only six months with heated air. Since that time, the yield of the furnace has been from six to seven tons per day; the iron produced being almost all No. 1; while before, the metal had been nearly equal parts of No. 2 and No. 3, the last being made into bar iron.

One work near Newcastle, belonging to Mr. Furnstone, has abandoned the use of the hot air blast. I should have endeavored to ascertain the cause of this, had I learned the fact in time to visit the works.

(To be continued.)

[From an Essay of M. Arago on Artesian Wells.]

Depths of the most remarkable Fountains which have been opened by the hand of man.

We have already alluded to pits sunk by the Chinese to the depth of 1800 feet, in the province of Kia-ting-fou, by which they hoped to procure a supply of salt water; but as no water ascended the pits, we cannot rank them in the list of wells properly so called.

The seventh sheet of water, found near Saint Ni-

colas-d'Almermont, was at the depth of 1030 feet.—The water from it rose to the surface. As it was not water, but coal, that was sought for, the works were abandoned; and the only result that remained, was the formation, without intending it, of a copious fountain, whose waters issued from a source more than 1000 feet deep.

The pit recently sunk at Geneva to the depth of 682 feet, has not reached any body of water which has a tendency to rise.

At Suresne, near Paris, the residence of M. Rothschild, the Messrs Flachat have worked a pit, previously begun by M. Mulot, to the depth of 663 feet. This pit has now penetrated the chalk to the extent of 537 feet. The work has been suspended, when there is only 60 feet more of the chalk formation remaining, upon penetrating which, there would be every prospect of finding water.—The desirableness of prosecuting the research is most apparent.

The fountain of Cheswick, in the Duke of Northumberland's park, projects its water about a yard above the surface of the soil, and comes from the depth of 582 feet.

The deepest fountain in the department of Pas-de-Calais is situated between Béthune and Aire. Its waters project seven feet above the ground, and come from a depth of 461 feet.

The artesian well which affords such an abundant supply in the cavalry barracks at Tours, is fed by a body of water which M. Degoussé found at the depth 259 feet. The water of another well, which was finished in 1834, in the silk manufactory of M. Champoiseau, springs from a depth of 273 feet.

Concerning the Daily Issues from some of the Principal Fountains.

Belidor has already mentioned, in his Science de l'Ingénieur, a fountain which is situated in the manoir of Saint André, a couple of miles from Aire in Artois, the waters of which rise to the height of eleven feet above the ground-floors, and which furnishes nearly two tons of water per minute.

The well which Messrs. Fabre and Espérikette have sunk, at Bages, near to Perpignan, in the property of M. Duvand, supplies 333 gallons per minute.

The well which M. Degoussé had sunk in the cavalry barracks at Tours, measured at six feet above the ground, furnishes 235 gallons per minute.

Of the many wells which exist in England, the one whence, according to my knowledge, there is the most abundant supply of water, is that in the copper manufactory of Merton, in Surrey; its issue amounts to 200 gallons a minute.

The artesian well of Rivesaltes, for which the inhabitants are so much indebted to Messrs. Fabre and Espérikette, engineers, furnishes 176 gallons in the same time.

The well lately sunk near to Lillers, in the department of the Pas-du-Calais, with a depth of 140 feet, affords a supply of 155 gallons per minute.

Of Artesian Wells whose waters have been employed as Moving Powers.

At the village of Gouéhem, near Béthune, four wells have been sunk in a meadow to the depth of 180 feet. The waters which issue from them are converted into the water-course of a flour-mill, and subserve other agricultural processes.

At Saint Pol, there is another mill, the only moving power of which is the water from five projecting fountains.

At Fontès, near Aire, the waters of ten such wells are made to turn the mill-stones of a large mill, as also to blow the bellows and beat the hammers of a nail manufactory.

At Tours, M. Degoussé has excavated a well, in the silk manufactory of M. Champoiseau, to the depth of 430 feet, which pours 287 gallons of water per minute into the troughs of a wheel of twenty-one feet diameter. This wheel works the looms of his manufactory.

At Tooting, near London, the fountain of an apothecary puts a wheel of four feet diameter in motion, and this sets a pump to work, which raises water to the top of a house three stories high.

Of the advantage to which Industry, in various circumstances, has turned the Waters of Fountains.

On the present occasion we need not dilate on the benefits these waters confer on public health, nor on their use in irrigation, &c. &c. We shall only point out their application to a few purposes which are less generally known.

These springs have been put in requisition even

in countries where more common-courses are not unfrequent. Their constant and high temperature permits them to be applied to the movement of machinery during the most severe winters, whether it be directly, when they are abundant, or in other cases, only as a means of washing away the ice, which is apt to stop the movements of the water wheels.

In Wurtemberg, M. Bruckman, by transmitting through metallic pipes, conveniently placed, a current of water, at a temperature of 54 deg. Fahr., which is derived from several natural springs, keeps up a temperature at 47 deg., in various manufactories where the external cold lowers the thermometer to zero. This is a simple imitation of a plan which has been long practised in the village of Claudes-Aiques, the results, however, are worthy of consideration.

Greenhouses also are in existence, in which the temperature is maintained very equally, by the effects of the constant circulation of a large quantity of water, derived from these sources.

During heavy rains, the work of paper-mills is often interrupted, on account of the impurity of the water. These forced stoppages come to an end, when the constant limpid supply of a projecting fountain can be employed.

In some localities the invariable pure waters of a steady temperature, proceeding from these springs, have been the means of establishing very lucrative artificial cross-plots. The beautiful growth of cresses in those parts of the beds of rivulets where the natural springs existed, has suggested this application. It is positively stated that the artificial cross plots of Erfurt yield not less than 12,000l. per annum.

The very fine lint which is intended for the manufacture of cambric, lawn, lace, &c. is steeped in the Department du Nord, with very particular care. In a single Commune, between Douai and Valenciennes, there are ten or a dozen raiting-pools, which are fed entirely by water from a projecting fountain. It has been thought that the purity of these waters, and the invariability of their temperature, by accelerating the gum-rsins, preserve the valuable qualities of the filaments of the lint in the highest degree of perfection.

In fish ponds, the fish are apt to die during the winter, from the severity of the cold, and in summer from the heat. By turning the invariably temperate waters of an abundant artesian well into them, the extreme variations which the seasons induce are prevented. This experiment it is said, has entirely succeeded in the ponds of St. Gratien, near to Montmorency.

Sometimes Pits are sunk for the purpose of transmitting into the interior of the earth, water, retained at the surface by strata of impermeable clay or stone, and thereby rendering extensive districts mere morasses, unfit for cultivation.

The pits by which descend into the interior of the earth those quantities of water which, without this expedient, remain on the surface, may be called *negative artesian wells*. Necessity, the mother of so many important inventions, early suggested to mankind the idea of imitating nature in this point.

The plain of Paluns, near Marseilles, used to be a great morass. It appeared impossible to drain it by the help of the common surface channels. King René, however, caused a great number of pits or drain-wells to be sunk, which are known in the Provençal language by the name of *embugs* (funnels). These pits transmitted, and now transmit, in the permeable strata situated at a certain depth, those waters which made the whole country a barren waste. It is positively stated that it is the waters taken down by these embugs of Paluns, which, after a subterranean course, form the projecting fountains of the port of Mion, near to Cassis.

The river Orbe, in the Jura, which descends from the lake of the Rousses, conveys into lake Joux much more water than evaporation removes from it. This latter lake, whence there issues no river, preserves, notwithstanding, a stated elevation which is nearly uniform. "It is," says Saussure, "because nature has provided for these waters subterranean issues, by which they are engulphed and disappear. * * * * As it is of the

* It is the property of absorbing, of drinking up the surface waters, possessed by certain natural and artificial openings, which has given the names of *boit-tout*, of *betours* or *boitards*, to these drain-wells in certain districts.

greatest consequence for the inhabitants of this valley to preserve these natural drains, without which their arable lands and their habitations would be immediately overflowed, they preserve them with the greatest possible care; and when they perceive that they do not take off the water with sufficient velocity, they themselves open new ones. For this purpose, all that is necessary is to sink a pit fifteen or twenty feet, having a diameter of about 10 feet, in the thin and vertical strata, the summits of which appear on the surface. The name of *entonnoirs* (funnels) is given to these pits. * * * It is," adds Savvure, "the waters absorbed by all these entonnoirs, that are observed to rise from the earth, and form a large spring, which is also called Orbe, at the distance of two miles below the southern extremity of the lake." In this passage of two miles, the absorbed waters descend 680 feet.

A manufacturer of potato starch at Villeteuse, a small village about three miles from St. Denis, in the winter 1832-3, by means of a pit sunk to the depth of certain absorbing stratified beds, got rid of not less than 16,000 gallons of impure water per day, the stench from which had given rise to serious complaints, which probably would have compelled him to give up his establishment. After six months of daily absorption, nothing was found at the bottom of the pit except sand, and this has been uniformly the case from the first.

Influence of Comets.—"One of the most common effects attributed to these bodies is, an influence over the temperature of our seasons. It would be easy to expose such an error, by showing upon general physical principles, that there is no reason whatever why a comet should produce such an influence; but it will perhaps be more satisfactory to refute it by showing that it is not in conformity with observed facts. M. Arago has given a table, in which he has exhibited in one column the temperature of the weather at Paris for every year, from 1735 to 1801 inclusive; and in juxtaposition with these he has stated the number of comets which appeared, with their magnitude and general appearance. The result is, that no coincidence whatever, is observable between the temperatures or the number or appearance of the comets. For example, in 1737, although two comets appeared, the mean temperature was inferior to that of the preceding years, during which no comet appeared. The year 1765, in which no comet appeared, was hotter than the year 1766, when two comets appeared; the year 1775, when no comet appeared, was hotter than the year 1780, which was marked by the appearance of two comets; and the temperature was still lower in 1785, in which two comets appeared; while on the other hand the temperature of the year 1781 was greater, which was likewise marked by the appearance of two comets.

"This question, of the supposed connection between the temperature and the appearance of comets, has been completely sifted by M. Arago. He has given not only the general temperatures but also a table of the years of the greatest cold—of the years in which the Seine has been frozen over, and also of the years of the greatest heat—and he has shown that the corresponding appearances of comets have been varied without any connexion whatever with these vicissitudes of temperature.

"We should have hoped that the absurd influences attributed to comets would, at least in our times, have been confined to physical effects, in which the excuse of ignorance might be pleaded with a less sense of humiliation. But will it be believed that within a few years persons could be found among the better classes of society, and holding some literary and professional station—and in our own country too—who could attribute to the influence of comets every prevalent disease, local or general, by which, since the commencement of the Christian era, not the human race only was afflicted, but even the lower species of animals?

"The splendid comet of 1811 was, on the continent, considered as the immediate cause of the fine vintage of that year, and the produce was distinguished as the *wine of the comet*. But with us still more extraordinary effects were ascribed to that comet. In the 'Gentleman's Magazine' for 1818, we were told that its influence produced a mild winter, a moist spring, and a cold summer: that there was not sufficient sunshine to ripen the fruits of the earth; that, nevertheless (such was the cometic influence,) the harvest was abundant, and some species of fruits, such as melons and figs, were not only plentiful, but of a delicious flavor; that wasps rarely appeared, and *flies become blind*,

and died early in the season; that, in the neighborhood of London, numerous instances occurred of *women bearing twins*, and it even happened, in one instance, that the *wife of a shoemaker in Whitechapel had four children at a birth!*

So recently as the year 1829, a work appeared upon epidemic diseases, by Mr. Forster, an English practitioner, in which it is asserted that, since the Christian era, the most unhealthy periods have been precisely those in which some great comet appeared; that such appearances were accompanied by earthquakes, volcanic eruptions, and atmospheric commotions, while no comet has been observed during healthy periods. Not contented, however, with the influences formerly attributed to comets, Mr. Forster, says M. Arago, has so extended, in his learned catalogue, the circle of imputed cometary influences, that there is scarcely any phenomenon which he does not lay to their charge. Hot seasons and cold, tempests, earthquakes, volcanic eruptions, hail, rain, and snow, floods and droughts, famines, clouds of midgets and locusts, the plague, dysentery, the influenza, are all duly registered by Mr. Forster; and each affliction is assigned to its comet, whatever kingdom, city or village, the famine, pestilence, or other visitation, may have ravaged. In making thus, from year to year, a complete inventory of the misfortunes of this lower world, who would not have foreseen the impossibility of any comet approaching the earth, without finding some portion of its inhabitants suffering under some affliction; and who would not have granted at once, what Lubienietaki has written a large work to prove, that there never was a disaster without a comet, nor a comet without a disaster!

"Nevertheless, even the credulity and ingenuity of Mr. Forster were, in one or two cases, at fault, to discover corresponding afflictions for some of the most remarkable comets;—that of the year 1680, for example, which was not only one of the most brilliant of modern times, but the one which, of all others, approached nearest to the earth. The utmost delinquency with which he can charge this comet, was that of 'producing a cold winter, followed by a dry and warm summer, and of causing meteors in Germany.' To the comet of 1665, he ascribes the great plague of London; but he does not favor us with any reason why Edinburgh, Dublin, and Paris, not to mention various English towns and villages, were spared from its malign influence. The crowning absurdity, however, is the effect imputed to the comet of 1668. It appears, according to Mr. Forster, that the presence of this body made all the cats of Westphalia sick!"

Locomotive Faculty of Plants.—"If a wet sponge be placed near a cucumber which is growing in a particular direction, it will change this direction and grow towards the sponge. A plane-tree, growing on the top of a wall, directed its roots down the side till they reached the ground, a distance of ten feet, in order to obtain the requisite nourishment of which it was deprived in its elevated situation. Thus plants appear, like wise and intelligent agents, to move towards their good, and to turn aside from those soils that are either injurious or afford but a scanty nutriment.—[Analyst.]

A newspaper is a voice that will be heard; for, if it fail in its desperate effort to have its own way, and produce a desired effect, it gives up attempting to make the mountain come to it, and very wisely sides with the collected mass. It is the mirror of public opinion; not the original or fundamental creator, but the munificent distributor. You may be heartily sick of politics, commerce, and the rest of the perverse present; but the newspaper claims your ear as its prey, and remorselessly pursues you for ever. Dart away by the mail to escape from some detested news of Bourbon or St. Nicholas, and take shipping at the Land's end, "the paper" goes with you; hide yourself where you will, it finds you out; it is the bellman of your social existence, your shadow, your familiar; in short, there is no evading it. The first house we set our foot in, on arriving in Mexico in 1835—a time of war, trouble, and yellow fever, and before speculators and travellers had ventured their lives and fortunes to work mines, or write a book—there sat the Vice-Consul's clerk, blowing swift clouds from a much-excited cigar, behind a copy of the incorrigible omnipresent *Times* newspaper!—[Examiner.]

The receipts for tolls on the New York canals during 30 days ending 14th inst. amounted to \$246,602; being \$51,580 more than had been received prior to the same date last year.

The stock of the Baltimore and Ohio Railroad Company, which has been for some time past steadily recovering from its depression, was yesterday sold at its par price of \$75 per share. Some sales are said to have been made at somewhat higher prices. There are various causes for this advance, among which we may briefly mention the appropriation by the State of two millions, for the completion of the canal to Cumberland—a work with which the railroad is now connected at two points, and will soon be at a third; the near completion of the Washington railroad, from the operations of which a handsome revenue is anticipated, and the completion, a month or two afterwards, of the Winchester Railroad, forming an extension of the Ohio road from Harper's Ferry thirty miles into the valley of Virginia. The understanding, also, that transfer books are about to be opened in Philadelphia and New York, has likewise contributed to enhance its value.—[Balt. Am. of May 16.]

Preparations are making at Brussels for opening the railroad from that city to Malines on May 1.—This is the first part of the line which is to run from Antwerp to the Prussian frontier. It is said that there are to be three steam-carriages differently laden. The first, which is called *La Fleche*, will contain the engineers and other persons who have been engaged in forming the road, and which will perform the passage in seventeen minutes. This will be followed by the *Stephenson*, impelling wagons filled with the Ministers, deputations from the Senate and Chamber of Representatives, and other officers of State; and in which will also be seated Mr. Stephenson, the English engineer, under whose direction the railroad has been formed. The third convoy of wagons will contain several hundreds of persons, drawn by an engine called the *Elephant*.

Steamboat Improvements.—"It is said in a *Hamburgh Paper*, that Lord Cochrane's scheme for propelling vessels by quicksilver, instead of steam, is objected to, at St. Petersburg, on scientific grounds. It is asserted, that, if the plan were proved to be advantageous, in a mechanical point of view, it would still be impracticable. In support of this opinion, it is remarked, that no piston of a steam engine is so exactly fitted to its cylinder, as to prevent the passage of steam, and that every lubricating matter which might be applied, would, in the heat of the boiling mercury, at 600 degrees of Fahrenheit, be partly evaporated, partly carbonized. Moreover, no lubricating substance exists which is capable of obstructing the passage of the vapor, and its ascent, from quicksilver, would be greater than the ascent of steam. The atmosphere of the vessel would, therefore, be completely loaded with mercurial effluvia, and thus rendered highly dangerous to the health of the crew and the passengers.

The re-construction of Athens progresses. The first plan, which reserved half the old city for the purposes of excavation, and kept it free from the building of houses, has been abandoned, as ruinous to the already too much distressed inhabitants.—Liberty has been granted to build every where: 2000 houses are already standing, and 200 more are in progress; whilst in 1832 they amounted to not more than 700 or 800.

DEMAND FOR COCOONS.—Judging from appearances, the demand for cocoons and reeled silk, the coming season, will exceed the supply in a thousand fold. The silk manufactories in Dedham, Mansfield, and this city, are depending principally upon the new crop for the raw material. The last year's crop is already exhausted, and we understand that scarcely a bale of foreign silk can be found in the commercial cities. Those, therefore, who raise a crop this season may depend on its being sought for by the manufacturers and at a very liberal price. We should not be surprised if they command \$4 a bushel. Such persons, therefore, as have foliage, will do well to make cocoons, if they are not prepared for reeling.—[N. E. Farmer.]

NEW-YORK AMERICAN.

MAY 23—29, 1835.

LITERARY NOTICES.

THE SIEGE OF VIENNA; from the German of MDE. PICHLER. Philadelphia, KEY & BIDDLE.—We have not had leisure to look into this volume, —and only mention it now among the new publications, lest it should pass away without any review.

OUTRE-MER, a pilgrimage beyond the sea: 2 vols 12mo. New York, HARPER & BROTHERS.—The rambling, agreeable, scholarlike, meditations, comprised in these two handsomely printed volumes, appeared originally in numbers, and have been from time to time noticed in our columns.—Collected together, they make two volumes of agreeable reading; they are full of a gentle spirit and gentle influences.

HISTORY OF THE REFORMED RELIGION IN FRANCE: by the Rev. E. SMEDLEY, M. A. 3 vols. making vols. vii, viii, and ix, of the Theological Library, published by HARPER & BROTHERS.—It is a melancholy consideration, that the history of religion, in all countries, is a history of persecutions, blood, and crime. The religion of the gospel, has not escaped its full share of these accompaniments of human infirmity, and headlong passions. Nor has any sect, by which its precepts of "peace on earth, and good will to men," have been preached, been altogether free from the fierce spirit of intolerance and oppression.

In France, especially, the Reformed religion has from the beginning, struggled against fire and sword; against relentless power, exercised with all the cold atrocity of combined religious and political fanaticism—and to this day even—under the rule of a citizen king, and popular institutions, it is not on a level in consideration or influence, with the Catholic faith.

The history which Mr. Smedley has written, appears to us, elaborate, full of research, not partial, and conveyed in a very pleasing style. We make at random, an extract from vol. 1. It relates the cold-blooded murder of the Prince of Condé, the Huguenot leader, after the disastrous battle of Jarnac.

It was not till the following March that any decisive military operation took place, and the two armies then met on the banks of the Charente.—The Duke of Anjou had been largely reinforced, and, aware that Condé was awaiting a powerful detachment of German auxiliaries, he determined to anticipate its arrival by an immediate attack. For that purpose it was necessary that the Charente should be passed; but of its two bridges, one at Jarnac was in possession of the Huguenots; the other at Chateaufort had been partially destroyed. The remains of the latter, however, being inadequately guarded, were repaired during the night, and crossed by the royalists on the morning of the 13th of March, before the admiral, who commanded the Huguenot vanguard, could assemble his division, which were scattered widely over the neighborhood. His intention, when he learned the advance of the royalists, was to fall back on the village of Bassac; but the tardy movements of some of his corps brought on a skirmish with his rear, which soon increased to a general battle.—Bassac was stoutly defended; but the royalists, who at first were driven back with much loss, at length carried and maintained it. When this reverse was announced to Condé, who being posted at some short distance had not hitherto been engaged, the brave prince was ill-circumstanced to afford assistance. In consequence of some previous hurt, he had entered the field with his arm supported in a sling, and as he rode along his lines, a severe kick from a mettlesome horse belonging to the Comte de la Rochefoucauld shattered one of his legs in his boot. Concealing all sense of pain, and without changing the cadence of his tone and manner, he took this opportunity of inculcating a military lesson. "Gentlemen," he said, "bear in mind that fiery horses do more harm than good in action; and that it is but a silly vanity to pique ourselves on their management, and so to distract that at-

tention which ought to be directed altogether on the enemy—you may here see an unlucky proof of my doctrine, which however will not hinder me from fighting." Then waving his sword, he added, with greater fervor, "Nobles of France, know that the Prince of Condé, with a broken leg and his arm in a scarf has yet courage to give battle." After these words he rode briskly to the admiral's assistance; and charging with scarcely three hundred men at arms, he found himself unexpectedly opposed to the main body of the royalists. Surrounded, his horse killed under him, and himself disabled by his recent hurts, he beckoned two gentlemen of the enemy whom he recognised: and having surrendered his sword and received their faith for his security, he was raised from the ground, and seated under a tree. Almost at the same moment the Baron de Montesquieu, a Gascon gentleman and captain of the Swiss guards of the Duke of Anjou, rode up to the group, and asked who was the prisoner? Upon hearing that it was the Prince of Condé, he exclaimed with vehemence, "Seize him, kill him, kill him!" and approaching closely behind his back, discharged a pistol through his head, by which he was instantly despatched.

There is too much reason to believe that this most atrocious and cold-blooded murder would never have been perpetrated had it not been well known that it would be approved by the Duke of Anjou. Young as was that prince (he had scarcely yet attained his eighteenth year), the seeds of those evil passions which afterwards rendered him the most detestable of his odious race, had already struck deep root in his bosom, and one among the most prolific of them was revenge. He was jealous of Condé's popular qualities, and apprehensive of his rivalry. There can be little doubt, even after rejecting the improbable details preserved by Brantome, that he had found in him a competitor for the highest military command; and we may attach full credit to another portion of that garrulous anecdote-monger's narrative, in which he proceeds to state that the Duke of Anjou had consented to peace solely for the purpose of entrapping the Prince of Condé, whom he hated with a hatred to describe which the English language has not an expression sufficiently strong, although we should say even unto death. "It was not likely to be otherwise," continues Brantome, remarking on the savage and treacherous conduct of Montesquieu, "for the prince, as I well knew, had been recommended to many of the favorites of Monsieur, on account of the hatred borne against him from the day which I have mentioned; and assuredly there is nothing which a great man abominates so much as another great man who is equal; unless it be one who is not so, and who yet endeavors to raise himself to equality."

The ungenerous treatment which the remains of the fallen prince received, corroborates the suspicion that his assassination may be ultimately charged on the Duke of Anjou. "Monsieur," says Brantome again, "was not at all displeased; but overjoyed, and wished to see his enemy's body after the conclusion of the battle. More out of insult than for any other other reason, it was thrown across an old she ass that happened to be at hand; carried to Jarnac with the legs and arms dangling on either side of the beast, and placed in a lower room under the chamber then occupied by the duke, and on the day before by the prince himself."—After having been thus brutally exhibited as a spectacle to the whole army, the body was in the end delivered to Condé's brother-in-law, the Duke of Longueville, and buried by the Prince of Beaufort at Vendôme.

The next extract illustrates very strikingly the remark, made above, of the atrocious nature of fanaticism. Here the young Duke of Anjou, the king of France Charles IX, and the Pope, are seen exciting each other's zeal, to exterminate without remorse, and in the name, and for the sake, of religion, millions of their Christian fellow creatures.

The exultation of the youthful conqueror was boundless; and but for the discreet suggestion of one of his confidential officers, that he would thus accredit the rumor which imputed Condé's death to his express orders, he would have erected a chapel to mark the spot on which the prince had fallen. When the intelligence of the victory was conveyed to Metz, the temporary residence of the court, great joy, was manifested also in that city. On

the arrival of the courier at midnight, Charles arose from his couch to receive him, and proceeded immediately to the cathedral to celebrate a *Te Deum*. He then appointed a solemn service of thanksgiving throughout the kingdom; notified his success to all the crowned heads his allies; and laid the captured standards at the feet of the Pope.—Pius V. was loud in his acknowledgments, and addressed letters of congratulation in return to the chief personages of the French court. "When I received your most welcome messenger, my beloved son," were his words to the king, "announcing the victory gained by God's assistance over his enemies and those of the church, your rebellious subjects; and the death of the source of all these troubles and seditions, the leader of the heretic army; raising my hands to Heaven, I gave thanks to the Almighty with all holiness of heart, for that He had vouchsafed you success, and had graciously poured out upon us also the riches of His loving kindness. But in proportion as God has dealt thus mercifully, so ought you with greater diligence and strenuousness to employ this opportunity; that you may follow up and destroy the remnant of the enemy; that you may utterly exterminate all the roots, and even the offshoots from the roots, of that so great and so confirmed an evil.—If indeed they be not altogether eradicated, they will spring up again in quarters the least expected, as has often occurred before." Then, especially recommending the military occupation of Navarre, he urged Charles by the strongest exhortations to take from the common enemy all power of rising again. "This," he said, "will be best compassed, if you determine that no respect for human things or persons shall tempt you to spare the foes of God, by whom neither God nor yourself has ever yet been spared. You have indeed no other means of appeasing God, except by avenging most severely and with due punishment the injuries which He has endured from the most wicked of mankind;" and to that effect the example of Saul and the Amalekites was then propounded and applied. Similar incitements to persecution were repeated in a second letter, written about a fortnight afterward, in which the king was assured that tranquillity could be obtained for France by no other means than by insisting on unity of religious faith. "To procure that unity, under God's assistance, it is requisite that your majesty should proceed against God's enemies and your own, by just pains and penalties, exercising with severity the fullest rigor of the law. For if any motives should induce you (which we are far, however, from suspecting) to delay pursuit and vengeance, in those matters which give offense to God, you will deservedly provoke His long suffering to anger.—It is your duty to be deaf to every prayer, to reject every claim of clemency and kindness, to manifest yourself inexorable to every voice which may dare to petition for the most impious of men; and to that holy task, as it becomes our pastoral office and our paternal affection, well knowing that you are inclined to undertake it, we nevertheless think it fitting to stimulate you by this fatherly admonition."

Duplicates of these slaughter-breathing letters, with a few necessary variations of address, were at the same time transmitted to Catherine; and a hint was added that the Pope had heard of applications for the release of some of the heretic prisoners without punishment; a rumor which he confidentially trusted the queen would be able to contradict. To the Duke of Anjou, Pius wrote in terms of high compliment on his brilliant success in so early youth; urging him to follow up his victory with activity, and to exert his royal brother to administer punishment unsperringly. But the pontiff's chief expressions of confidence and attachment were reserved for the Cardinal of Lorraine: "If there be any one," he said, "of those numerous illustrious Catholics by God's grace existing in France, who is to be congratulated more heartily than another on this reasonable victory, surely you are that person to whom we would peculiarly manifest our paternal sympathy. Not only because you are endowed with singular piety towards God, and are so deeply imbued with affection for the Catholic faith, that no one is likely to feel greater present joy, but because we know also that through God's assistance, it is mainly to your discreet counsels and wise suggestions that the Christian commonwealth of your kingdom is indebted for its prosperity." The remainder of the letter enjoins the cardinal, in a similar spirit to that which Pius displayed elsewhere, to exert every en-

egy, which he possessed for the suppression of any inclination to mercy which might chance to arise in the young king's bosom.

THE TWO FRIENDS. A Novel, by the COUNTESS OF BLESSINGTON. 2 vols. Philadelphia.—CAREY, LEA & BLANCHARD.—While recording the conversations of, and yet instinct with some of the inspiration derived from long residence with, Lord Byron, this titled lady wrote attractively—if not always with the spirit of truth. But in this novel, we see nothing to commend. It is the slip-slop of high life, and low morals.

SPIRITUAL DESPOTISM, by the author of the *Natural History of Enthusiasm*: 1 vol. New York, LEAVITT, LORD & Co.—This is a striking volume, at this period of time, for one of its chief aims is to counteract the tendency of opinion in England, to the overthrow of the Establishment. To accomplish this object, much learning and research—ability of argument, and moderation in stating it, are employed.

THE ELEMENTS OF MORAL SCIENCE, by FRANCIS WATLAND, D. D., President of Brown University, and Professor of Moral Philosophy, 1 vol.: New-York, COOKE & Co.—The use of Paley as a text book, and dissent from many of his doctrines, embodied at first in the form of objections orally made, and then in the views committed to writing with which, to the exclusion of those of Paley, President Watland desired to imbue his students,—led to the preparation of this book:—a desire and hope, that what was found acceptable and instructive to his classes, may advance the general cause of moral science, induce the author to publish it.

It is a work of undoubted and profound ability, but it does not strike us as being, what the writer seems to consider it, an elementary book. Its arguments are sometimes too subtle and metaphysical, and at others assume too much knowledge and power of thought on the part of the reader, to make it a clear and easy work, for learners. To instructed or attentive minds, however, it offers abundant exercise.—and founding, as it rightly does, moral truth on the Scriptures, and considering, "that a system of ethics will be true, just in proportion as it develops the meaning of those Scriptures," it addresses itself to the highest hopes and interests of man.

The volume is well printed.

SUMMARY.

In the anniversary address of Professor Tucker, before the Virginia Historical Society, the following singular fact is mentioned, as connected with the History of Virginia.

In the year 1647, lawyers were forbidden to take any fees whatever, and 1658 they were excluded from the Legislature. For this uncourteous act, it must be confessed that their descendants have made the *amende honorable*. The medical profession seemed also an object of jealousy with the planters; as by another law (passed in 1646) physicians were required to swear to the value of their drugs.

LAWS OF NEW YORK.—The following summary from the Journal of Commerce, of some of the laws, passed at the late session of the Legislature, conveys all needful information, and saves us room.

An Act of the Legislature of New York, passed at the late session, provides that the affidavit of the printer or foreman of a newspaper, as to the publication of any advertisement in its columns, shall be entitled to be read in evidence in all Courts of Justice in this State, and shall be *prima facie* evidence of such publication.

Another Act authorises the Commissioners of highways to grant a written permission for Rail Roads to run across public roads when required.

Another Act directs all Banks in the State to

publish in two or more newspapers, an annual list of all deposits and dividends which at the date of the statement shall have remained unclaimed for two years next preceding. The first annual list is to be published on or before the 1st of September next.

Another act prohibits the sale of ardent spirits to paupers, or the purchase of any clothing from them furnished at the public expense, under penalty of \$5 for each offence, together (in the latter case) with the value of the clothing.

An Act was passed 23d of April, authorising the Common Council of this city to appoint an additional Police or Special Justice, making five in all,—at any time after the first of June ensuing, i. e. as soon as the Jackson Corporation have got well warm in their seats.

AUCTION AND SALT DUTIES.—The following proposed amendment to the Constitution having been agreed to by a majority of both branches of the Legislature in 1834, and also by a majority of both branches of the Legislature in 1836, is to be submitted to the people for ratification at the annual election on the first Monday of November next, and if adopted, will by that act become a part of the Constitution.

"Whenever a sufficient amount of money shall be collected and safely invested for the reimbursement of such part as may then be unpaid of the money borrowed for the construction of the Erie and Champlain canals, the tenth section of the seventh article of the Constitution of this State, so far as it relates to the amount of duties on the manufacture of salt, and the amount of duties on the goods sold at auction, shall cease and determine; and thereafter the duties on goods sold at auction, excepting therefrom the sum of thirty-three thousand five hundred dollars otherwise appropriated by the act of the fifteenth April, one thousand eight hundred and seventeen, and the duties on the manufacture of salt, shall be restored to the general fund."

[From the *Mercantile Advertiser*.]

A VERY BEAUTIFUL SIGHT.—There are now lying at Pine st. wharf, the new and superb ships WESTMINSTER and ST. JAMES, built for, and attached to, Mr. Griswold's and Grinnell, Minturn & Co.'s London Line of Packets. The former is commanded by Henry L. Champlin, and the latter by William S. Sebor, gentlemen well known and highly respected in their professional characters as well as in private life. Of the ships, all we can say is, that they are each of about six hundred and fifty tons burthen, built of the best materials, finished in the neatest and most approved style, and will take rank with the best of the fine packet ships of which we as New Yorkers are justly proud. The Westminster will sail on the 1st, and the St. James on the 10th June.

The Scotland, another superb new ship of 700 tons, intended for the Liverpool trade, and commanded by our esteemed friend Wm. G. Hackstaff, is now lying at Murray's wharf.

On beholding these ships, we think that every spectator will agree in the expression we have used for the caption of this article, that they have witnessed a very beautiful sight.

Connecticut State Prison.—From the annual report of the Directors of the Connecticut State Prison, it appears that the number of convicts in the prison at this time is 207, of whom 50 are blacks and 19 are females. They are employed in various branches of labor, viz:—23 in the carpenter's shop, 21 in the smith's shop, 45 in the chair shop, 22 in the Britannia ware, 7 as nurses and waiters, and 10 are invalids. The females are employed partly in the kitchen, and partly in making cigars. About half the convicts are let out by the day on contracts. The income last year from the labor of the convicts, including the receipts of visitors, amounted to \$17,384, making an average of \$91 50 for each. The whole amount of expenses for the year, including the support of prisoners and the expenses of the guard, was \$12,116, or an average of \$63 77 for each. The prison has therefore made a profit from the labor of the prisoners of \$5,268. The Directors propose that a separate block of cells, 15 or 20 in number, should be built, to be paid for out of the income of the prison. The prison is represented as well calculated for the safe keeping of the prisoners, no one having made his escape.—(Daily Adv.)

[From the *Canton Register*.]

NEW PUBLICATION.—We live in a literary age, and it would be a pity not to advert to the new lucubrations with which our celestial friends favor the world. Unlike the western barbarians, who wish to be wiser than their forefathers, Chinese scholars either repeat what the ancients have said, or are entirely silent, to give the world to understand, that they are too wise to think themselves wiser than the sages of the olden times. It is therefore very difficult to find a new publication, and it was mere chance that we got a small book into our hands entitled King-kwei-sin-shoo;—Warning to people of rank—a new book; or Sew-heao-ke-tchen-chuen: The whole story of the elegant shoe, in four small volumes. Our readers are acquainted with the atrocities committed by Ye mangehe, the village tyrant, who was strangled in November last; a poet had contrived to write a ballad, wherein he paints the dreadful punishment of this miscreant in hades, and the present work is a relation in prose, interspersed with verses, which gives an account of the criminal's life after his return into his native village. The style of the work is easy, full of good aphorisms, the details are interspersed with some sage remarks, and wherever a simple relation of facts be too insipid, the author has availed himself of fiction, to render the work more amusing. We have perused the whole, and only regret that the writer has abbreviated so many characters, as to put the patience of the reader to a trial in finding them out. As a literary production, we think the author worthy of praise, for he has handled the subject with great ability, and given to the story romantic interest. The conclusion is as impressive as a Chinese writer possibly could draw it. The indignant spectators behold the parting scene of Ye-mangche from his wife, who shows the utmost tenderness towards an unworthy husband. As soon as his body is removed they resolve to retaliate upon his family the same injury which he and his accomplices inflicted upon the neighborhood. Such a proposal meets with general applause, until a senior amongst the crowd points out to the bystanders the punishment which he is now to receive in hades, according to the tenets of buddhism. This remark forcibly strikes them, and all acquiesce in the punishment of another world; the author recapitulates the sentences passed upon him and his accomplices in hades,—and concludes the whole with the moral of the story.

We have never read a work which has given us such an insight into the domestic life of the people of Canton. If these little volumes were translated they would surely please the English reader, who is anxious to know something about the Chinese.

KENTUCKY LOAN.—By an advertisement in this paper, it will be seen that Mr. Winter is here, with authority from the State of Kentucky, to borrow \$100,000, at 5 per cent, on bonds unredemable for 20 years.

This is part of a loan authorised by the State to promote internal improvements, based on this solid foundation, that no advance of any part of it should be made, till double the sum be subscribed by individuals,—thus judiciously combining public and private interests. Kentucky owes not a dollar of debt—is a rich State—and will therefore doubtless obtain this loan on favorable terms.

DEATH OF MR. BRONK.—We regret to learn that JOHN L. BRONK, Esq. of Coxsack, who was injured by the calamitous explosion on board the steamboat Advocate, after languishing nearly three weeks, died yesterday, at Coeymans.—[Albany Eve. Jour.]

Wild Animals.—The ship Susan arrived at Boston on Tuesday from the Cape of Good Hope, has brought the following rich cargo of wild animals, seventy-six in number, to Messrs. Macomber, Welsh, Gray, and Raynor, viz:—2 Elephants, 1 large Rhinoceros, 8 full grown Ostriches, 3 Bengal and 3 African Leopards, 6 white Vultures, 5 secretary Birds or serpent Eaters, 1 Cassowary bird, 3 laughing Hyenas, 2 strand or beach do., 3 spotted do., 1 Bengal or royal Tiger, 5 Porcupines, a full grown Lion and Lioness, 2 young do. do., 2 Jackalls, 1 Tiger cat, 1 Java Poney, 1 Mongoo, 2 Poonar or Hindoestan Bears, 2 white and 1 crested Pelicans, 2 Zebras, 1 large Coffa Crane, 6 minor animals.

A PUBLIC GALLERY OF THE FINE ARTS.—The communication of *A Citizen*, in the N. Y. American, presents an appeal in behalf of the establishment of such a gallery in this city, and suggestions for carrying out the plan, which seem to us worthy of all encouragement.

It is understood that the venerable President of the Academy of Fine Arts, and many of his associates, fully concur in this project—of which the immediate effect would be—by putting before the eyes of our young artists, only good models—to refine and improve their talents; while on the public taste, it would exert that certain though gradual amelioration, which familiarity with the best productions of the pencil and the chisel, fails not to produce. We shall be well pleased, indeed, if the truly practical suggestions of our correspondent, attract the attention and co-operation of the public.

A WINTER IN THE FAR WEST.—As it is the fashion, in regard to all American works, to chronicle the opinions respecting them of the English press, we take from the London Morning Herald, the following really just notice of Mr. Hoffman's attractive volumes:

"This adds one more to the interesting works on America, which have of late proceeded from American pens. It is an account of an excursion made by the author through different portions of the Union, but chiefly along the Indian frontiers. He travelled amongst scenes, which were as new to him, as they are to his British readers, and had to rough it amongst the backwoodsmen, and scattered remnants of the red men tribes, even as an adventurer in the early days of the settlements. With a strong feeling for the beauties of nature, and the picturesque in every form, Mr. Hoffman is a writer of great vivacity and unaffected vigor. In a word, his book is full of matter the most various upon sober realities, and realities which savor of wild romance, and he narrates with a freshness of style which well becomes his unshackled theme."

We add these two extracts on the same subject from the *Court Magazine* and the *London Morning Post*.

[From the *Court Magazine*.]

"This is a most delightful book. No one has given a truer or more vivid description than Mr. Hoffman, of American wilds and American people. We can promise our readers a store of entertainment from these volumes."

[From the *Morning Post*.]

"This new work, by Mr. Hoffman, will be an acceptable offering to the general reader, and to all those who take an interest in comparing the impressions of an American traveller in reference to the scenes and society of the 'Far West' with the spirited but satirical sketches of Mrs. Trollope and Captain Basil Hall, and also to those who love nature in her undress, and find a philosophical gratification in tracing the elementary operation of the social systems in those remote regions which form the boundary between civilized and savage life. The narrative is very amusing. Over part of it, is diffused a tinge of romantic interest and adventure, arising from those numerous accidents by flood and field, that untaught heroism and unregulated energy, that habitual communing with nature in her wildest, perhaps her most attractive forms, which constitute the interest and the charm of semi-savage life."

OHIO.—The Governor of Ohio has summoned the Legislature of the State to meet on the 8th proximo. The following is his Proclamation:

"Whereas, great and weighty matters, claiming the consideration of the General Assembly of the State of Ohio, form an extraordinary occasion for convening them: I, ROBERT LUCAS, Governor and Commander-in-Chief of said State, do, by these presents, appoint Monday the eighth day of June next for their meeting at the city of Columbus, within said State, hereby requiring the respective Senators and Representatives then and there to convene in General Assembly, in order to receive such communications as may then be made to them, and to consult and determine on such measures, as in their wisdom, may be deemed meet for the welfare of the State of Ohio.

"In testimony whereof," &c.

Attempted Balloon Ascent at Brooklyn.—Yesterday evening Mr. Henry Prince, a young man who is a machinist at Brooklyn, attempted to ascend in a balloon from a piece of ground which was enclosed for the purpose with boards ten or twelve feet high, at the junction of Fulton and Clinton streets. Mr. Prince unfortunately, a few evenings back, exhibited his balloon gratis, in a large room, where some evil minded person cut it in two places, which Mr. Prince repaired, but as it turned out, not sufficiently well to retain the gas, which prevented his making his intended ascent. The inefficiency of the balloon was not discovered until after a considerable number of persons had entered the enclosure, and paid fifty cents each, for admission. As soon as Mr. Prince discovered that he would be unable to make the ascent, he addressed the persons who had paid their money, and told them they could get back their tickets on going out. A number of ruffians who were outside the enclosure, and had paid nothing, immediately knocked down the boards which formed the enclosure, and got inside and demanded the price of the tickets. Mr. Prince remonstrated with them, and an altercation ensued, which ended in his being obliged to take refuge in a neighboring house, to avoid the threatened violence of the mob. Mr. Prince has lost about \$300 by the transaction, but he is nevertheless determined to risk another ascent in an open field, leaving it to the public to remunerate him as they may think proper.—[*Jour. of Com.*]

The Cincinnati aeronaut, Mr. Clayton, who was to essay a visit in his balloon, to the sea-board some days ago, was cut short in his voyage at the outset. Owing to the violence of the wind, the balloon was snatched from the grasp of those who held the cord, before it had obtained sufficient upward elevation to avoid the houses, &c., and was consequently dashed against them with violence, endangering the life of Mr. Clayton. Fortunately, the car was, by one of the those concussions, separated from the balloon, and left with Mr. C. on the top of a house—the balloon winging its way into illimitable space. Mr. C. was not hurt.

A public meeting was afterwards held at Cincinnati, Bellamy Storer in the chair, at which it was resolved to raise by subscription a sum sufficient to indemnify Mr. Clayton for his loss. On his part, he is resolute in his purpose to make us Cis-Alleghaniens, a visit by balloon.

WHALING WITH PRUSSIC ACID.—It appears by the Nantucket Inquirer that the "novel" and "ingenious" scheme for killing whales by means of prussic acid, for which Mr. Chamberlain, of Boston, has "secured a patent", is none other than the invention of Mr. William Coffin, Jr. of Nantucket.—The Inquirer says:

"Over two years since, having observed the instantaneously fatal operation of prussic acid upon the vital powers of several small animals, Mr. Coffin was led to consider its probable effect upon those enormous creatures which it is the peculiar business of this community to pursue and capture. He forthwith caused several harpoons to be constructed, precisely on the principle now described in the article referred to—each provided with a small phial of the 'horrible liquid.' No opportunity for a proper experiment with this formidable weapon has ever yet occurred—for the reason that whalemen generally are apprehensive, and perhaps with good reason, of danger to themselves in its use.—But in the month of July, 1833, when great interest was excited by the alleged appearance of the Sea Serpent in Massachusetts Bay, a vessel was fitted out from this port, for the express purpose of taking that monster dead or alive, should it be fallen in with. On recurring to our files, we find in a notice of the departure of this vessel, the following paragraph:

"Among the implements of destruction on board, are sundry harpoons of new construction, one thrust from which will produce instant death. This description of harpoon carries within its barb a dose of concentrated poison, the most subtle which human science has yet been able to discover."

This vessel proceeded to Boston, where the nature of the weapons prepared was explained freely to many individuals: and we are inclined to sus-

pect that this was the origin of that "very novel scheme," that "unique discovery," made by an "uncommonly ingenious" manufacturer of "hooks and eyes." There may exist a natural connexion between these two branches of ingenuity; for the idea of "hooks and eyes" may have suggested the notion *hooking up* the discoveries of other people's eyes. But

"Canst thou draw out Leviathan with an hook?"

It becomes our painful duty, says the Wilmington N. C. Advertiser, to record the death of Major George Blaney, of the U. S. Corps of Engineers, who expired at Smithville, on Friday, the 15th instant, aged 39 years. Major Blaney was a gentleman and a man of honor, in the full and legitimate import of the terms,

Michigan Convention.—The delegates chosen with a view to the formation of a constitution for the Territory of Michigan, assembled in convention at Detroit, on the 11th inst. John Biddle was appointed president of the convention by resolution, and Mr. J. Bacon and Chas. W. Wipple, secretaries.

It is a singular coincidence that our French losses sustained by the decrees of the Emperor Napoleon, should have, at this late day, been indemnified by the French government, and that the first news of the important event should have reached here by the *Napoleon*.—[*Gazette*.]

[From the *Daily Advertiser*.]

LITERARY.—We have permission to publish the following extracts from the minutes of the American Lyceum, at their late fifth Annual Meeting.—The subject is interesting to all friendly to education, particularly female education in our country. We understand that the reading of the paper mentioned excited the warm and general gratification of the Society, and called forth several speeches from members.

"New York, May 9th, 1835.

Morning Session.—President Duer read the Essay of Miss Catharine E. Beecher, of Ohio, on the Education of Female Teachers.

On motion of Judge Radcliffe, seconded by the Rev. Mr. Johnson of Brooklyn, it was unanimously

Resolved, That the thanks of the American Lyceum be presented to Miss Catharine E. Beecher for her Essay on the Education of Female Teachers.

Resolved, That the Lyceum, considering the extensive circulation of this Essay, to be well calculated to excite public attention to the importance of its object, and the sentiments it contains particularly important at this time would recommend it to the public, and request those connected with the popular press to aid in its promulgation, by publishing extracts.

Resolved, That the subject of Female Education deserves more attention than it has yet received from the American community.

Resolved, That the establishment and liberal endowment of a considerable number of female seminaries for a high order, especially for the education of female teachers, is highly deserving of the benefactions of the intelligent and wealthy of the community, as well as of Legislative patronage.

Resolved, That the thanks of the Lyceum be presented to the Ladies who have undertaken to defray the expense of publishing the address.

True copy from the Minutes.

(Signed)

R. G. RANKIN, Sec. pro tem.

[From the *Buffalo Com. Adv. of Wednesday*.]

MELANCHOLY LOSS OF LIFE.—Early yesterday morning, two men named *Brailey* and *Bailey*, who were attempting to pass down the Niagara river, from Tonawanta to Chippewa, U. C., were carried by a sudden gust of wind into the rapids above the falls. In this alarming situation they deserted the scow, and swam for a temporary refuge to the shoals, about one and a half miles from shore. On this precarious footing, up to their necks in water, a rapid current sweeping around them, threatening to bear them to the awful brink below, these unfortunate men maintained their position for some time, shouting for assistance. A man named *Udell* put off alone, in a boat, to their relief; but one of his oars broke, and he was obliged to scull back with the other. *Brailey* then swam to a floating log, on which he attempted to reach the shore, but was carried downward by the irresistible current and

precipitated into the frightful gulf below. A brother of Udell's now volunteered to aid in the attempt to save the remaining sufferer; and furnished with two oars each, they again put off, and succeeded in rescuing the helpless Bailey from his perilous situation.

We hope the neighborhood will, by some public testimonial, honor the benevolent gallantry of these two Udells. There was a noble daring, from the purest motives.—(Ed. N. Y. AMER.)

CITY FINANCES.—The Annual Message of the Mayor, ordered to be printed on the 18th instant, was laid on the table of the members. The following is a statement of the financial concerns of the city:

The city debt permanent and temporary is	\$745,034
Paid off during 1834	91,309
Warrants on the Treasury last year	1,915,638
Probable drafts next year, including water	3,000,000
Sinking fund on hand	130,900
Real Estate owned by the city	10,000,000

Miss Landon says "a quotation aptly expressed, is as good as an original thought;" we never met with a more forcible argument in favor of that thesis than the following from Brooks' Winchester Republican:—

"Hope wither in field, and massa sigh'd farewell!"

An advertiser in Virginia offers a reward for the apprehension of a mulatto named Hope Witherin, who has practically illustrated the line at the head of this paragraph by obsequiating bodyaciously.

Punishing Extraordinary.—A friend of ours received the following communication through the Post office:—[Charleston Courier.]

If Abel had been able to cane Cain, Cain would not have been able to cane Abel; Abel would therefore not have been Cane-Abel. CANE-ABLE.

LATER FROM EUROPE.—After a long interval, we have intelligence from France and England nine or ten days later than before. The packet ship *Canada* from London, arrived on Saturday evening, with papers of the 18th from that city. The *Rhode Island* from Havre with Paris dates of the 14th, arrived yesterday, as did the *South America* from Liverpool of the 16th, and Cork of the 22d—having put into the latter port by reason of Captain Waterman's accidentally breaking his leg.

New Ministry.—We have great pleasure in announcing, that whatever difficulties may have existed appear to have been altogether overcome, and that Lord Melbourne has been able to form a Cabinet, which we have no doubt, will give entire satisfaction to the country.

The following is a list of the Members of the Cabinet, formed from rumors the most worthy of credit, which have reached us, and which have been in circulation days past. We trust it will prove to be correct.

In the Cabinet.—First Lord of the Treasury, Viscount Melbourne.
President of the Council, Marquis of Lansdowne.
Secretary of State for the Home Department, Lord John Russell.
Secretary of State for the Foreign Department, Viscount Palmerston.
Secretary of State for the Colonies, Right Hon. Charles Grant.
Chancellor of the Exchequer, Right Hon. T. Spring Rice.
President of the Board of Control, Right Hon. Sir J. C. Hobhouse.
First Lord of the Admiralty, Lord Auckland.
Chancellor of the Duchy of Lancaster, Lord Holland.
Privy Seal and Woods and Forests, Viscount Duncannon.
Secretary at War, Viscount Howick.
President of the Board of Trade, Right Hon. C. Poulett Thomas.

If we are not misled as to the members of the Cabinet, it will thus appear, that their number is considerably smaller than during the late Administrations, which we consider a more advantageous arrangement for the transaction of the business of the nation.

Sir Robert Peel and the Duke of Wellington did

not remain at the place above ten minutes. There was some cheering on their departure.

Lord Melbourne was loudly cheered on his arrival at the Palace.—[Courier.]

LATER AND DECISIVE intelligence from Europe, by the *Napoleon*, Liverpool packet ship of the 24th, was received last night. It confirmed the confident prediction we hazarded in yesterday's paper, that not "many hours, probably, would elapse," before hearing that the Indemnity Bill had passed.

It has passed by the extraordinary majority of 289 to 187. The condition annexed is a mere salvo to national feeling, and will easily be disposed of on our behalf, by a simple reference to, and repetition of, the language of the President's Message.

The amendment of Gen. Valazé, which was adopted, is to this effect:

"The payments to be effected in execution of the first article of the present Bill, shall take place only after the French Government shall have received satisfactory explanations as to the Message of the President of the United States, dated December 2, 1834."

Now it would be a full and complete answer on our part, to the requisition of this amendment, to recall and reiterate the following declaration, which, in the President's annual message, immediately follows the recommendation, that, in a certain contingency, reprisals be resorted to.

"Such a measure ought not to be considered by France as a menace. Her pride and power are too well known, to expect any thing from her fears, and preclude the necessity of a declaration, that nothing partaking of the character of intimidation, is intended by us."

What was said in good faith in December last, there can be no sort of objection to repeating, with increased emphasis, if necessary, now—especially as a resort to the alternative, to which this language, when used, referred, has been rendered unnecessary, by the compliance of the French Government with our reasonable demands.

A silly, blustering, paragraph, in the *Liverpool Journal*, which talks about this country being called upon to make an apology, has no foundation in fact.

This embarrassing question may, therefore, be considered as finally settled; and without now inquiring, where the merit of, or the obstacles to, an earlier and less ungracious solution of the difficulty, belong, we sincerely congratulate the country on the result.

Mr. Livingston will now, according to his orders, return, we presume, to the United States, rather than retire to Holland, or any neighboring country—leaving a *Chargé* in Paris.

The Constitution will, of course, proceed to her station in the Mediterranean.

The Queen of the Belgians has given another *Prince* to her people!—and they rejoice accordingly.

In English affairs there is nothing new by this arrival.

WHITEHALL, April 8, 1835.

The King has been pleased to direct letters patent to be passed under the Great Seal, granting the dignity of a Baron of the United Kingdom of Great Britain and Ireland unto the Right Honorable Alexander Baring, of the Grange, in the county of Southampton, and the heirs male of his body lawfully begotten, by the name, style, and title of Baron Ashburton, of Ashburton, in the county of Devon.

There are at this moment as many as eight ex-Chancellors of the Exchequer living:—Lord Sidmouth, the Marquis of Lansdowne, Lord Bexley, (who held that office 11 years,) Earl of Ripon. Mr. Herries, Mr. Goulburn, Earl Spencer, and Sir Robert Peel. The number of persons living who have held the office of Premier, or first Lord of the Treasury, is six:—Lord Sidmouth, the Earl of Ripon, the Duke of Wellington, Earl Grey, Lord Melbourne, and Sir Robert Peel.

Sir Robert Peel's administration was the shortest known in England, at least since 1760, the date of the accession of George the Third. It lasted only 118 days; the other short ones during that period were that of Lord Shelbourne in 1789, which lasted five days longer—that of Mr. Canning, the duration of which was 135—and that of the Earl of Ripon, which was 159 days. The duration of Lord Melbourne's first administration was 186 days.

The only pensions granted by Sir Robert Peel during his administration, excepting one of 100*l.* per annum to the widow of Mr. Temple, late Governor of Sierra Leone, are the following:—Professor Airy, 300*l.*; Mr. Southey, 300*l.*; Mrs. Somerville, 200*l.*; James Montgomery, 150*l.*; Sharon Turner, 200*l.* This, we presume, is proof of Conservative proficacy in the administration of patronage—of Sir Robert Peel's disregard of literary merit, and of his desire to repress literary exertion. But stop, the pensioners are all Tories? No; the majority are Whigs. We should like to see what Sir Robert's predecessors for four years can set off against these pensions.—[Standard.]

Lady Byron, widow of the noble poet, has broken up her establishment at Hanger Wood, near Acton, preparatory to her departure with her daughter, the Hon. Ada Augusta Byron, on a tour for the summer in France and Italy.

The French chemists make the following proposition, in order to render less frequent the crime of poisoning, and to put on their guard those who may be marked out as the victims of revenge, jealousy, or the like. From 1824 to 1832, the number of individuals accused of poisoning was 273; and it appeared, that in many instances the intended victims had been saved by the bad taste communicated to the food by the poisonous substance. It is, therefore, recommended that it should be rendered compulsory to color or give a flavor to all poisonous substances which would not be deteriorated by the admixture. For the latter purpose, aloes have been suggested; and of this many English as well as French chemists have approved. It has also been recommended to scent all poisons with the same odor—musk, for instance.

In Spain, the battle between the contending parties lingers along. *Mina* has been dislodged from the command of the Queen's troops, and we rejoice at it, for hitherto his only feats seem to have been the massacre of peasants, and the burning of villages. *Valdez*, the minister of war, succeeds him. The issue of the contest is uncertain, and the state of Spain manifestly most unsettled.

ERUPTION OF VESUVIUS.—A Naples letter of 2d April, published in a London paper, makes this statement:—

"Vesuvius, which had for the last fortnight, given indications of an approaching eruption, burst forth last evening in all its fury. During the afternoon a storm of hail and rain, had detained the crowd of visitors at Resina, who would otherwise have been inevitably sacrificed, as the very ground round the crater, where hundreds had been walking only the evening before, was carried up into the air at the first explosion. The *Poj e' girandola*, of a thousand rockets, is a joke to it. At half past nine (within less than three hours) the detonations ceased, and the fire gradually subsided.—This morning there is not even the least smoke."

MY AUNT.

My aunt has many queer notions,—
She never butters her bread;
She declares that the Bulwer novels
Are things not fit to be read;
She thinks that to flirt is a crime,—
And especially with youth;
And she thinks the "Paradise Lost,"
Is every syllable truth.
My aunt has got to her spectacles,
Though without them she sees well enough;
She is very well versed in politics,
And thinks your poetry stuff.
She imagines that all the clergymen
Are as wise as wise can be;
She thinks that Pope is a poet—
But there she agrees with me.
She dreams she can tell the mark that is left
On my cousin's lip by a kiss;
And of all her antic theories
I am sure not to meddle with this.
She might tell the track of a bird through the air,
Or the track of a ship on the sea—
On the viewless heart, not the visible eye,
The stamp of a kiss will be!

[From the Boston Daily Advertiser.]

Visit to Lady Hester Stanhope.

We translate the following history of this mysterious woman, from the notes of a Traveller, by Alphonso de Lamartine, member of the French Academy, as published in the *Courier des Etats Unis*:

Lady Hester Stanhope, the niece of Mr. Pitt, after the death of her uncle, quitted England and travelled over Europe. Young, beautiful and rich, she was every where received with the attentions and the interest, which her rank, her fortune, her intelligence and her beauty might be expected to excite. She constantly refused to unite her fate with that of her worthiest admirers, and having passed several years in the principal cities of Europe, she embarked with a numerous suite for Constantinople. The motives for this expatriation have never been known. By some it has been attributed to the death of a young English general, who was killed at this period in Spain, and for whom Lady Hester is said to retain in her heart to the present day, the most tender regret. Others suppose it to be owing merely to the taste for adventure, which belonged to the enterprising and courageous character of this young person. Whatever it may be, she set out, and passed several years in Constantinople, and finally embarked for Syria in an English vessel, taking with her the greater part of her property, and jewels of immense value, together with presents of all kinds.

The ship was overtaken by a tempest in the Gulf of Macri, on the Coast of Caramania, opposite the Isle of Rhodes, and struck on a rock some miles from the shore. The vessel went to pieces in a few moments, and Lady Stanhope's treasures were buried in the sea; she escaped barely with her life, and was carried on a piece of the ship to a little desert island, where she passed twenty-four hours, without food and without assistance. At last some fishermen of Marmozza, who were seeking for spoils of the wreck, discovered her, and conducted her to Rhodes, where she made herself known to the English Consul. This deplorable event did not cool her zeal: she went to Malta, and from there to England. She collected the wreck of her fortune, turned into money a part of her landed estates, loaded another ship with money and presents for the countries she intended to visit, and set sail. The voyage was prosperous, and she landed at Latakia, the ancient Laodicea, on the Coast of Syria, between Tripoli and Alexandria. She established herself in that neighborhood, studied Arabic, surrounded herself with people who could facilitate for her an intercourse with the different Arabian tribes, Druzes, and Maronites, of the country, and prepared, (as I was then doing myself,) to make journeys of discovery into the less accessible parts of Arabia, of Mesopotamia, and of the desert.

When she had become familiar with the language, the costume, the manners and the customs of the country, she organized a numerous caravan, loaded camels, with rich presents for the Arabians, and travelled over every part of Syria. She stopped at Jerusalem, at Damascus, at Aleppo, at Balbec and at Palmyra. It was at this last station that numerous tribes of wandering Arabs, who had assisted her in visiting these ruins, united around her tent, to the number of forty or fifty thousand, and charmed with her beauty, her grace, and her magnificence, proclaimed her Queen of Palmyra, and delivered firmans to her, by means of which it was agreed, that any European, protected by her, might come in safety to visit the desert and the ruins of Balbec and Palmyra, provided he engaged to pay a tribute of a thousand piastres. This treaty still exists, and will be faithfully executed by the Arabs, if they receive positive proof of the protection of Lady Stanhope.

On her return from Palmyra, she escaped being carried away by a numerous band of Arabs of a different tribe, and enemies to those of Palmyra. She received timely notice from her own people, and owed her security and that of her caravan to a forced night march, and to the swiftness of her horses, who travelled over an incredible space of the desert in twenty-four hours. She returned to Damascus, where she resided some months, under the protection of the Turkish Pacha, to whom she had been strongly recommended by the Porte.

After a wandering life in all the countries of the East, Lady Hester Stanhope finally fixed herself in an almost inaccessible solitude on one of the mountains of Lebanon, near to Saide, the ancient Sidon. The Pacha of St. Sohn D'Acre, Abdalaspacha, who

had a great respect for her and devotedness to her, granted to her the remains of a convent, and the village of Dgioun, inhabited by the Druzes. She built there several houses, surrounded by a wall of enclosure, like our fortifications of the middle ages. She made artificially a charming garden in the Turkish fashion, in which, besides a fruit and flower garden and graperies, are kiosks enriched with sculpture and arabesque paintings, water running in marble fountains, jets in the middle of the pavements of her kiosks, together with orange, fig, and citron trees in abundance. There Lady Stanhope lived for several years in a truly oriental style of luxury—surrounded by a great number of European or Arabian drogomans, a numerous train of women and black slaves, and in relations of friendship and even of political alliance with the Porte, with Abdala-pacha, with the Emir Beschir, sovereign of Lebanon, and especially with the Arabian Scheiks of the deserts of Syria and Bagdad.

Soon her fortune which had been still considerable, diminished from the derangement of her affairs caused by her absence from England, and she found herself reduced to thirty or forty thousand francs income, which is still sufficient in this country for the train which Lady Stanhope is obliged to keep up. Meantime those persons who had accompanied her from Europe, either died or left her, the friendship of the Arabs, which could only be maintained by presents, began to cool, her intercourse with them became less frequent, and Lady Hester fell into the complete solitude in which I found her. But she still exhibits the same heroism and the same energy, with all the constancy and resolution which have always marked her character. She never thinks for a moment of retracing her steps, she never gives a look to the world and to past times. She does not bend under neglect, or misfortune, or the prospect of old age and the forgetfulness of the living. She will remain alone where she now is, without books, without journals, without letters from Europe, without friends, without even servants, who are personally attached to her. She is surrounded merely by some negresses and some black slave children, a few Arabian peasants to take care of her garden, her horses, and to attend to her personal safety. It is generally believed in the country where she resides, and my intercourse with her inclines me to the same opinion, that the supernatural strength of her mind and of her resolution is found not merely in her own character, but also in high raised religious ideas, in which the illumination of Europe is confounded with some of the oriental forms of faith, and added to this the wonders of astrology. Whatever it may be, Lady Stanhope is a great name in the east, and a great astonishment to Europe. Finding myself so near her, I felt a desire to see her; her ideas of solitude had so much apparent sympathy with my own thoughts, that I felt very glad to ascertain how near we approached each other.

Lady Hester was apparently fifty years old.—She has features which cannot be spoiled by age. Freshness, color, grace, vanish with youth, but when beauty is in the form itself, in the purity of its lines, in dignity, majesty, in the thought of a man's or woman's face, beauty may change at the different epochs of life, but it does not pass away. Such is that of Lady Stanhope—she wore on her head a white turban, on the forehead a band of purple woollen cloth, which fell on each side from the head to the shoulders, a long yellow cashmere shawl and immense Turkish robe of white silk, with floating sleeves, enveloped her whole person in its simple and majestic folds, and through only one opening on the bosom, which was left by the first tunic, was made visible a second robe of embroidered Persian stuff, which reached the throat, and was there fastened by a pearl ornament.—Turkish boots of yellow morocco, embroidered with silk, completed this beautiful oriental costume, which she wore with the freedom and grace of a person who had never from her youth worn any other.

I was conducted through an arbor of jessamines and rose laurels to the gate of her gardens. A table was laid for M. Parneval and myself, we dined very quickly, and she only waited till we had risen from table, before she sent Leonardi to tell me she was waiting for me; I hastened, and found her smoking a long oriental pipe—she ordered one to be brought to me. I was already accustomed to see the most beautiful and elegant women of the East smoke, and I therefore was not shocked at her gracious and careless attitude, nor at that odoriferous smoke which escaped in light columns from the lips

of a beautiful woman, and interrupted the conversation without chilling it. We conversed a long time in this manner, and always on the favorite subject, on the only and mysterious theme of this extraordinary woman, this modern magician, recalling exactly the famous magicians of antiquity—this Circe of the deserts.

It appeared to me that the religious doctrines of Lady Hester were a confused, though skilful mixture of the different religions in the midst of which she has condemned herself to live. Mysterious as the Druzes, of whom she alone, in the world, perhaps, knows the mystical secret—reigned as a mussulman, and a fatalist as he is, with the Jew expecting a Messiah, and with the Christian professing the adoration of Christ, and the practice of his charitable morality. Add to that the fantastic colors and the supernatural reveries of an imagination tintured by the East, and heated by solitude and meditation, some revelations perhaps of Arabian astrologers, and you may form some idea of this sublime and fanciful compound, which it is more easy to call madness, than to analyse and understand. No, this woman is not insane. Madness, which inscribes itself in but too evident a manner in the eyes, is not written in her beautiful and direct look. Madness, which always betrays itself in conversation, which it is ever interrupting by sudden, disorderly and eccentric starts, is not to be detected in Lady Hester's conversation, which, while it is elevated, mystical and cloudy, is always sustained, connected and powerful.

If I were obliged to pronounce, I should say that it is a voluntary madness, which is studied, which knows itself, and which has its reasons for appearing madness. The powerful admiration which her genius has exercised and still continues to exercise over the Arab people, who surround the mountains, proves that this pretended madness is only an instrument. To the inhabitants of this country of prodigies, to these men of the rocks and deserts whose imagination is more dark and colored than the horizon of their own sands or seas—the word of Mahomet or of Lady Stanhope is necessary.—They want the communion with the stars, prophecies, miracles, the second sight of genius. Lady Stanhope understood this; at first by the high reach of her truly superior understanding, and then perhaps like all beings endowed with powerful intellectual faculties, she has succeeded in seducing herself, and has made herself the first convert of the symbol she has created for others. This is the effect this woman produced on me. She cannot be judged or classed in a word, she is a statue of immense dimensions. I shall not be surprised if at some not distant day she realizes a part of the destiny which she promises herself—an empire in Arabia, a throne in Jerusalem. The least political commotion in the region which she inhabits might raise her even to that.

I have, said I to her, on this subject but one reproach to make to you, it is that you have been too timid with events, and that you have not pushed your fortune where it might conduct you.

You speak, said she to me, like a man who still believes too much in human will, and not enough in the irresistible empire of destiny—my own strength is in that—I await it, I do not invoke it—I am growing old—I have diminished considerably my fortune, and am now alone and abandoned on this rock of the desert, a prey to the first bold fellow who would wish to force my gates, surrounded by a band of faithless servants and ungrateful slaves, who rob me every day and sometimes threaten my life. Lately I owed my salvation only to my dagger, of which I was forced to make use to defend my bosom against the dagger of a black slave whom I had brought up. Ah well, in the midst of all these tribulations I am happy; I answer every one with the sacred word of the Musselmans, *Allah Kenim*, the will of God, and I await with confidence the future, of which I have spoken to you, and of which I should wish to inspire you with the certainty which you ought to have.

The name of Bonaparte was mentioned, as usual, in the conversation.

I thought, said I to her, that your fanaticism for this man, would put a barrier between us.

It is only his misfortunes and my pity for him which makes me an enthusiast in his cause, said she. It is the same with me, I replied, and so we understand each other.

I could not explain how a religious and moral woman should adore strength alone, without religion, and without liberty—Bonaparte was a great reformer, no doubt—he reformed the social world,

but he did not consider sufficiently the elements of which he remodelled it. He moulded his statue with the clay, and with his personal interest, instead of cutting it out of divine and moral sentiments, out of virtue and liberty.

The night passed away in this manner in conversing freely and without affectation, on the part of Lady Hester, every subject which springs from a word, and leads by chance to a conversation. I felt that no cord was wanting to that elevated and firm understanding, and that every string in this instrument gave its proper sound, full and strong, with the exception perhaps of the metaphysical string, which too great tension and solitude had falsified or raised to a too high key for mortal understandings. We parted with a sincere regret on my part, and an obliging exhibition of regret on hers.

"No, adieu," said she, "we shall often meet again in this journey, and oftener still in other journeys which you do not now project. Go to rest, and remember that you leave a friend in the solitudes of Lebanon."

She held out her hand, I laid mine on my heart after the Arabian fashion, and we departed.

The Parisian Sibyl.

"Whence comes it that man has such a desire to interrogate the future, such an idle anxiety to divine the veiled secrets of fortune? In every nation I discover traces of the imprudent curiosity. The Jews had their witches, the Greeks their sibyls, the Persians their magi, the Spaniards their gipsies; the Romans had their augurs, whose oracles they respected; the French have had their sorcerers, whom they frequently finished, by burning them with great ceremony.

In former days the business of sorcery was not exercised in France with impunity; and those who were given to shuffling fortunes from cards, answered for it too often with their lives. Our good ancestors were in the habit of burning without scruple all who were guilty of witchcraft; and my good ladies Villeneuve, Michel, and Le Normand, now in full career, if they had been born a century earlier, would have infallibly ended their days at the stake. But chiromancy, cartomancy and necromancy are at present fashionable sciences, and lucrative branches of trade; and sorcery, instead of leading to a funeral pile, conducts to fortune. All Paris have in succession paid their respects to the cards of Lady Villeneuve, the whites-of-eggs of Madame Michel, and the black hen of Mademoiselle Le Normand. Each of these practitioners has been celebrated in her turn; but a young sorceress is now before the public who promises to surpass them all.

The temple of this new sibyl is in one of the most frequented quarters of Paris. In the morning it is open to the beauty, tender and timid, but who confides in the turn of a card; to the greedy speculator, who would know what success may attend his enterprises; to the modest and innocent girl who is anxious to discover whom she should fall in love with; to the unquiet husband whose dreams are disturbed by an ugly major of dragons, in big boots and monstrous monstrations; to the gamester who would win back at whist, what he has lost at faro. The numerous equipages ranged before the entrance, indicate the rank of the visitors.

I had heard the oracles of this modern Pythones frequently cited with great praise. Some ladies spoke to me in high terms of the vivacity of her mind, the delicacy of her questions, and especially of the promptness with which she divined what they dared not to tell her. Gentlemen had described in raptures the sweetness of her features, the elegance of her manners, and assured me that she was a most exquisite creature. These eulogies excited my curiosity; and I determined to ascertain for myself the merits and beauties of this celebrated personage.

The clock had just struck eight as I presented myself at the door of her hotel. On declaring the object of my visit, I was ushered into a little saloon furnished with the greatest simplicity, with nothing to indicate the profession of its occupant. This was a young lady about twenty-five years of age, tall, well made, expressing herself with grace, very agreeable and various in her conversation. There was something a little malicious in her glance, and sardonic in her smile, and she jested freely upon the inconveniences of her art, and attempted to convince me of its excellence. I saw that she was not himself very well persuaded of the truth she wished to impress upon me; and I thought

that of all who came into her house, the young sibyl herself had the least faith in the infallibility of her oracles.

After having conversed with me a few moments, she ascended the sacred tripod: already the prophetic spirit had begun to move the delicate fibres of her brain, when a light rapped three times at the door of our apartment and uttered in a troubled voice—"Open; it is I." My pretty prophetess was evidently embarrassed, and I was preparing to take my leave. She prevented me—"You have the air of a gallant gentleman," she at length said to me, smiling. I bowed assent. "I am sure of it," she added, "go into this cabinet." She pushed me gently into the cabinet, shut the door upon me, and to prevent all accidents took the key with her. I consoled my captivity by making immediate use of a crevice, through which I could see every thing that was going on in the saloon.

The lady who entered was younger and more beautiful than the sibyl. Her face was a picture of innocence and candor. At length said she laughing, I have succeeded. Madame de Bassac, after having managed to inflame the jealousy of my husband, has prevailed on him to pay a visit to you; he will be here in a minute and do not forget our agreement.

The sound of a bell put an end to the conversation; the young visitor disappeared, and her friend prepared to receive De Julien.

He enters, looks about the room with nonchalance, and the better to decide upon the powers of the magician, observes that her art must reveal to her the object of his present visit. Do you doubt it? said the sibyl, in an offended tone; give yourself then the trouble to be seated; and condescend to listen to me. He took a chair. She collected herself, and arranged the cards upon the table, by way of prelude to the following dialogue.

You are married, sir; sixteen or seventeen months ago you espoused a young lady of about half your age.

What, madam?

Who has given you a thousand proofs of affection, and yet you continue to suspect her.

I confess it, said he, in utter amazement.

Queen of Diamonds—these suspicions you have imbibed from a female friend of your wife.

I admit the fact.

Seven of Spades—she has carried her effrontery so far as to advise you to apply to me.

Astonishing!

She takes up the cards, and hands them to De Julien, who cuts them, while the sibyl continues with a gravity that nothing can disturb, your wife is faithful.

Do you believe so?

I know it; but she complains of your conduct.

Of my conduct?

Your suspicions harass her.

O no; she is not aware of them.

She has discovered them; you entertain at your house a very dangerous man.

And who is he?

The King of Clubs.

I do not know him, madam.

A dark man; thirty-six years old.

It is my best friend.

He is desirous of becoming your wife's best friend, sir.

You amaze me! I am thunderstruck!

For three months past he has been trying to induce her to accept a set of diamonds that he knows you have refused to purchase.

It is true.

But she declines his offers with dignity; it is from you only that she is willing to accept any ornament that may add to her beauty.

Poor woman! exclaimed the relenting husband.

Here our sibyl again took up the cards, and divided them into three parcels, which she thus explained:

You blush at the suspicions you have entertained.

Because you assure me of the honor of my wife.

She dreams of nothing but your pleasure; at this very moment she is engaged in some scheme to advance your happiness. But, what do I see! Eight of Clubs, and Nine of Hearts!

Is this bad fortune?

Quite the contrary; you are thinking of a present for your lady.

Oh a present!

A set of diamonds.

Indeed, indeed—

In order that having me with, ungratified, she may be exposed to no temptation.

But these jewels are very dear.

Al! sir, can you too generously reward the virtue of a woman who adores you?

My wife adores me!

Eight of Hearts and Ace of Spades, Madame de Julien loves no one but her husband!

At these words, which proved the extent for the young magician's science, De Julien rose from his seat in transports; he cast upon the table a purse of indefinite weight, and ran to the jeweller to purchase the happy talisman which was to restore felicity to his household. Good fortune all that day followed his footsteps; the jeweller in an excess of good humor made him a considerable discount, and the virtue of my lady cost much less than he anticipated.

As soon as her husband was gone, Madame de Julien reappeared from her hiding place, and embraced her friend with every expression of kindness and tender gratitude.—But they immediately separated, for it was necessary that the young wife should return home to receive her spouse and her diamonds.

The sibyl liberated me, and prevented every manner of reproach on my part, by laughing herself, with a very pretty grace, at the scene of which she had made me a witness. I will not propose to you now, said she, to cast your horoscope; what you have just seen and heard, forbids the degree of confidence that is required in those who come to consult me; but I would ask you not to judge my conduct with too much severity. Men are but grown up children who pay to be deceived. And the error which flatters, is better than the truth which afflicts them. Instead of tearing away the veil that conceals the faults of De Julien's spouse, I darken them more deeply, and take the same care to render his future days happy, than another would take to make miserable. Shall I predict to the opulent banker who astonishes all Paris with his magnificence, that he will one day envy the lot of the wretch he now repulses with disdain?—Shall I say to the father exulting in the birth of a son, this child will cover your old age with shame and bring your gray hairs with sorrow to the grave? Shall I tell Florio the flirtations of Lisette, and Lisette the infidelity of Florio? No! were I to do so, I should soon destroy my own credit; and see nothing more of this multitude of visitors who now crowd about my house to receive the approbation of their follies and the confirmation of their hopes. I have taken a surer path. I tickle the folly of every one of them. Without compromising my character, I give good fortune to the whole world. They go away from my house, quiet in heart and mind, and promise themselves to pay another visit to the little sorceress who makes them so very happy at such a trifling expense.—*.*

PUBLIC NOTICE.

THE undersigned, Commissioners for the amelioration of the navigation of the Richelieu or Chambly River, will receive at their office, in the borough of St. Denis, until the 15th of June next, sealed propositions for the construction or erection of a Dam or Chaussee, with a Lock, to be erected about three miles above the village of St. Ours, either in Cut Stones, Common Stones, *Pierres Brutes*, or in Wood, according to the plans and specifications made by W. E. Hopkins, Esq., Engineer, deposited, and where they can be seen at any time, in the Office of Joseph Cartier, Esq., one of the said Commissioners, at St. Antoine.

All propositions addressed by the mail must be sent free of postage.

Two good securities will be required for the due execution of the aforesaid works.

Further information can be had at any time, from the undersigned, in addressing them at their respective residences, or from the said W. E. Hopkins, Esq., at Barker's Hotel, at the Chambly Basin.

Room: De St. Ours, at St. Ours.
Joseph CARTIER, at St. Antoine.
Jos. T. BROLET, at St. Marc.
L. C. DUVERT, at St. Charles.
L. F. DESCHAMBAULT, at St. Denis.

Office of the Commissioners, }
St. Denis, May 11, 1835. } 20—41

The above Dam and Lock are in dimensions as follows: Lock 260 feet, Chamber 30 feet wide; Dam 675 feet long, 8 feet high.

STEPHENSON.

Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Blecker street, New York.

THE RAILROAD COMPANIES would be well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation.

AMERICAN SILK HOSIERY.—We were shown at Mr. Bird's Store, in this town, this week, some very beautiful specimens of silk hosiery for gentlemen, entirely of American fabric. They were a very neat and fine article, with every indication of durability, and are equal if not superior to those of European manufacture. The silk was produced and manufactured at Dedham and sold at \$10 per pound. It was made into hose at the manufactory in Newburyport. We believe that small quantities of silk goods have been occasionally manufactured in different parts of our country, within a few years. Among other articles, we were shown about a year since a large variety of vesting patterns, manufactured by Mr. Golding of this town. These things all give an earnest of what may, and ultimately will, be accomplished in this country in the manufacture of silk goods.—[Bunker Hill Aurora.]

The Jingo Tree which grew on the estate of the late Gardner Greene, and of which we spoke the other day, has been safely removed to the Common, where it is to be planted. It is probably the largest tree ever transplanted in this vicinity, being 40 feet high, and the circumference, at 3½ feet from the ground, 4 feet 4 inches. The labor of transplanting it was undertaken by Mr. Sheridan, formerly gardener on the estate. The earth was carefully removed from the roots, and the tree lifted by shears and tackle from the ground, sufficiently high to pass under it a low wheeled drag. The roots were then carefully covered with matting, and the tree lowered upon the drag, on which it was easily supported in an upright position, being kept from falling by ropes attached to the top and held by men who walked along with it to its destination. Mr. Sheridan tells us that there is not the slightest doubt that it will live and flourish in its new location.—[Boston Transcript.]

We have seldom met with a more agreeable *jeu d'esprit* than the following, which we copy from the *Saturday's Magazine* for April 11:—

RURAL CHRONICLE.—APRIL.

Departures.—For the north:—Frost, Esq. and suite, amongst them we noticed Messrs. Woodcock, Fieldfare, Redwing, &c. &c.

Arrivals.—Early in the month, Mr. and Mrs. Swallow; family expected to follow soon. N. B. Mr. and Mrs. S. go out very little as yet.

The Messrs. Blackbird and Thrush have begun to give their annual concert for the season. Their respective ladies "are at home."

The musical foreigner of distinction, the Signor Cuckoo, whose favorite cantatas are so repeatedly encored, is said to be on the look-out for lodgings in the neighborhood: strange stories are in circulation respecting a branch of the Sparrow family.

The Widow Nightingale, to her seat in Poplar Island.

The Misses Martin for the season.

Dr. and Mrs. Rook have made great progress in their new dwelling, which is built on the old site.

The Wren family, so famous in the annals of architecture, have lately designed some edifices, which show them to be as skilful as ever in that admirable art.

COURT NEWS.—GAZETTE EXTRAORDINARY.

Yesterday, her Serene Highness, Queen Flora, held her first drawing-room this season, which was most numerously attended. The court opened soon after sunrise; Mr. Skylark was in attendance to announce the company.

The Misses Daisy were the earliest visitors; after which arrivals were constant.

Messrs. Bugle, Broom, Lilac, Orchis, Periwinkle, Ranunculus, Stellaria, &c. &c., all richly and tastefully attired.

The numerous family of the Anemonies paid their devoirs early. These elegantes were variously habited; some wore rich scarlet bodices, others purple and green train; the Misses A., in robes of simple white and green, almost surpassed in beauty their more splendid relatives.

The Misses Violet, on their return to the country, introduced by the Ladies Primrose; the amiable and modest appearance of the former was much noticed, the costume of each party was thought very becoming, and skilfully assorted to set off the charms of both.

The Misses Blue-Bell wore robes of azure tissue, and were much admired for the sylph-like elegance of their forms.

The beautiful Germander family, with their never-to-be-forgotten eyes of heavenly blue, attracted universal attention.

The arrival of the Rose family was anxiously expected.

The Misses Cowslip were presented; it has been the fashion to call them the "pretty rustics;" but they were most graciously received, and the delicate propriety of their dress and manners much admired.

The Lady Cardamines, costumes of the finest linen.

Mrs. Tulip, body and train of crimson and gold; this truly grand dress had a superb effect.

Messrs. Chesnut, Oak, Birch, Lime, &c., &c., sported new bright green liveries, of various shades.

Messrs. Blackthorn, Pear, Apple, &c. &c., crowded round their sovereign, eager to pay their dutiful homage; they made a magnificent show, in rich suits of white, red and green.

The company were greatly delighted with a concert of vocal music from a large party of the best performers in the neighborhood, consisting wholly of amateurs.

The Court broke up, having partaken of a few drops of a light and charming beverage, but not before the Widow Nightingale, (who had joined the performers of the morning) had been intreated to favor the company with a song; that well-bred lady instantly complied, and poured upon the ears of her delighted auditors one of her most heart-thrilling melodies.

MILL-DAM FOUNDRY

ON MONDAY, June 1, at 12 o'clock, at City Hall, (unless previously disposed of at private sale,) will be sold by auction, the above well known establishment, situated one mile from Boston. The improvements consist of—

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotives and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 30, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 190 feet by 45, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Forges, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 18 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotives and other Steam Engines Lead Mill Rolls, Gearing, Shafts, Sproves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stock of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 300 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard and Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggon, could be made per annum.

For terms, apply to

THOS. J. ECKLEY, Treasr. &c., Boston, or to
ROBERT RALSTON, Jr., Philadelphia.
Boston, April 21, 1835.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads.

N-Y Feb 14

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 18-1y

RAILWAY IRON.

85 tons of 1 inch by 1 inch,	Flat Bars in lengths of
300 do. 1½ do. do. do.	14 to 18 feet, counter sunk
40 do. 1½ do. do. do.	holes, ends cut at an angle
800 do. 2 do. do. do.	of 45 degrees, with splicing
800 do. 2½ do. do. do.	plates and nails to suit.

250 do. of Edge Rails 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 23, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 24, 3, 3, 34, and 34 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. RALSTON,

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

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SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

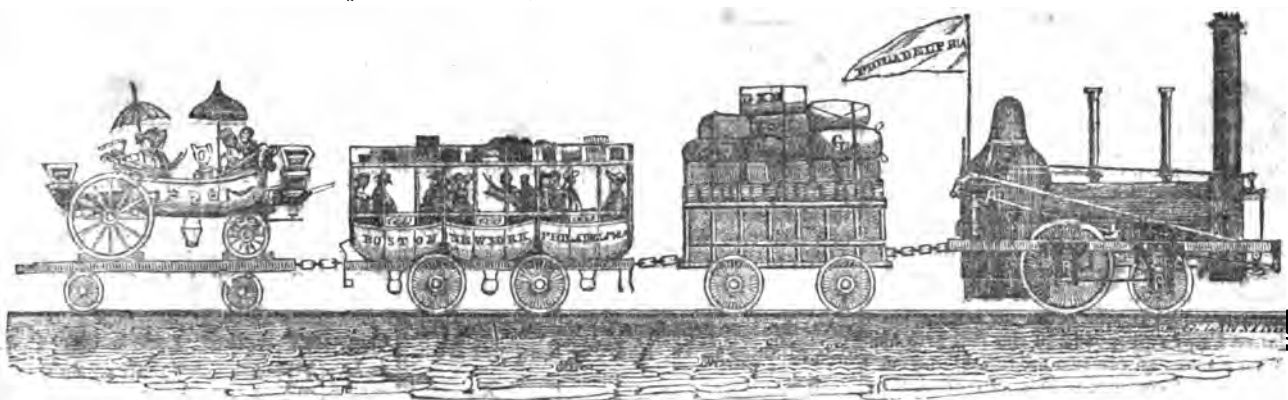
For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad.

Germantown, and Norristown, Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM. PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JUNE 6, 1835.

[VOLUME IV.—No. 24.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JUNE 6, 1835.

We learn that the election of Directors to the HUDSON AND BERKSHIRE RAILROAD COMPANY took place on the 27th of May last, and the following gentlemen were elected :

John Delafield and Gouverneur Kemble, of New-York; Robbins Kellogg, of W. Stockbridge, Mass.; James Mellen, Rufus Reed, Oliver Wigwall, Robt. A. Barnard, Samuel Anable, Elihu Gifford, John W. Edmonds, Ambrose L. Jordan, Silas Sprague, Wm. A. Dean.

This Board subsequently unanimously elected James Mellen their President, and J. W. Fairfield their Secretary.

SARATOGA AND WASHINGTON RAILROAD COMPANY.—The following gentlemen were chosen directors of this company at their annual election on Monday.

Stephen Warren, Le Grand Cannon, Richard P. Hart, John P. Cushman, Thomas J. Marvin, Erasmus Corning, Lewis Benedict, John Townsend, Thomas W. Olcott, Gideon M. Davison, John Delafield, John Lorimer Graham, George B. Strong, Morgan L. Smith, Knowles Taylor.

PENNSYLVANIA IMPROVEMENTS.—The Lancaster Journal of last week enumerates the following works of improvement now in progress, or shortly to be undertaken, in Pennsylvania. These, when completed, will form but a part of that great

system of improved communication, which that State has had the wisdom—some may say, the temerity—to adopt and carry out, at an aggregate expense of upwards of twenty-five millions of dollars. Had these works cost twice this sum, it is quite possible—such are the wants of her great and rapidly increasing population—that the next generation would have deemed it money well laid out.—[Daily Adv.]

Lancaster, Middletown and Harrisburg Railroad.—Mr. Roberts, the Principal Engineer, we understand has nearly completed the surveys of this route preparatory to placing the line under contract. Active operations, it is expected, will commence very shortly.

The Marietta Branch Railway, forming a connection with the Columbia and Philadelphia Railway, at the Depot near Columbia. The interesting Report of the Chief Engineer, Mr. Gay, upon this important connexion with the Susquehanna, at the borough of Marietta, is published in this day's paper. By this project, the inclined plane at Columbia is entirely avoided, and one of the most favorable and beautiful upon the great river will be opened for an extensive river and inland trade. There can be no doubt of the success of the undertaking.

Strasburg Branch Railroad.—This branch extends from the borough of Strasburg, Lancaster county, to the Columbia and Philadelphia Railroad, near the water station at Lemoas, extent about four miles. The whole stock has been taken, and the work, it is expected, will be put under contract without delay.

The York and Wrightsville Railroad.—The books to receive subscriptions to the stock of this company will be opened by the Commissioners, on Wednesday the 17th day of June, at the house of Mr. Thomas McGrath in York, at the United States Hotel, Philadelphia, and at the Fountain Inn, Baltimore. When this road is completed, to its junction with the Baltimore and York Railway, there will be one continuous line, connecting the city of Washington, through Baltimore, York, Wrightsville, Columbia and Lancaster, with the city of Philadelphia.

Chambersburg, Carlisle and Harrisburg Railway, called the Cumberland Valley Railway.—The whole of the Stock, in this important link in the chain of a continuous

Railway from Philadelphia to Pittsburgh, has been taken, and we expect to have the pleasure of calling the attention of our numerous friends who honorably fulfilled their contracts upon the Columbia and Philadelphia Railway, to the time and place of the lettings, which will soon be advertised.

Wilmington and Susquehanna Railroad.—Proposals will be received at the Company's office at Wilmington, until the first day of June, for the grading of the whole line; also for the Masonry, Bridges, Culverts, &c.

[From the Pittsburg Gazette of 25th May.]

IMPROVEMENT OF THE ALLEGHENY RIVER.—We have had the pleasure, within a few days past, of a long conference with Mr. James G. King, of New-York, President of the New-York and Erie Railroad Company, and Mr. Samuel B. Ruggles, one of the Directors, and subsequently with Mr. P. G. Stuyvesant, another Director of the same Company. From each of those gentlemen, we received the fullest and most satisfactory assurances that a large portion of the Railroad will be placed under contract this fall, and that the work will be prosecuted with the utmost energy to completion.

We were, however, particularly gratified to learn that their attention was directed to the connection with the Allegheny, at Olean, or Warren, and that they were fully aware of the importance of the improvement of that river. We had noticed, for some time past, that the attention of the New Yorkers was turning towards that route, but had no expectation of finding them so fully informed in relation to that important river, and so ardently desirous of its improvement.

Finding them exceedingly anxious that some initiatory steps should be taken, in order to devise some plan of operation, it was suggested, after consultation with several friends in Pittsburg, who take an interest in the work, that a convention of delegates from the counties interested in that improvement, should be held at Kittanning, on Thursday, the 18th of June. The object of such a convention would be to collect all the information which is at present attainable, as to the character of the river, the best mode of improving it, the probable expense, and also, to decide whether application should be made to Congress or to the Legislature, and if to the latter, whether for the work to be done by the State, or for the incorporation of a company.

We shall send a copy of this paper to the seat of justice of each county along the river, from Pittsburg to Olean, and ask that we should be immediately informed whether delegates will be appointed. We believe that now is the very time to strike in this matter. New Yorkers are at length fully awake to the importance, and indeed to the indispensableness, of this work,

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points.
By J. S. VAN DE GRAAFF. [For the American Railroad Journal.]

[Continued from page 819, vol. iii.]

24. When the given curve ADF, (see fig. art. 23,) has been actually traced in the field, the co-ordinates x, y , have to be computed by means of (VII.) in order to obtain the distance FR, as proposed in the last article. In such a case, if the two moduli of curvatures T and T' be equal to each other, the distance FR and the angle P will be more conveniently had by means of a direct formula in terms of n, m, T , and α , without first computing the values of the co-ordinates x, y , and x', y' . For when (XXIII.) is developed, agreeably to the common principles of algebra, the result is, $w = (x^2 + y^2 + x'^2 + y'^2 - 2xx' - 2yy' - 2\alpha \cdot x' - x + \alpha^2)^{\frac{1}{2}}$; and by substituting in this equation for x, y , and x', y' , their values obtained from (VII.), upon the supposition that $T = T'$; suppressing the quantities which cancel each other, and reducing the result, agreeably to the principles of analytical trigonometry; the following formula will be then obtained:

$$w = \left\{ \frac{1 - \cos(2nT - 2mT)}{1 - \cos 2T} - \alpha \times \frac{\sin 2mT - \sin 2nT}{\sin T} + \alpha^2 \right\}^{\frac{1}{2}} \quad (\text{XXV.})^*$$

Thus, an expression for the value of w has been obtained, which will be quite convenient for use in the field, with the table of natural sines and cosines, and the table of the squares and square roots of numbers, subjoined to this volume. But the values of the co-ordinates x, y , and x', y' , not being here computed, a new formula will be required for determining the angle P. For this purpose it will be only necessary to substitute in $\cos. P = \frac{x' - x - \alpha}{w}$,

the values of x' and x , as obtained from (VII.) The following expression will be then obtained:

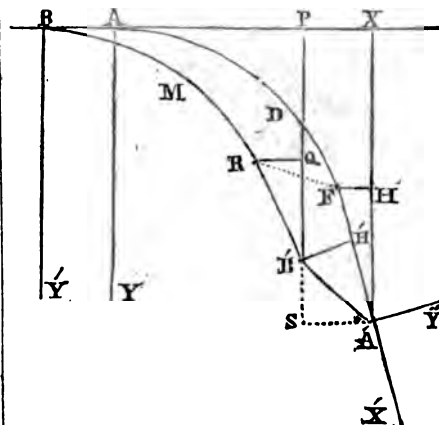
$$\cos. P = \frac{\frac{\sin 2mT - \sin 2nT}{2 \sin T} - \alpha}{w} \quad (\text{XXVI.})$$

A formula expressing the value of $\cos. P$, has been here selected in preference to one for the value of $\sin. P$, for the obvious reason that the principal term in the numerator of (XXVI.) is had, by simply dividing by 2, one of the quantities in (XXV.), whose value will always be previously known from the computation of w . But with regard to the sign of $\sin. P$, it may be observed that, in the case here under consideration, $\sin. P$ will always be positive when $n - m$ is positive; and vice versa.

If in (XXV.), it be supposed that $n = m$, the result is, $w = \alpha$. That is, the distance between the two curves, in a direction parallel to the common tangent at the origins, is always the same constant quantity $= \alpha$. See art. 11.

25. Suppose ADF to represent a given curve, and BMR another proposed curve laid upon the same tangent line AX, and let α denote the given distance AB, between their

origins. Take T and T', to represent the given moduli of curvatures; and let each curve pass into a tangent, FA', and RB', at the extremity of the n th and m th chain respectively. Let the number of chains contained in each tangent be denoted by v and v' respectively. It is then required to determine the distance A'B', between the extremities of those two tangents. And taking A'X', A'Y', for a system of rectangular co-ordinate axes, coinciding with the given origin A', and tangent line A'F, it is proposed to investigate expressions for the values of the co-ordinates A'H', H'B', of the point B'.



The first thing which will be required, in the present inquiry, is the value of each of the co-ordinates AX, XA', and BP, PB', of the two points A' and B', estimated from the primitive axes AX, AY, and BX, BY'. Let those co-ordinates be represented by X, Y, and X', Y', respectively. The following equations will then evidently exist, $\begin{cases} X = x + FH \\ Y = y + A'H \end{cases}$; but by (IV.), $\angle HFA' = 2nT$, and therefore by the principles of trigonometry, $FH = v \cos. 2nT$, $A'H = v \sin. 2nT$. The following formulas will therefore be the result:

$$\begin{aligned} X &= x + v \cos. 2nT \\ Y &= y + v \sin. 2nT. \end{aligned} \quad (\text{XXVII.})$$

And in like manner the following similar equations may be obtained:

$$\begin{aligned} X' &= x' + v' \cos. 2mT' \\ Y' &= y' + v' \sin. 2mT'. \end{aligned} \quad (\text{XXVIII.})$$

Now, taking W to denote the required distance A'B', its value will obviously be expressed in the following manner:

$$W = \left\{ \overline{X + \alpha - Y'}^2 + \overline{Y - Y'}^2 \right\}^{\frac{1}{2}} \quad (\text{XXIX.})$$

The theorems (XXVII.) will frequently find an application in the field, as a means of investigating particular cases which will occur, where tangents are concerned; and in every case in which the line A'B' is required to be known, its value cannot be computed by any other method with more ease than by (XXIX.), a table of the squares and square roots of numbers being at hand.

It will sometimes happen that the point B' is required to be the origin of a new curve, whose modulus of curvature must be found by means of data furnished from another curve previously computed, or actually traced, from the origin A', and axes A'X', and A'Y'; and in such a case, the co-ordinates A'H', H'B', furnish the most convenient data for computing the new curvature, which was fully explained in article 22.

Put, $\alpha' = A'H$, and $\beta' = H'B'$; and for the sake of convenient notation, take $k = X + \alpha - X' = SA'$, and $h = Y - Y' = SB'$. It is obvious that, $\angle SA'H' = 2nT$, and $\angle SB'H' = 180^\circ - 2mT'$; and there-

fore, agreeably to a well known theorem in plane trigonometry,* a diagonal from S to H will be expressed either by

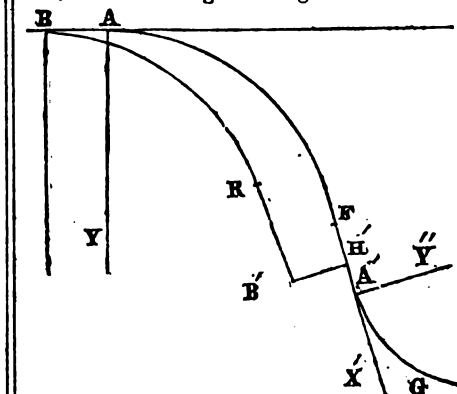
$$k^2 + \alpha'^2 - 2k\alpha' \cos. 2nT^{\frac{1}{2}},$$

or by $h^2 + \beta'^2 + 2h\beta' \cos. 2mT^{\frac{1}{2}}$; these two quantities are therefore equal, and consequently recollecting that $\alpha'^2 + \beta'^2 = h^2 + k^2$, the result will be $\alpha'^2 - h^2 = k\alpha' \cos. 2nT + h \cdot (h^2 + k^2 - \alpha'^2)^{\frac{1}{2}} \cos. 2mT$; that is, $\frac{\alpha'^2 - h^2}{\alpha' - h^2} + k^2 \alpha'^2 \cos. 2nT - 2k\alpha' \cdot (\alpha'^2 - h^2) \cos. 2nT = h^2 \cdot (h^2 + k^2 - \alpha'^2) \cos. 2nT = h^2 k^2 \cos. 2nT - h^2 \cdot (\alpha'^2 - h^2) \cos. 2nT$; or, $\frac{\alpha'^2 - h^2}{\alpha' - h^2} - 2k\alpha' \cdot (\alpha'^2 - h^2) \cos. 2nT = -k^2 \cdot (\alpha'^2 - h^2) \cos. 2nT - h^2 \cdot (\alpha'^2 - h^2) \cos. 2nT$; that is, $\alpha'^2 - h^2 - 2k\alpha' \cos. 2nT = -(h^2 + k^2) \cos. 2nT$; and this equation is now easily reduced, by the method of quadratics, to the form, $\alpha' - k \cos. 2nT = h \sin. 2nT$. By pursuing the same method with regard to β' , a similar result will be obtained; and thus the formulas which it was proposed to investigate are the following:

$$\begin{aligned} \alpha' &= k \cos. 2nT + h \sin. 2nT \\ \beta' &= k \sin. 2nT - h \cos. 2nT \end{aligned} \quad (\text{XXX.})$$

It is easy to see that the expressions just obtained might have been deduced with more facility immediately from (XXI.); but a special investigation was considered preferable. The following case may be assumed, in order to show a practical application of (XXX.).

Example. Let AX be a given tangent line, and A the given origin of a curve.



From the origin A, and parallel to the axes AX, AY, let a system of rectangular lines be traced to a certain designated point F, selected in such a manner as to give an integer number of chains in the curve AF, agreeably to the method explained in art. 17; and let the values of T, n, x , and y , as deduced therefrom, be, $T = 2^\circ 3'$, $n = 18$ chains, $x = 13.40$ chains, and $y = 10.08$ chains. From the point F suppose a tangent FA' to be laid 9 chains, agreeably to the method explained in art. 16; and from the point A', as a new origin, and parallel to the rectangular axes A'X', A'Y', let a second system of rectangular lines be traced, terminating in a certain designated point G, and let the resulting equations give $\begin{cases} x = 10 \\ y = 10 \end{cases}$ chains, agreeably to art. 16. Now, having computed the modulus of curvature of A'G, and examined the direction

* This theorem is sometimes wanted in the field, and it may therefore be convenient to have it expressed here, in the usual form. Take a , and b , to denote any two sides of a plane triangle, and let X represent the contained angle, and x the opposite side. Then

$$x^2 = a^2 + b^2 - 2ab \cos. X$$

at G, suppose it be found, in consequence of the particular situation of the ground from A' to G, to be advisable to change the origin of the curve AF to a point B, 4 chains back upon the tangent line AX, and from thence to lay a curve BR, from the same modulus of curvature, for a distance of 15 chains to the point R; and then a tangent RB' for a distance of 12 chains to the point B'. It is then proposed to know what modulus of curvature will trace a curve from the tangent line RB', and from the origin B', passing through the same designated point G.

In such a case as the present, the co-ordinates x' , y' , X' , Y' , and X , Y , of the points R, B', and A', respectively, will most generally have been already computed in making a proper selection of the points R and B', before any calculation is wanted with regard to the modulus of curvature of the required curve from B' to G. But to show an example in figures, of the manner of obtaining those co-ordinates, the given data at present are, $T = 2^\circ 3'$, $n = 18$, $x = 13.40$, $y = 10.08$, $v = 9$, $T' = 2^\circ 3'$, $m = 15$, and $v' = 12$. Hence, $2nT = 73^\circ 48'$, $2mT' = 61^\circ 30'$; and by (VII.), $x' = \frac{\sin. 61^\circ 30'}{2 \sin. 2^\circ 3'} = \frac{.87882}{.07154} = 12.28$, $y' = \frac{1 - \cos. 61^\circ 30'}{2 \sin. 2^\circ 3'} = \frac{.59284}{.07154} = 7.31$; and by (XXVII.), $X = 13.40$; $+ 9 \times \cos. 73^\circ 48' = 13.40 + 9 \times .279 = 13.40 + 2.51 = 15.91$, $Y = 10.08 + 9 \times \sin. 73^\circ 48' = 10.08 + 9 \times .960 = 10.08 + 8.64 = 18.72$; and by (XXVIII.), $X' = 12.28 + 12 \times \cos. 61^\circ 30' = 12.28 + 12 \times .477 = 12.28 + 5.73 = 18.01$, $Y' = 7.31 + 12 \times \sin. 61^\circ 30' = 7.31 + 12 \times .879 = 7.31 + 10.54 = 17.85$. We now have $k = 15.91 + 4.00 - 18.01 = 1.90$, $h = 18.72 - 17.85 = 0.87$; and by (XXX.), $\alpha' = 1.9 \times .279 + .87 \times .960 = .53 + .84 = 1.37$, $\beta' = 1.9 \times .960 - .87 \times .279 = 1.82 - .24 = 1.58$, which are therefore the values of the co-ordinates of the new origin B'; and thus the required modulus of curvature is readily found, by means of (XXII.), to be $= 1^\circ 56'$.

It will sometimes be very convenient in the field, to determine by measurement the values of the co-ordinates, A' H', H' B', of the new origin B', after the new line BRB' has been traced up to the point B'.

[From the Journal of the Franklin Institute.]

Notice of the Sandy and Beaver and the Mahoning Canal.

Two companies have been chartered by the Legislatures of Ohio and Pennsylvania, to construct canals to connect the western termination of Pennsylvania with the Ohio and Erie canal. A charter for the Mahoning, or northern route, was first obtained; subsequently, a charter for the southern, or Sandy and Beaver, route, was granted.

The Sandy and Beaver route commences at the mouth of the Big Beaver, twenty-eight miles below Pittsburg, and continues down the north flats of the Ohio river, to Little Beaver creek; thence it occupies the valley of that stream, till it reaches the town of New-Lisbon, a short distance north of which it ascends, by a narrow ravine, to the dividing ridge between the waters of the Beaver and Sandy; after crossing which, it continues along the valley of the Sandy, and gradually descends to its mouth, near

which it intersects with the Ohio and Erie canal, at Bolivar.

The route is ninety miles in extent, and is located through an extremely rich and fertile country; the summit occupies the dividing ridge between New-Lisbon and a point west of the town of Hanover, a distance of fourteen miles; it receives the drainage of eighty square miles of country, and is to be supplied with water from Cold Run, Brush Run, and west fork of Little Beaver creek, Sandy creek, Holland's creek, Mendenhall's run, and Davis' branch; in addition to which, the head waters of the Mahoning can be conducted into it by means of a short feeder. These streams, at their minimum, afford sufficient water for the transit of seventeen boats per day, and, during nine months of the year, an average flow of 2,570 cubic feet of water per minute; an amount adequate to accommodate a trade of 295 boats per day: in addition to this, it is proposed to erect reservoirs, from time to time, as the business may require. Many eligible sites for this purpose are to be found contiguous to the line, four of which have been surveyed, and found to have capacity to contain 280,000,000 cubic feet of water, and would inundate 726 acres of land.

The work is to be constructed of the same dimensions as the Pennsylvania and Ohio canals; the locks, aqueducts, and bridge abutments, are to be formed of sand-stone, and are intended to be of the most permanent character; the country through which the route is located affords materials for the construction of the work, such as stone, timber, and hydraulic lime, of the best description, and in the greatest abundance; the cost of the whole work, including reservoirs, is estimated at \$1,289,000.

The Governor of Ohio, in his last annual message, mentions the Sandy and Beaver canal in the following favorable manner: "Viewing a communication between the Pennsylvania and Ohio canals to be a subject of great interest, it is with peculiar satisfaction I communicate to you the intelligence, that the Sandy and Beaver canal company was organized during the last summer, under the liberal provision of the original charter, and the munificent grant of the legislature, in an amendatory act of the last session." "By the report of two able and experienced engineers, all doubts have been removed from the public mind, as to the supply of water on the summit, and is conclusive as to the question of an abundant supply of water for all the demands of an extensive commerce." "Such a connexion has long been a desideratum to the people of the interior and southern parts of Ohio, as it will open to them a new and short route to the eastern markets for their abundant produce, and will enable eastern and western merchants to transport goods from the east at a much earlier period of the spring than by the New-York canal."

The Mahoning, or northern route, commences at the village of Akron, on the Ohio and Erie canal, and from thence extends, in an easterly direction, to the Little Cuyahoga, at Middlebury; "from which it pursues a north-easterly course, until it approaches near the main Cuyahoga, in the township of Stow; thence continuing the same general direction along the south and south-east bank of that river, until it passes the village of Franklin, it enters the valley of the Breakneck creek, and passing up that valley in an easterly course, it crosses the summit between the waters of the Cuyahoga and Mahoning branch of the Big Beaver, near the village of Ravenna. The line then descends rapidly into the valley of the

west branch of the Mahoning, crosses that stream near its south-westerly bend, continues along its north bank, recrossing that branch, and also the south, or main branch, a mile above the junction of those streams; then leaving the river, the line pursues an easterly course, again approaching the river opposite the village of Warren," and then continues along the valley of the river, in a south-easterly direction, to the Big Beaver; thence it follows the valley of the Big Beaver, and connects with the Ohio at the town of Beaver. The whole distance from Akron to the Ohio, by this route, is about one hundred and twelve miles.

The canal commissioners of the state of Ohio, in their report on this route, propose to supply the summit level with water by the following means.

1st. By a feeder from Breakneck creek. This stream, they state, may be introduced by a feeder three miles and six chains in length, and is sufficient for the supply of the summit level, and the contiguous levels, in ordinary seasons, during more than half the year. In the driest seasons, when the flow of water is reduced to the least quantity, it yields about 240 cubic feet per minute.

2d. By forming reservoirs of four lakes, or ponds, situated near the summit. These bodies of water, Muddy Pond, Sandy Pond, Brady's Lake, and Lake Pippin, may, they state, be converted into valuable and convenient reservoirs, for the supply of the summit, and the adjacent levels; the two former will contain an area of about 240 acres. Water to the depth of twenty feet, or even more, may be accumulated in these ponds, and conducted into the canal, by means of a feeder, seventy-eight chains in length. A depth of eight or ten feet of water on the area of Brady's Lake, and Lake Pippin, may be made available to supply the canal in dry seasons.

It is computed that 325,000,000 cubic feet of water may be reserved for use in these reservoirs.

It will be perceived by the foregoing description—deduced from the reports of Maj. Douglass, Col. Kearney, E. H. Gill, H. Hage, and Col. Dodge, the engineers that examined the routes—that the summit of each canal has to rely on reservoirs, during a period of drought, for a supply of water. By an examination of their respective charters, it will be found that the stockholders of the northern, or Mahoning route, are permitted to receive but ten per cent. on the cost of the work in tolls, while the Sandy and Beaver canal company are allowed twenty; in addition to which, it has received from the Legislature of Ohio the following very liberal grant, which alone, in a very few years, will much more than repay the cost of the work.

"That when the canal authorised to be constructed by the act, entitled an act to incorporate the Sandy and Beaver canal company, shall have been completed twenty miles from the Ohio canal, said company shall be entitled to collect and receive the tolls accruing on the Ohio canal, on all freight and passengers that may be transported thereon, and which have been transported not less than twenty miles on said Sandy and Beaver canal, to the Ohio canal; and to receive the toll on all freight and passengers that may be transported thereon, and discharged and landed in said Sandy and Beaver canal, at any point not less than twenty miles from the Ohio canal, for the term of seven years from and after the completion of the twenty miles of canal aforesaid."

Viewing the two routes in point of accommodation to the trade of the west and south-west, embracing the states of Kentucky, Indiana, Illinois, Missouri, and the most fertile portion of Ohio, it will be observed that, by the Sandy and Beaver route, the distance to Pittsburg, or Philadelphia, is sixty-five miles less than by the Mahoning, or northern route.

The western termination of the Sandy and Beaver canal is in 40° 36', north latitude; Pittsburg, 40° 28'; and Philadelphia, in 39° 57'. Hence, it will be perceived that the three places are nearly in a direct line. These facts portray, in the strongest light, the merits and advantages possessed by this route over any other, and that it is the most direct and desirable continuation of the Pennsylvania canal. From the western termination of the Sandy and Beaver canal, at Bolivar, the distance by the Ohio canal, Lake Erie, the New-York canal, and Hudson river, to the city of New-York, is 780 miles; and by the Sandy and Beaver route, and Pennsylvania improvements, to Philadelphia, 511; making a difference between these two communications to the sea-board, of 269 miles. In addition to this very decided advantage in distance in favor of the Pennsylvania and Ohio communication, is to be added, safety, economy, and despatch, and the long periods in spring and autumn which it could be used, when the lake route would be obstructed by ice, or hazardous, as is often the case, by storms.

The immense commerce that the Sandy and Beaver connexion will secure to our market cannot at present be approached, even by conjecture. If we view the vast extent of rapidly improving country, where cities and towns are springing up as if by magic, two-thirds of the rich products of which must seek our market through this channel, some distant idea may be formed of the benefits our present chain of internal improvements, and the city of Philadelphia, are destined to derive from this communication.

As both the northern and southern route have to receive a supply of water, during a dry period, from reservoirs, the following statement may prove interesting.

Philadelphia, Dec. 29, 1834.

SIR: In conformity with your request, I hand you the following statement, descriptive of the merits of the summit of the Sandy and Beaver canal, compared with the Licking summit of the Ohio canal; the latter, you will perceive from the annexed letter from the present acting canal commissioner of the state of Ohio, Leander Ransom, Esq., the general accuracy of which I can vouch for, from my own personal observation, has thus far been, in a measure, entirely supplied with water by a reservoir; this reservoir covers an extent of about 2,400 acres, and, when full, has a depth of six feet above the plane of the water in the canal, and is said to contain 870,000,000 cubic feet of water; it is located on a stream which, during ordinary seasons, affords a flow of fifty cubic feet per minute, but which, during the latter part of the last summer, was entirely dry. The reservoir receives the drainage of from thirty to forty square miles of country, and, during all portions of the year, it alone has to supply near thirty miles of the summit, and dependent levels, with water, and during the dry season, about forty-four miles. At the period of my visit to the reservoir, which was during the driest part of the past season, there was a flow from it into the canal of 1,320 cubic feet per minute, which, at that time, was the only supply received by

the summit, and its then dependent levels. The average number of boats then passing, was eight per day; to convey which across the summit required at least an expense of twelve locks full of water per day, equal to 112 cubic feet per minute; if to this sum is added one hundred cubic feet per minute, for leakage at the locks, (which were in a very bad condition,) there will be left for evaporation and filtration on the forty-four miles supplied from the reservoir, 1,117 cubic feet per minute, or twenty-five cubic feet per mile.

This, though I shall, in the following calculations, assume it as datum, is by far too liberal an allowance, because, from measurements and observation, made by me at the time, I found that the upper level, which is nine miles in extent, and through ground of a similar character, to the summit of the Sandy and Beaver canal, but 117 feet per minute were lost by evaporation and filtration, or thirteen cubic feet per mile per minute.

The minimum natural flow of water into the summit of the Sandy and Beaver canal, during the driest period of the year, and measured during the past extremely dry season, is 558 cubic feet per minute, (though for nine months of the year it will average 2,570 cubic feet per minute;) the extent of line dependent on this supply is twenty miles, but seven of which, from the peculiarly favorable formation of the soil, and its wet and springy nature, can possibly require any allowance for leakage and evaporation. If, on this seven miles, an allowance for leakage and evaporation of twenty-five cubic feet per mile per minute is made, amounting in the aggregate to 175 feet per minute, there will still be left 383 cubic feet per minute for leakage at the locks, and the purposes of navigation; sufficient to accommodate a trade of thirty-eight boats per day, (the locks having a lift of six feet,) during the dry season, without any aid whatever from reservoirs.

No section of country is, perhaps, more favorably formed, in point of soil and topography, for the construction of numerous and large reservoirs, than that through which the summit of your proposed work is located; during my recent examinations there, sites for four were examined, having capacity to contain 280,649,600 cubic feet of water, and would receive, from actual survey, the drainage of forty-eight square miles of country. Assuming that seventy per cent. of the annual rain that falls, can be collected into reservoirs, which admits of no doubt, being within the limits of the result of actual experiment, and that thirty-six inches in depth of rain falls annually in your latitude, and the above described section of country will afford the reservoirs a supply of 2,510,141,720 cubic feet per annum; in addition to which, the summit drains sixty-two square miles of country, fifty per cent. of which could, if required, be laid up in other reservoirs, making, in the aggregate, 4,985,164,800 cubic feet of water, upon which no demand need be made but in the dry season, or ninety days in the year.

In drawing a comparison between the Licking summit of the Ohio canal, and that of your proposed canal, it will be observed the former has an extent of forty-four miles, which is entirely dependent on the reservoir for water during the dry season; but the natural flow of water into that reservoir is but fifty cubic feet per minute, the drainage about thirty-five square miles, and the maximum depth of the reservoir is but six feet; while the latter

has an extent of but twenty miles, to meet the demands of which there is a natural flow, at the driest periods of the year, of 550 cubic feet per minute; in addition to which, numerous reservoirs may be formed as required, varying from ten to thirty feet in depth, and having a surface of eighty square miles, to supply them with water.

The very favorable result afforded by the Licking reservoir may be fully anticipated from the proposed works of a similar character on the summit of the Sandy and Beaver canal; the soil and country are alike, and their proximity to each other renders each alike subject to the effect of the same changes of climate. I cannot think any other evidence than a comparison requisite to satisfy an unbiassed mind, that the supply of water that can be obtained on your proposed canal route, is far more than adequate to meet the demands that may be made on it.

But other evidence, if requisite, can be added in favor of the firm reliance that can be placed in reservoirs; if we look to France, there we find the Languedoc canal, supplied in a great measure from a reservoir; if we refer to England, we find the Rochdale, the Huddersfield, the Nottingham, the Gakham, the Oxford, the Dudley, the Stourbridge, and the Grand Trunk canals, the summits of most of which are entirely supplied with water by reservoirs. In Scotland, they have been found of immense advantage. In our own country, we have, in addition to the Licking and Portage summits of the Ohio canal, which are supplied by reservoirs, the summit of the Chesapeake and Delaware canal, which is, of itself, a large reservoir, and receives but a small portion of constant running water, and the summit of the Union canal. The Schuylkill Navigation Company has, during the late dry season, received great assistance from the reservoir lately erected at the head of their works.

Very respectfully, yours,

E. H. GILL, Civil Engineer.

B. W. BAKWELL, Esq.,

One of the Directors of the
Sandy and Beaver Canal.

Extract from a letter from Leander Ransom, Esq., Acting Ohio Canal Commissioner, in relation to the Licking Summit and Reservoir.

"The extent of country drained by the reservoir is between thirty and forty square miles.

"The extent of line supplied in part to the westward of the reservoir is about thirty miles in the driest part of the season; however, the water received from other sources is very inconsiderable, much depending on the duration of the drought. In the driest part of the season, nearly thirty miles to the westward, and fourteen north-east, in all forty-four miles, are supplied from the reservoir.

"The reservoir is supposed to contain, when filled to six feet above top water line of the canal, about 870,000,000 cubic feet of water, about 570,000,000 of which is available, and to cover about 2,400 acres.

"Something of an idea of the expenditure of water from the reservoir for a part of this season, may be formed from the following observations, to wit: On the 25th of June, the water in the reservoir was 4 feet 5 inches above top water line in the canal; July 13th, 4 feet 2; August 27th, 3 feet 8; September 24th, 3 feet. No rain having fallen from July 4th, to September 24th."

Mr. Ransom states that the reservoir

could have been filled much more, but it was not considered necessary; and the superintendent informed me that it could have been filled in July, had it been deemed requisite.
E. H. G.

Hamilton, June 1st, 1853.

To the Editor of the Railroad Journal:

Sir: In your last number, in a letter from E. F. Johnson, Esq., I observed a misstatement in reference to the grade of the Mohawk and Hudson Railroad, which I beg leave to correct.

Mr. Johnson states that the greatest inclination between the inclined planes is 37 1/2 feet per mile, for 1 1/2 miles.

The greatest inclination between the above mentioned points, is 1 in 225, or nearly 23 1/2 feet per mile, for nearly 2 1/2 miles. Very respectfully,
W. J. McA.

Our correspondent W. J. McA., will find, by a reference to No. 21 of this Journal, that Mr. Johnson detected, and explained, the error referred to in the above letter.

[From the Albany Argus.]

WEIGH LOCKS ON THE CANALS.—We have been furnished with the following statement, which we publish for the information of those who are interested in the navigation of the canals.

For the purpose of testing the accuracy of the weigh locks on the canals, and their agreement with each other, an arrangement was made by the collector and weigh-master at Rochester, with Capt. T. C. Whitney, of the canal boat Richmond, to have a cargo weighed into the boat by ordinary scales, and then to have the boat and cargo weighed at the several weigh locks from Rochester to Albany.

The light weight of the boat was taken at the Rochester lock, and was found to be 49,050 lbs.—The boat was then loaded with 250 barrels of flour, which were weighed in lots of 10, 20 and 25 barrel as they were put into the boat, by the ordinary merchant's scale; and the accuracy of the weigh lock was tested when each lot was put on board. The 250 barrels weighed by the merchant's scale,

54,089 lbs.
And by the weigh lock, 53,800 "

The weigh lock making the cargo less than the ordinary scale by 289 "

At the Syracuse lock, the cargo weighed 54,960, being 763 pounds more than the weight of the merchant's scale.

At the Utica lock, the cargo weighed 55,100, being 1012 pounds more than the weight of the merchant's scale.

At the West Troy lock, the cargo weighed 54,250 pounds, being 162 pounds more than the weight by the merchant's scale.

At the lock at Albany, the cargo weighed 53,900 lbs., being 188 lbs. less than the weight by the merchant's scale.

After the cargo was unladed, the boat was taken into the lock at Albany and the light weight again ascertained, which was found to be 49,900 pounds, being less by 150 lbs. than the light weight as ascertained at Rochester.

The weight of boat and cargo at Albany, therefore stands thus:

Boat and cargo, 98,950 lbs.
Light weight of boat at Albany, 44,900 "

Weight of cargo, 54,050 "

Weight of cargo by merchant's scales, 54,080 "

Difference, 36 lbs. less at the Albany weigh lock.

The boat Richmond left Rochester on the morning of the 20th May, passed Syracuse on the 21st, Utica on the 22d, and West Troy on the 24th.

It is stated that the boat was wet when weighed at Syracuse and Utica. It is evident, however, from the test made in 1833, as well as the one now made, that the weigh lock at Utica will over-run about 1000 lbs. in 50 tons.—In 1833 it overran 1110 lbs. on a boat and cargo of 97,150 pounds.

The weigh locks were tested in 1833 with a cargo of 250 barrels of flour. The following shows the result of the tests in both years, comparing the weight of the cargo at each lock, with the weight as ascertained by the merchant's scales, viz:

	1833.	1833.
Rochester weigh lock 85 lbs. over.	288 lbs. less.	
Syracuse do.	125 "	762 lbs. over.
Utica do.	1110 "	1012 "
West Troy do.	10 "	162 "
Albany, do.	19 lbs. less.	38 lbs. less.

If the light weight of the boat had been taken at the Utica lock, the difference at that lock would probably have been not more than three or four hundred pounds: and the same process at Syracuse would have shown a difference of perhaps 300 or 350 pounds only.

The weigh locks were in their ordinary condition, none of the weigh masters having been apprised of the approach of the test boat, until it arrived at the lock.

These experiments are very satisfactory, and must inspire confidence in those who are interested in the navigation of the canals, as to the general accuracy of the weigh locks.

The following note has been handed us by the British Consul, who will give every information that may be desired with pleasure. We have no doubt it will be useful intelligence to a numerous class of emigrants, who are hourly arriving.—[Daily Adv.]

Office of the Commissioners for the improvement of the Navigation of the St. Lawrence.

BROCKVILLE, 23d May, 1835.

Sir,—The Commissioners for the improvement of the St. Lawrence, inferring that information may be sought from you by the working class of emigrants arriving at New York; have directed me to acquaint you, that several thousand men will be required during the season, on the works of the St. Lawrence Canal.

Liberal wages will be given by the Contractors. Medical aid is provided at a trifling expense to the workmen, and every attention paid to their comfort.

I have the honor to be, Sir, your most ob't serv't,
J. Hume, Sec'y St. L. Canal.
J. A. Buchanan, Esq., British Consul, N. Y.

METEOROLOGICAL RECORD,

For January, February, and March, 1835—kept at Avoyle Ferry, Red River, Lou. (Lat. 31° 10' N., Lon. 91° 59' W.) by P. G. VORHIES. [Communicated for the American Railroad Journal.]

JANUARY.					
Days.	Morn.	Noon.	Night.	Wind.	Weather.
1	42	64	62	calm	clear all day
2	54	72	68	sw	cloudy
3	50	48	46	calm	..
4	32	48	42	N	clear
5	29	54	45	calm	heavy white frost
6	29	46	44	..	..
7	34	50	50	..	cloudy rain all day and night
8	36	48	45	NE	all day
9	38	46	43	calm	..
10	37	55	56	SE	..
11	46	53	58	calm	rain all day
12	61	64	64	SE	rain & h'vy thunder in e.
13	48	62	68	w	clear all day—Red river rising—wind high
14	52	64	69	sw	cloudy rain all day
15	46	58	52	w	clear all day
16	32	54	56	calm	..
17	44	66	62	sw	..
18	40	68	56	calm	..
19	33	63	54	E	heavy white frost
20	60	66	64	SE	cloudy rain all day
21	54	65	58	N	evening clear
22	38	67	60	s	clear white frost
23	49	65	62	calm	cloudy rain
24	58	70	65	s	rain and heavy thunder
25	62	73	67	calm	clear all day
26	70	86	70	..	..
27	60	71	61	..	..
28	46	71	68	w	..
29	70	68	56	sw high	cloudy (from 2 to 9 a.m., most vivid lightning & h'vy thunder, light showers)
30	34	41	40	w high	clear morning—day cloudy—wind high all day, wnw
31	30	42	46	calm	all day.

Red river rose this month, 8 inches—and is below high water, 9 feet 6 inches.

FEBRUARY.					
Days.	Morn.	Noon.	Night.	Wind.	Weather.
1	40	56	52	calm	clear all day—Red river rising
2	49	66	65	..	.. foggy morning—clear
3	40	40	40	sw high	.. day—rain all night
4	24	40	39	calm	.. all day—most extraordinary; all day equal!
5	23	45	46	..	.. all day—rain at night
6	47	46	44	..	.. a white frost—cloudy
7	24	29	26	s to sw	.. evening—rain at night
8	12	26	27	calm	.. and rain—clear evening—wind s. high
9	20	40	46	..	.. all day—wind high
10	29	44	42	..	.. all day—coldest ever known in this country
11	28	51	48	..	.. all day—white frost
12	32	58	50	..	..
13	38	65	64	sw high	.. light
14	49	68	68	s to w	.. rain at night
15	34	40	42	w to nw	.. some spots of snow
16	31	44	42	calm	.. white frost
17	29	54	52	..	..
18	34	64	60	..	..
19	45	70	64	..	..
20	49	65	66	sw	.. cloudy
21	58	74	70	s high	.. rain & h'vy thunder all n.
22	60	80	56	calm	.. all day
23	50	55	52	..	.. evening clear
24	46	59	58	..	.. morning—clear day
25	58	69	66	..	.. all day
26	50	37	36	n high	.. rain, hail, and sleet
27	23	32	33	calm	.. ground covered with ice
28	23	45	41	..	.. ice remains in the shade.

Red river rose this month, 1 foot 2 inches—and is below high water, 8 feet 4 inches.

MARCH.					
Days.	Morn.	Noon.	Night.	Wind.	Weather.
1	30	50	48	calm	cloudy white frost
2	40	50	52	..	.. light drifting showers all day
3	51	67	63	s	.. light drifting showers—rained at night
4	42	38	39	NE high	.. light drifting showers, and rain at night
5	34	39	42	N	.. rain, snow, and sleet
6	31	48	43	calm	.. white frost
7	40	44	41	..	.. cloudy rain all day
8	43	52	50	..	.. all day
9	46	54	52	..	.. ev'g wind n to sw, clear
10	44	58	50	..	.. wh. frost, Martin birds first appeared
11	36	61	61	..	.. great flight of wild geese this morn'g to N
12	40	66	60	slight	.. all day
13	51	70	68	s	.. cloudy
14	62	76	73	s high	..
15	68	73	71	calm	..
16	60	77	70	..	.. clear night cloudy—sowed oats and red clover—began planting corn
17	58	58	51	NE	.. cloudy rain at night
18	50	67	66	SE	.. rain in morn'g, ev'g clear
19	47	69	64	calm	..
20	50	71	67	SE	..
21	68	78	65	s high	.. rain at night—a heavy gale from west all night
22	45	61	60	w high	.. wind high in w. all day
23	38	59	58	calm	.. white frost
24	42	65	60	s light	..
25	58	69	64	s	.. cloudy heavy thunder and rain
26	62	70	66	calm	.. in morning—day clear
27	45	74	70	..	.. clear all day
28	48	80	66	s	..
29	50	76	72	calm	..
30	54	78	76	..	..
31	66	80	75	..	..

Red river rose this month 11 inches—and is below high water, 7 feet 5 inches.

CANAL TOLLS.—The tolls collected on the New York State Canals for the week ending on the 21st of May, amount to the sum of \$52,695 88. This exceeds the amount collected in the corresponding week last year by the sum of \$8,545 73: and it is greater than the collections in the corresponding week in 1833, by the sum of \$15,956 78.

The tolls received at Buffalo during the week amount to \$7,196 33, being greater by \$3,400 than the collections for the third week in May last year, and \$4650 more than the receipts at that place for the corresponding week in 1833.

Apparatus for Making Ship's Biscuits. By THOMAS TASSELL GRANT, Esq., of Weovil, near Portsmouth.*

The advantages claimed for the new, over the old method of preparing ship's biscuit, are, superior economy and expedition, greater cleanliness in the process, and a better quality in the manufactured article.

The mode of making ship's biscuit, as practised in the king's bakehouse at Portsmouth, was as follows:

Five men were appointed to the service of each of the nine ovens, being forty-five in the whole.

The first of these was the idlerman, whose business was to mix the meal and water in due proportions, and to incorporate the materials as accurately as possible by kneading the dough for half an hour, with his naked arms plunged into it up to the elbows, and finishing the operation by jumping into the trough and treading the dough with his feet. Hence it passed to the brakeman, who completed the kneading by means of a lever, on which he pressed with his whole weight, this part of the process being called riding down the dough.

It then passed into the hands of the furner, who first divided the dough into lumps somewhat bigger than an egg, and passed them on to his mate, who pressed and moulded each by hand into the form of a biscuit, and finished by pricking them with an iron instrument, to prevent blisters from rising in the dough during baking.

The biscuits being thus formed, were supplied in succession to the pitcher, who threw each on the peel of the furner as soon as he had deposited the previous one in its proper place in the oven. Each oven was capable of holding 450 biscuits, weighing together one hundred weight; and two charges, that is, 900 biscuits, were baked in an hour.

The above-described process, besides the general slovenliness of it, was liable to the two following disadvantages:

It was not possible for the idlerman and brakeman, with all their care, to effect a perfect and uniform mixture of the flour with the water; the consequence of which was, that the wetter portions detained some of the water till it was boiling hot, and in that state re-acted on the starch of the flour, so as to give the biscuit, when dry, a glossy fracture and almost stony hardness.

Neither could the furner divide the mass of dough into lumps of perfectly equal size, in consequence of which, the biscuits being of various thickness, the thinner ones were scorched in the baking, and the thicker ones were under-baked, so that they soon became mouldy in the close warm air of a ship's bread-room.

In Mr. Grant's apparatus, the greater part of the labor is performed by steam power; the nine ovens are heated by one continuous fire-place, the flame of which is admitted by means of a register into each oven as soon as the previous charge

has been withdrawn, and in five minutes brings it to a sufficient heat. It takes fourteen or fifteen minutes to bake each charge, so that three charges can be worked off in one hour, being an advantage in point of expedition of one-half more than by the old method.

This apparatus was first erected at Weovil, near Portsmouth, in the year 1832, under the immediate superintendence of Sir John Rennie, and has continued at work successfully up to the present time. It has since been adopted, with certain modifications, at the bakehouse of Messrs. Fraser and Hullah, of Wapping, who have kindly permitted the Society to inspect it, and to take the requisite observations for preparing the annexed sketches and description, by which it is hoped that it will be rendered generally intelligible.

The first machine is the mixer, of which fig. 1 is an end elevation, fig. 2 a transverse section, and fig. 3 a longitudinal section. It consists of a cast-iron case, *a, a*, nearly four feet long and three feet in diameter, enlarged, however, at the upper part, a few inches beyond the circular form, as shown by the upper dotted line in fig. 2. The radial lines in fig. 1 are merely ribs to strengthen the end of the case. A flap or door, *b*, *b*, the whole length of the case, opens upwards, to enable the workmen at any time to inspect the interior; and another larger flap or door, *c, c*, opens downwards, for the purpose of removing the contents of the case. This latter door is opened and shut by means of a quadrant-rack, *d*,

Fig. 1.

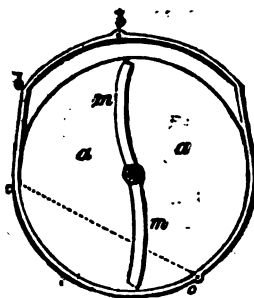


Fig. 2.

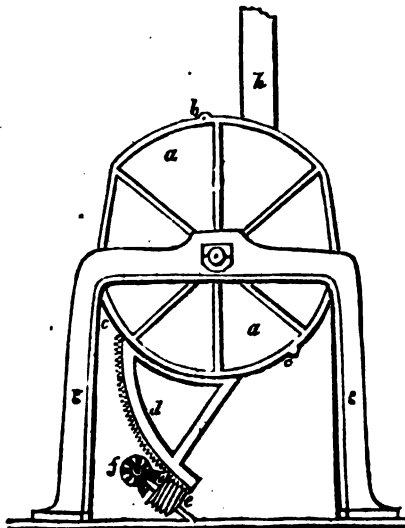
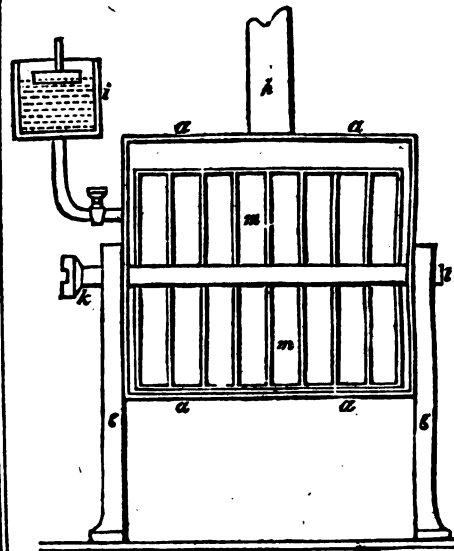


Fig. 3.



worked by an endless screw, *e*, which is moved by a pair of bevel pinions, *f*, and these are acted upon by a small winch and axle attached to the supports, *g, g*. The operation of this machine is as follows: The requisite quantity of flour is sent down from the loft above by the shoot, *h*, and the proper quantity of water is supplied from the small cistern, *i*, which has a float and gauge, with a line and pulley, to indicate the quantity admitted from a larger cistern above, and a pipe and cock to convey the water into the case. The flour and water being admitted, the central axle or shaft, *k, l*, is put into gear with the steam engine by means of the coupling-box, *t*; the axis is thus made to revolve very rapidly, carrying around with it the frame of eighteen knives or mixers, *m, m*. These knives, which are curved, as shown in fig. 2, are two inches wide, and three-eighths of an inch thick at the back; they are connected at their extremities by similar longitudinal knives, which, in revolving, almost touch the lower part of the case. By these means, it is evident that the flour and water must in a short time become thoroughly mixed. The paste is then removed by hand through the door, *c, c*, and placed upon a table, which is as close as convenient to the mixer, and which is now to be described.

This table is shown in an elevation fig. 4, plan fig. 5, and transverse section fig. 6. It has a cast-iron frame and legs, *a, a, a*, a cast-iron bed, *b, b*, (six feet and a half long and three feet wide,) in which are the six holes, *c, c*, &c., to receive friction-rollers, on which run the boards to receive the dough. Fig. 7 is an enlarged section of the side, *a*, of the table; *b*, is the bed; *c*, one of the friction-rollers; and *d*, the board. The sides, *a, a*, of the table support a very heavy cast-iron roller, *e*, eighteen inches in diameter, which, when resting on the table, is about two inches clear of the board, *d*. This roller is made to run alternately, and with great rapidity, from one end of the table to the other, by means of a pair

* The large gold medal was voted by the Society of Arts for this apparatus.

Fig. 4.

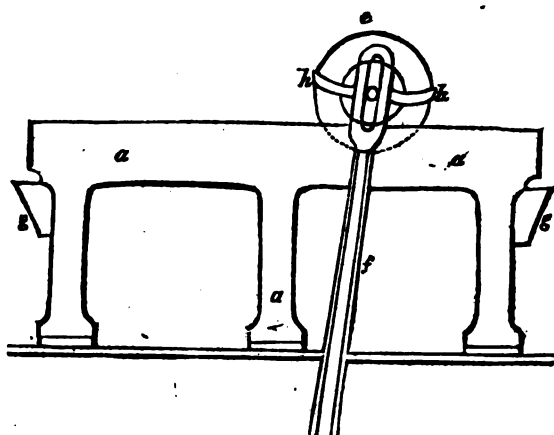


Fig. 5.

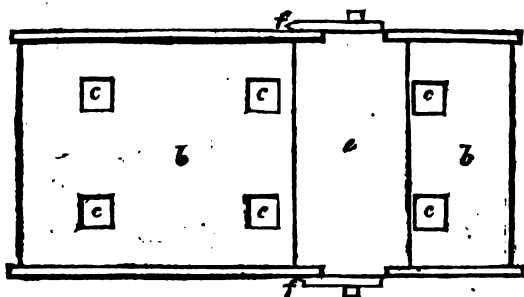


Fig. 6.

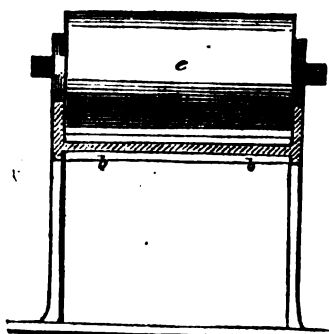


Fig. 7.

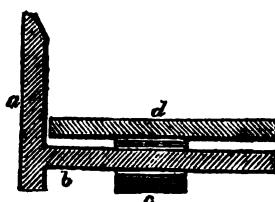


Fig. 8.

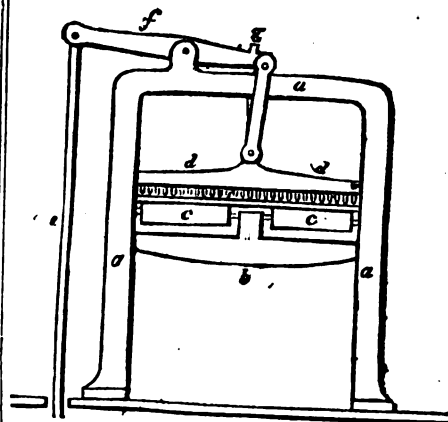


Fig. 9.

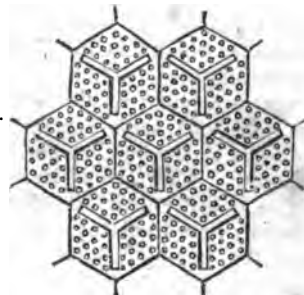
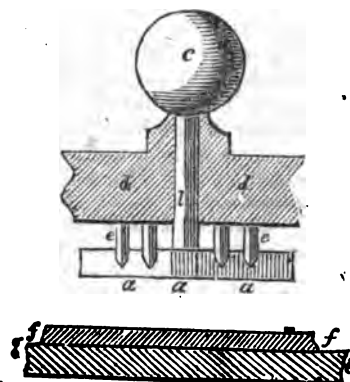


Fig. 10.



of beams ten or eleven feet long, attached to centres below the floor under the middle of the table, and made to alternate by a crank from the steam engine; the upper end of one of these beams is seen at *f*, fig. 4, showing the groove in its extremity, to allow the axis of the roller to play in it as the beam alternates. It will now be evident, that when a mass of dough or paste is taken from the mixer and placed upon the table, it must quickly be compressed by the roller into a cake equal in thickness to the distance of the roller from the board, which, in this case, is two inches. During this process a considerable quantity of dry flour is sprinkled on the dough and on the board, a large portion of which would be swept off by the roller and lost, but for the troughs, *g, g*, at the ends of the board, which catch and retain it. Notwithstanding this sprinkling with dry flour, a small quantity of dough would occasionally adhere to the roller, were it not kept constantly and perfectly clean by means of two thin knives, extending on opposite sides along its whole length, and attached to two pairs of curved arms, one pair of which, *h, h*, is seen fixed to the beam *f*. When this operation is finished, the board with the dough is withdrawn, and another board introduced, on which the process is repeated. The first board and dough being withdrawn, are conveyed on a series of friction-rollers, to a second table, precisely similar to that just described, except that the roller approaches to the board within such a distance as is required for the thickness of the biscuit. The dough, which was reduced to a cake two inches thick at the first table, is cut into pieces, and laid in portions on the second table, where it is quickly brought

down to the proper thickness for biscuits. The board containing this comparatively thin sheet of dough is pushed forward, still running on friction-rollers, towards a machine next to be described, while the workmen at the second table repeat their operations on the fresh portions of the dough which they have received from the first.

The machine, towards which the board and sheet of dough now rolls, is shown in fig. 8: it consists of a strong cast-iron frame, *a, a, a*, with cross-beams, *b*, supporting three or more pairs of rollers, *c, c*, on to which the board is pushed. Immediately above is a thick plate of cast-iron, *d, d*, three feet square, which is made to ascend and descend alternately by an eccentric, which acts on the rod, *e*, the lever, *f*, and the guide-rod, *g*. The iron plate, *d*, is shown in the figure at its lowest position; it is, of course, at its highest when the dough and board are brought under it. When this is done, it descends and cuts the dough into hexagonal pieces or biscuits, by means of thin knives, one inch wide, affixed to its under surface, and arranged so as to form hexagonal spaces. A small part of the under side of the plate, *d, d*, is shown on a larger scale in fig. 9, where, in addition to a portion of the hexagonal knives or cutters,* will be seen a number of small dots or circles, which indicate the pins or prickers to give the requisite punctures to the biscuits before they are baked. These pins are as long as the depth of the hexagonal cutters; that is to say, one inch;

* It will be recollected by those of our readers, who have been subscribers from the commencement, that we gave, in the October number of vol. ii, a description and engraving of a cracker machine—of the relative merits of which we are not able to speak.—[Ed. M. M.]

they are about one-third of an inch in diameter, and pointed at their extremities. The effect of all these cutters and pins would, however, be to cause the plate, *d*, to cling to, and lift with it, the sheet of dough. In order to prevent this, a very ingenious contrivance is introduced; a part of which will have been observed in fig. 9. In each hexagon will be seen three arms, branching from the centre. These are formed of iron, and each set is connected with a small vertical iron stem, which passes through the plate, *d*, moving easily, and is surmounted by an iron ball, two inches in diameter, acting as a weight to press the stem and the arms downwards. One of these balls, with its stem and arms, and a portion of the plate, *d, d*, is shown in fig. 10, where *a, a, a*, are the three arms; *b*, the stem; *c*, the ball; *f, f*, a portion of the dough; and *g, g*, a part of the board beneath. It will easily be understood, that when the plate, *d, d*, rises, the stem, *b*, will drop through its hole, pressed by the ball, *c*,

and acting on the dough by the arms, *a, a, a*, will disengage it from the hold of the prickers and cutters. When the plate, *d, d*, descends to cut the dough, of course the arms, *a, a, a*, rise up to the plate, and the stem rises upwards in its hole, carrying with it the ball. There are as many of these balls and stems as there are biscuits, that is to say, about sixty in each square of three feet. These balls would therefore be seen on the upper side of the plate, *d*, in fig. 8; but they are omitted for the sake of avoiding confusion.

The hexagonal cutters do not so completely separate the sheet of dough as to prevent its being put whole into the oven, into which it is introduced by being laid on a plate of iron, which fits on to the handle of the peel by a bayonet-joint. The sheet of dough, when baked, is broken into biscuits, which take the form marked out by the cutters.

The arrangement of the several machines would, in some measure, depend on the form of the building and other circumstances. They should be as near together as is convenient, in order that the boards may pass from one to the other on rollers; the mixing machine should be near the supply of water and flour; and the cutting-machine should, of course, be near the oven. A series of rollers should be fixed against the wall, for the purpose of returning the boards to the first table after they have been emptied. At Portsmouth, this series of rollers was kept constantly revolving by the steam-engine, so that when the empty boards were placed upon any part of the line, they travelled up to the mixer without further attention. —[Transactions of the Society of Arts.]

Laws of New York.

An act regulating the specific funds of the State. Passed May 9, 1835.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The comptroller shall assign to the common school fund all bonds and mortgages belonging to the general fund; and all bonds and mortgages which shall hereafter be received for account of the general fund, he shall annually, at the close of the fiscal year, assign as follows, viz: First, such an amount thereof to the literature fund as shall be equal to the amount of capital that may at the time be due to that fund from the general fund; and second, the residue of the common school fund. The amount which shall be so transferred to the common school fund, shall be charged to that fund in the books of the comptroller's office, and shall be refunded to the general fund by current receipts into the treasury, on account of the capital of the common school fund.

§ 2. The comptroller shall assign to the common school fund all bonds and mortgages belonging to the literature fund, and all bonds and mortgages which shall hereafter be received for account of the literature fund, including such as shall be assigned to that fund pursuant to the preceding section, he shall assign to the common school fund annually at the close of the fiscal year. And upon every such assignment, he shall at the same time transfer to the literature fund an equal amount of bank stock or public stock belonging to the common school fund.

§ 3. The comptroller shall assign to the common school fund all bonds and mortgages belonging to the Erie and Champlain canal fund; and all bonds and mortgages which shall hereafter be received for account of the Erie and Champlain canal fund, he shall assign to the common school fund annually at the close of the fiscal year. Upon every such assignment, he shall at the same time transfer to the commissioners of the canal fund an equal amount of

canal stock belonging to the common school fund; And if the stock so transferred shall be Erie and Champlain canal stock, the said commissioners shall cancel the same; but if it shall be Oswego canal stock, it shall be held by them on account of the Erie and Champlain canal fund.

§ 4. The comptroller shall assign to the common school fund all bonds and mortgages belonging to the Oswego canal fund; and all bonds and mortgages which shall hereafter be received for account of the Oswego canal fund, he shall assign to the common school fund annually at the close of the fiscal year. Upon every such assignment, he shall at the same time transfer to the commissioners of the canal fund an equal amount of bank stock belonging to the common school fund; the stock so transferred shall be cancelled by the said commissioners; and if it shall be Erie and Champlain canal stock, they shall pay the amount thereof to the Oswego canal fund out of the moneys belonging to the Erie and Champlain canal fund.

§ 5. The bonds and mortgages directed by this act to be assigned immediately, and the stocks to be transferred at the same time, shall be so assigned and transferred as of the thirtieth day of September, one thousand eight hundred and thirty four; but if there shall be any loss to the school fund by any of the bonds assigned to it by virtue of this act, the amount of such loss shall be repaid to the school fund from the general fund.

NOVEL SPECTACLE.—The Ogdensburg Times states that a Car is now exhibiting on the Saratoga and Schenectady Rail Road, propelled by a horse walking inside of it; so that instead of a horse travelling before the car, as formerly, he now travels inside the carriage, and propels the car at the rate of a mile in four minutes. This is indeed an age of wonders.

The above described Horse Power Car or Machine, was invented by Eliakim Briggs, of Fort Covington, Franklin county, and are manufactured and sold in Ogdensburg, by S. Bush, Esq. The Power can be applied to every purpose for propelling machinery.

IMPORTANT.—We learn, says the Daily Advertiser of this morning, that the Water Commissioners had a meeting yesterday, and appointed Major Douglass Engineer for constructing the works for bringing water into the city. This is an excellent appointment, and one that will be acceptable to all classes. We learn further that the Commissioners are actively engaged in taking every necessary step for the speedy accomplishment of the great work.

THE WATER LOAN.—The City Stock of one million of dollars, being that part of the Water Loan now required, has been taken by Messrs. Harmon Hendricks and George Newbould, at an average rate of about \$112 for \$100 at five per cent stock payable 1860.—[Jour. of Com.]

[From the New-York Mirror.]

Tell Him I Love Him Yet.

[The following exquisite song was written by the author of Lillian, and has never been published.]

Tell him I love him yet,
As in that joyous time!
Tell him I never forget—
Though memory now be crime!
Tell him when fades the light
Upon the earth and sea,
I dream of him by night—
He must not dream of me!
Tell him to go where Fame
Looks proudly on the brave,
And win a glorious name
By deeds on land and wave.
Green, green upon his brow
The laurel wreath shall be—
Although that laurel now
Must not be shared with me!
Tell him to smile again
In pleasure's dazzling throng
To wear another's chain,
To praise another's song!
Before the loveliest there
I'd have him bend the knee,
And breathe to her the prayer
He used to breathe to me!
Tell him that day by day
Life looks to me more dim—
I falter when I pray,
Although I pray for him.
And bid him when I die
Come to our favorite tree—
I shall not bear him sigh—
Then let him sigh for me!

AGRICULTURE, &c.

[From the Horticultural Register.]

ON HEDGES.—Hedges, or live fences, are becoming every day more necessary. In many parts of the country timber is too scarce for valuable fencing materials, and even in the few agricultural districts where stone abounds, the progress of cultivation, and the increasing wants of our growing towns, and villages, will sooner or later cause the farmer to resort to living materials for fencing his lands. For the Garden, hedges are undoubtedly preferable to all other means of inclosure in this country, where walls are so little used or needed. Their imperviousness, their durability, and their beauty, surpass either the most nicely constructed paling, or the firmest and smoothest wall. And what harmonizes so well with the pleasing green of the field, or the garden, as the verdant foliage of the live fence?

What, then, is the best material for hedges? We, who are accustomed to draw a large share of our horticultural information from a nation older in this as in other arts and sciences, are taught to believe that the proper answer to this question is, the *English White Thorn*. But experience is teaching us that this is an error. How many millions of the English thorn have been planted in this country, and how few of them ever make a healthy and permanent hedge! The secret lies in the climate. The summers of England are moist and cool, when compared with ours. The powerful sun and dry climate, which bring to plentiful maturity the Indian corn, the peach and the melon, are not the sun and the climate which are congenial to the European Hawthorn. They are too fine and dry. In the moist and showery months of April, May and June, the Hawthorn looks exceedingly promising; its shoots appear green and healthy; but soon the hot July sun bursts forth, and it is checked almost as by a nipping frost. Then the insects attack it, and by the last of August the hedge is stunted and already leafless! Hence its growth is exceedingly slow, and as it is a prey to insects, which cause its decay, and to defoliation by the intensity of the summer sun, it is neither durable or beautiful. It is true, that during the first two or three years of its growth, its healthy and vigorous appearance is very flattering; but this is only whilst the plants are young, and before their interlacing roots and branches have found it necessary to attract nourishment from a limited portion of the surrounding soil.

It goes far to corroborate the opinion, that the dryness of our soil and atmosphere are the first causes of failure with the English Hawthorn, to find that in situations naturally moist and damp through the summer, it appears to grow with equal luxuriance, and to attain the same degree of maturity, as in Europe; but, as only small portions of the farm, and no good garden, will be found in moist localities, it is therefore necessary to search for some other material more generally adapted to the wants of our wide-spread territory.

There are over twenty species of *Crataegus*, or Hawthorn, indigenous or growing wild in North America alone—more than the aggregate number in the known world besides! Shrubs and trees which, for sharpness and abundance of thorns, beauty of foliage, rapidity of growth, and compactness of form, (when properly trimmed,) yield to none others of the genus. Is it not remarkable, that with this abundance

and choice of materials for hedges, scattered by bountiful nature through every wood, and by every high-way side, that we should have to stretch forth our hands, and borrow from another clime a starved and lingering exotic? But so it is; and Horticulturists, as well as other men, must gather knowledge from experience. After repeated trials and failures with the imported plants, we are now content to turn our attention to the natives. Here we find species which are perfectly hardy, and to which our sun and climate are as necessary as they are injurious to the foreign. Four species have been already tested, and found to be admirably adapted for hedges, viz.: the Cockspur or Newcastle thorn (*Crataegus crus galli*), the Washington thorn (*C. populi folia*), and two others, only known by the common name of thorn bush (*C. coccinea* and *C. punctata*.) Of the Washington and Newcastle thorns, very fine hedges are now thriving in many sections of the country. They are found to grow with more luxuriance, to retain their fine vivid foliage through the hottest of the summer, and, in common with many other American trees, to assume an autumnal tint of the most beautiful crimson and orange, which remains until severe frosts. These two species seem to adapt themselves to almost any soil; but if not, their places may be supplied by such species as are found naturally to thrive best in the neighborhood—for almost every section of the country abounds with some species of Hawthorn. Perhaps in the Southern States, they will ascertain that some of the peculiarly southern species succeed best.

For situations where strong hardy hedges are wanted, in a short period of time, the three-thorned Acacia (*Gleditsia triacanthos*) will be found an excellent plant. Hence it is well adapted to farms; but from its rampant growth, it is difficult to keep it sufficiently close in its side spray properly to shelter the garden from all its enemies. Among the Hedge plants which demand the attention of the Horticulturist, are the Buckthorn (*Rhamnus catharticus*), which makes an excellent fence; the Privet, long in use, and a beautiful and verdant inner shelter to the garden, but not a sufficient protection against cattle; and the *Mespilus pyracantha*, or Evergreen thorn, ornamented in its white blossoms and coral berries. European publications speak in high terms of the great beauty and excellence of the Japan Quince (*Cydonia japonica*)—already known here as a charming flower shrub,—used there as a garden hedge plant. We have great hopes of success, also, with the Osage Orange (*Maclura aurantiaca*), a native of the West; and its glossy green foliage, stone thorns, and rapid growth, will place it in the first rank of hedge plants. A. J. DOWNING.

Newburgh, N. J., March.

[From the Maine Farmer.]

MADDER.—Since the commencement of this volume, we have occasionally presented you with communications on the subject of raising Madder. Madder is a root which is much used by the dyer and calico printer, and has hitherto been and is even now brought from Europe in vast quantities. Indeed, nearly all that is used in America is brought from across the Atlantic, for very few have ever cultivated it in the United States, or till lately have even thought of the thing. Mr. Russel Bronson, of Bridgewater, Oneida county, N. Y., has successfully cultivated

it for a few years past, and has done much in calling the attention of the public to its culture.

We published some time ago his remarks in answer to some queries of ours in regard to the prospect of its doing well in Maine. Since then we have learned that a root or two was formerly grown in the garden of E. Wood, Esq., in this town, where it lived for several years without any particular care being taken of it. It was kept as a sort of curiosity, and was finally probably ploughed up and thrown away. There is, therefore, no doubt but that it will do well here, as far as soil and climate is concerned.

Mr. Bronson, who seems to have had as much experience in the culture of this root, and who has given what late information upon the subject we have had, is very sanguine that it will ultimately be one of the most valuable crops that the farmer can raise. He is anxious to get up a company for carrying on the cultivation on a large scale, and we verily believe the projected speculation has much more of reason in it than most of the schemes which are so eagerly embraced at the present day. The following extracts from a private letter will give an expose of his plan. Mr. Bronson, we hope, will excuse us for publishing his remarks. As for the ridicule which he mentions, that is a thing of course. There is always a set of wise-acres in every neighborhood, who are always ready to hoot and sneer at whatever they either envy or do not understand.

"I will not trouble you at this time by explaining the difference that should be made between the price of madder roots sold in the fall of three years old, and those sold in the spring, as it is my intention to send a communication to the editors of all the agricultural papers who have my name on their books as a subscriber, detailing the most approved mode of culture, the kind of soil, the location, digging, washing (or rinsing, as the soil may be heavy or light,) drying, grinding, &c. I would wish to remark here that I have not as yet given to the public any account of the method of digging, washing, drying and grinding, as I was aware that there would be no necessity of giving this information to the public until I should be compelled to search for the best plan in digging, washing, drying and grinding the madder from 8 acres next fall. The results of my experiments will be given to the public through the columns of the "Cultivator," "Genesee Farmer," "N. E. Farmer," and "Maine Farmer," in November next. There is not, I believe, but one cultivator, at a distance from this, whose crop is at this time of a suitable, but especially profitable, age to take up. I saw yesterday 1000 acres of land, owned by several farmers, that would, without a shadow of doubt on my mind, produce once in 4 years for 20 years a clear profit, decently managed, of two hundred thousand dollars—this would include the whole expense of rent of land, seed, cultivating, digging, drying, &c., and the interest of land and building included. You

perhaps will say this looks well on paper, as one correspondent says to me—alluding to my communications as well as others—"My neighbors are the poorest farmers in the Union," they say; "That Cultivator is a queer paper, I don't believe them large stories;" "They ridicule my project in attempting the culture of madder." In my former communications to the public, I have never stated the crop at 3 years to be over 2000 lbs. ground madder—we now raise in hills 2400 hills to an acre—4000 in 4 years. We have never yet dug at 4 years until last fall, which produced 4000 lbs. ground madder from an acre at an average—what it will do from an acre planted in drills 3 feet wide, 4 vacant, and when finished 5 or 6 wide, 1 to 1½ feet vacant, we do not know, but supposing it should produce but 5000 lbs. at 12½ cents, (top and bottom roots ground,)—average price of Dutch madder in New-York market for 13 years past 15 cents, which is lower than the ten preceding years—this would amount to, at 12½ cents, \$625—taking out the outlay \$140 to 160; it leaves great profits. I have offered some of my neighbors, some time since, that if they would let me select some of their best land, and they go through with the process according to my directions, I would warrant them \$100 clear of all expense per acre, they giving me the balance. Some would object to planting, as it took 3 or 4 years before any returns could be expected. I would ask how old a horse must be before he is fit for business. Others again objected that by the time their second crop should be ready for digging, the market would be glutted. I here remarked, that several estimates had been made relative to the quantity required for the consumption of the United States, varying from forty-five to seventy-five thousand acres. There is at this time in the ground, to be planted this spring, and engaged for 1836, not much over 100 acres. I have had it in contemplation for some time past, in offering my services to some capitalists, say \$30,000 in 8 or 10 semi-annual instalments—would take a sixteenth part of the stock and superintend the establishment for \$1000 per annum, to be located on the prairies of Ohio, Michigan, or perhaps Illinois. I should be pleased to receive communications on the subject. I should think it very important to the prosperity of a company, that dealers in the article residing in Boston, New-York, Albany, Utica, Rochester, Buffalo, and Detroit, should be associated with the company as stockholders and agents. I am about presenting the subject to a few gentlemen in Utica—a greater sum could be employed if wished. Respectfully yours,

R. BRONSON.

The whole amount of wool raised last year in the United States was seventy-five millions of pounds, in addition to which about three millions were imported from abroad, making the whole quantity manufactured in American factories seventy-eight millions of pounds. In addition to the above, manufactured woollen cloth was imported to the amount of six millions, making the entire consumption in this country eighty-four millions of pounds.—[Balt. American.]

NEW-YORK AMERICAN.

MAY 30—JUNE 5, 1835.

LITERARY NOTICES.

A NEW FRENCH AND ENGLISH PRONOUNCING DICTIONARY BY F. C. MEADOWS, M. A. of the University of Paris—first American edition: corrected and improved by GEO. FOLSOM, M. A.—1 vol.: N. Y., PETER HILL & Co.—We look upon this as a very valuable contribution to the cause of accurate knowledge. The pronunciation of the French is simplified to the American learner, as much, as through the eye, it ever can be, by employing the familiar sounds of his own language, to convey to him that which he is to give to the French word. So far as we have examined it, this is successfully accomplished, though at first sight frequently, we were half disposed to doubt about it. Yet on pronouncing the word to ourselves, and then comparing it with the sounds set down in the book, strange and uncouth looking as some of these are—we found them accurate. There is too, by way of introduction, quite a good abridged grammar of the French tongue: the whole is very well printed though in a small type.

PRaise AND BLAME, by CHARLES WILLIAMS. New York, BLISS, WADSWORTH & Co.—This is a little volume of "true stories," with a sort of homily at the end of each, dispensing praise and blame according to the merits of the case, and intended for the improvement of young children.

SCRIPTURE CATECHISM, &c. &c.: New-York GRIFFIN & Co.—The Catechism of the Westminster Divines, with the Rev. Dr. Henry's questions and answers, and a Catechism for children by the Rev. John Brown, are included in this little book.

FACTS, FEELINGS AND FANCIES, by CHARLES JAMES CONNOR, 1 vol.: New-York BLISS, WADSWORTH & Co. For papers written under the circumstances of these, "in the intervals of labor or disease by one who has never known the advantages of education,"—they are not without merit.

THE CONQUEST OF FLORIDA, BY HERNANDO DE SOTO: by THEODORE IRVING, 2 vols., Philadelphia, CAREY, LEA & BLANCHARD—for sale by WILEY & LONG.—The great poet has asked hypothetically, "what is there in a name?": a great deal sometimes, and sometimes little enough. In the names associated in this new work, by an American on an American theme, there is much we think to attract—and the promise of the title is made good by the performance. The dedication of these pages, by the author, to his uncle *Washington Irving*, is affectionate and becoming. It was while with that uncle in Spain, that the perusal in Spanish of the history of *Hernando de Soto's* marvellous expedition to Florida—written by the Inca *Garcilaso de la Vega* first fired the young imagination of our author, to the scenes and events there recorded; and falling in afterwards with an anonymous narrative of the same occurrences, purporting to be written by a Portuguese soldier,—he was led on to plan, and after due investigation and research, to write a "full account of an expedition, which throws such an air of romance over the early history of a portion of our country."

It will be gathered from this statement, that, although *Garcilaso de la Vega* is the main authority relied on, it is not a translation, but a compilation, in which abundant room is left for the exercise of judgement in the relation of, and taste in the arrangement, and manner of setting forth, the materials employed.

Our readers will, we think, find that these qualities are both evinced in the volumes now presented to them.

THE YOUTH'S BOOK, OR TALES AND SKETCHES ILLUSTRATIVE OF MORAL DEPARTMENT; by JOHN BOWRING, LL. D. first American edition, Philadelphia, H. CONRAD and E. PARSONS.—This is an American re-publication, under an altered title, of a work of Dr. Bowring's, entitled "Minor Morals for Young People," and intended by him to illustrate the "greatest happiness principle:" that is to say, that, "it is impossible to add to the stock of virtue, without adding to that of felicity, or to increase the amount of felicity without increasing that of virtue." It is a charming little book, which boys and girls of ingenious minds cannot read without being improved by its well told stories. We do not think the very indifferent wood cuts, with which it is "embellished," any additional attraction.

NARRATIVE OF A SECOND VOYAGE in search of a North West passage, and of a residence in the Arctic Regions, during the years 1829, '30, '31, '32 and '33, by Sir JOHN ROSS, Captain in the Royal Navy, &c. &c. 1 vol. 8vo. Philadelphia, E. L. CAREY & A. HART.—The marvel of Capt. Ross' return, with the survivors of his crew, after long years of absence, and when hope even, had fled from the breast of all but a few daring philanthropists, like Capt. BACK,—occupied for a space all attention; and the record of the extraordinary exposure and escape of these Arctic navigators, was looked for with intense interest. We know not why this interest was balked, by the long delay that has intervened, since the restoration of Capt. Ross, and the publication of the narrative, but apprehend that it may not be as eagerly sought, as earlier it would have been. As it is, the book had not, at the latest dates, been published in England, so that we have here our copy, printed from the sheets, sent from England, as early as possible.

In a preliminary dissertation, Capt. Ross states this, to our judgment, sound conclusion.

"It remains therefore, to say, that while my voyage and its results, have demolished all hypothesis and hopes, [of finding "a North West passage,"] but those which may still be entertained respecting Lancaster Strait, and the Pole—if, indeed, the latter has still an advocate remaining—there are now fewer temptations than ever to make any fresh attempt for solving this problem."

There are many passages in this narrative—written plain unpretending style—which we would gladly find room for, but must content ourselves with that, describing the failing in of these forlorn navigators, with the ship which rescued them. It is simple and impressive.

26th March, 1833.—At four in the morning, when all were asleep, the look out man, David Wood, thought he discovered a sail in the offing, and immediately informed Commander Ross, who, by means of his glass, soon saw that it was in reality a ship. All hands were immediately out of their tents and on the beach, discussing her rig, quality, and course; though there were still some despairers who maintained that it was only an iceberg.

No time was however lost, the boats were launched, and signals made by burning wet powder; when, completing our embarkation, we left our little harbor at six o'clock. Our progress was tedious, owing to alternate calms, and light airs blowing in every direction; yet we made way towards the vessel, and had it remained calm where she was, should soon have been alongside. Unluckily, a breeze just then sprang up, and she made all sail to the southeastward; by which means the boat that was foremost was soon left astern, while the other two were steering more to the eastward, with the hope of cutting her off.

About ten o'clock we saw another sail to the northward, which appeared to be lying to for her boats; thinking, at one time, when she hove to, that she had seen us. That, however, proved not to be the case, as she soon bore up under all sail. In no long time it was apparent that she was fast leaving us; and it was the most anxious moment that we had yet experienced, to find that we were

near to no less than two ships, either of which would have put an end to all our fears and all our toils, and that we should probably reach neither.

It was necessary, however, to keep up the courage of the men, by assuring them, from time to time, that we were coming up with her; when, most fortunately, it fell calm, and we really gained so fast, that, at eleven o'clock we saw her leave to with all sails aback, and lowered down a boat, which rowed immediately towards our own.

She was soon alongside, when the mate in command addressed us, by presuming that we had met with some misfortune and lost our ship. This being answered in the affirmative, I requested to know the name of his vessel, and expressed our wish to be taken on board. I was answered that it was "the *Isabella* of Hull, once commanded by Captain Ross;" on which I stated that I was the identical man in question, and my people the crew of the *Victory*. That the mate who commanded this boat, was as much astonished at this information as he appeared to be, I do not doubt; while, with the usual blunderheadedness of men on such occasions, he assured me that I had been dead two years. I easily convinced him, however, that what ought to have been true, according to his estimate, was a somewhat premature conclusion; as the bear-like form of the whole set of us might have shown him, had he taken time to consider, that we were certainly not whaling gentlemen, and that we carried tolerable evidence of our being "true men, and no impostors," on our backs, and in our starved and unshaven countenances. A hearty congratulation followed of course, in the true seaman style, and, after a few natural inquiries, he added that the *Isabella* was commanded by Captain Humphreys; when he immediately went off in his boat to communicate his information on board; repeating that we had long been given up as lost, not by them alone, but by all England.

As we approached slowly after him to the ship, he jumped up the side, and in a moment the rigging was manned; while we were saluted with 3 cheers as we came within cable's length, and were not long in getting on board of my old vessel, where we were all received by Captain Humphreys with a hearty seaman's welcome.

Though we had not been supported by our names and characters, we should not the less have claimed, from charity, the attentions we received, for never was seen a more miserable-looking set of wretches; while, that we were but a repulsive-looking people, none of us could doubt. If, to be poor, wretchedly poor, as far as all our present property was concerned, was to have a claim on charity, no one could well deserve it more; but, if, to look so, be to frighten away the so called charitable, no beggar that wonders in Ireland could have outdone us in exciting the repugnance of those who have not known what poverty can be. Unshaven since I know not when, dirty, dressed in the rags of wild beasts instead of the tatters of civilization, and starved to the very bones, our gaunt and grim looks, when contrasted with those of the well-dressed and well-fed men around us, made us all feel, I believe for the first time, what we really were, as well as what we seemed to others. Poverty is without half its mark, unless it be contrasted with wealth: and what we might have known to be true in the past days, we had forgotten to think of, till we were thus reminded of what we truly were, as well as seemed to be.

But the ludicrous soon took place of all other feelings; in such a crowd and such confusion, all serious thought was impossible, while the new buoyancy of our spirits made us abundantly willing to be amused by the scene which now opened. Every man was hungry and was to be fed, all were ragged and were to be clothed, there was not one to whom washing was not indispensable, nor one whom his beard did not deprive of all English semblance. All, every thing, too, was to be done at once; it was washing, dressing, shaving, eating, all intermingled, it was all the materials of each jumbled together; while in the midst of all, there were interminable questions to be asked and answered on all sides; the adventures of the *Victory*, our own escapes, the politics of England, and the news which was now four years old. But all subsided into peace at last. The sick were accommodated, the seamen disposed of, and all was done, for all of us, which care and kindness could perform. Night at length brought quiet and serious thoughts; and I trust there was not one among us who did not then express, where it was due, his gratitude for that interposition which had raised us all from

a despair which none could now forget, and had brought us from the very borders of a not distant grave, to life and friends and civilization.

Lotig, accustomed, however, to a cold bed on the hard snow or the bare rock, few could sleep amid the comfort of our new accommodations. I was myself compelled to leave the bed which had been kindly assigned me, and take my abode in a chair for the night, nor did it fare much better with the rest. It was for time to reconcile us to this sudden and violent change, to break through what had become habit, and to inure us once more to the usages of our former days.

HELON'S PILGRIMAGE TO JERUSALEM, translated from the German of FREDERICK STRAUSS, revised and enlarged by BARON STOW, Pastor of the 2d Baptist Church, Boston. 1 vol. Boston. WM. D. TICKNER. A picture of Judaism, in the century which preceded the advent of our Saviour, is attempted in this work, which was first published about ten years ago, and received with marked interest. The design is one that cannot fail to attract all readers, who, in the delineations of such a work, if executed with fidelity, would find constant elucidations of the book of books—the Bible. That it is so executed, is, we think, to be confidently inferred, from the desire frequently expressed, in this country, as we are told in the prefatory notice of the American editor, to procure the work, as aiding and facilitating theological studies. Hence, the present publication, which, by the omission of the very copious and learned notes, that accompanied the English edition, and the condensing two volumes into one, is furnished in a cheap and accessible form.

The story is one that puts before the reader the whole domestic life and manners of the Jews.

CELEBRATION OF THE FORTY-SEVENTH ANNIVERSARY OF THE FIRST SETTLEMENT OF THE STATE OF OHIO BY NATIVE CITIZENS. CINCINNATI. LODGE, L'HONNEDIEU & Co.—Under this title we have just received from Cincinnati, a pamphlet embodying the proceeding of a public celebration on the 7th April last—which, we shall ever consider it a peculiar piece of good fortune, that it was our accidental happiness to witness, and share in.

Our columns to day were too much pre-occupied to permit us to extract, or condense from this pamphlet, any connected account of what it so well commemorates; and we, therefore, only print a single letter from among the many very clever ones that were written by those who, invited from a distance, were unable to attend. It is that of the author of *Swallow Barn*, and, although from the absence of all the associations and feelings of the day and place where it was received and read aloud, it can not strike our readers with any thing like the delight, that it did the three or four hundred whole-souled *Buckeyes*, who had grown up with the strapping "blooming girl," whom it so admirably describes, it will yet, with its accompanying toasts, be deemed, we think, a capital effort for such an occasion.

BALTIMORE, March 27th, 1835.

Gentlemen—I have received the letter of the committee of invitation, for your approaching State festival on the 7th of next month. I very earnestly regret that I cannot be with you. My professional engagements leave me no time for such a journey before midsummer.

It has long been my purpose, to which I have looked forward as a source of much future pleasure, to make a visit to the West, and especially to your beautiful city. I have deferred the enterprise from summer to summer, I can scarcely tell why, unless it be from some lingering remains of a feeling which was common to my boyhood, that it was well to wait until the West grew ripe, and roads grew better, and towns more populous. For we had a current prophecy then, that the West, from being the child, would become the mother of nations; and in this boyish fancy I have waited that I might see her as a matron. Suddenly, before I was aware,

the prophecy has become truth—the West that I dreamed of is no longer there—the wilderness is gone—the Indian is gone—and even the old boatmen have vanished. You have sent colonies still farther towards the setting sun—and the west is a thousand miles away. Ohio was then the chubby and blooming girl of the family, who grew too fast for her garments, in spite of all the tucks and drawing strings and broad plaits, made "to let go." But she is now in vigorous womanhood, not following in the train of civilization and refinement—but leading it, and staying the balance of the Union, by the weight of her moral and intellectual strength.

You have a noble country, gentlemen, and it is no small source of its happiness, that it occupies a station which draws upon it the kindest regards from all the other members of the Confederacy.—Your relations of friendship and interest are intimate with the North, and the Centre. There is not a state in the circle, that has not reason to rejoice in the prosperity of Ohio.

As a Baltimorean, I feel myself subsisting under affinities with you, and am accustomed to bring into my familiar reckoning, the certainty of the most various and agreeable social relations with your People. My feelings in this matter are the general feelings of my townsmen. We have just resolved to level the Alleganics, widen the Ohio, and abolish the mile stones, in the romantic, but no longer impracticable exploit of annihilating time and space. When this is achieved, gentlemen we shall be happy to see you and your friends, on any day when you may take a fancy to rise early, with us, at dinner in Baltimore.

I heartily wish we could get this regulated by the 7th of April, but I fear the time is too short.—I will beg you therefore, that you will allow me so far to participate in the festival, as to offer the following sentiments:

"The States of Ohio and Maryland.—I through fire and water they will hold together: mountains shall not sunder them."

I beg leave to subscribe myself, very truly yours,
JOHN P. KENNEDY.

[From the United States Medical and Surgical Journal for April.]

IMPROVED EDITION OF GOOD'S STUDY OF MEDICINE. By Dr. A. Sidney Doane.

We mentioned in our last, that the Messrs. Harpers, of New York, having lately received a copy of the last London edition of this important work, have committed it to the press for immediate republication. The present edition appeared in London in December last; it is a greatly enlarged copy, with additions from the last manuscript improvements of the learned author, and still farther increased in value by many additions of a practical character by the distinguished editor, Prof. Samuel Cooper, the writer of the popular surgical dictionary, and other works. The contemplated edition now about to appear from the accurate and excellent press of the Harpers will include the whole work and emendations of Dr. Good, and all additions and improvements by Cooper; and to these throughout will be still further added a large and copious body of practical notes by the American editor, Dr. Doane, of New York, who has for some time been advantageously known to professional readers and practitioners as a gentleman of eminent erudition and capacity. The notes and improvements of Dr. Doane will embrace the leading facts and principles of American practice; and these researches of the editor will enable him to associate with the labors of Dr. Good a large amount of the opinions and observations which have resulted from the clinical experience of the most prominent American authors throughout the United States.—It is believed that the fidelity with which this act of justice will be performed towards the character and capacities of native writers in different parts of our widely-extended country, will give to the projected undertaking a consideration far superior to that of any former edition of this elaborate and valuable work.

We feel justified in thus noticing the present edition of the Study of Medicine, inasmuch as we have carefully examined a considerable number of the sheets already printed; and if Dr. Doane continues to exercise the same industry and judgment throughout the book, we feel satisfied that the profession will be subjected to lasting obligations to him for his services.

We are informed that some few weeks must necessarily elapse before the appearance of the present work, as it is extensive and will be ex-

ecuted in a very beautiful manner; it will be included in two large octavo volumes, and offered for sale at a very reasonable price.

Extract from "The Evening Voluntaries."

By WORDSWORTH.

Calm is the fragrant air, and loth to lose
Day's grateful warmth, tho' moist with falling dews.
Look for the stars, you'll say that there are none:
Look up a second time, and one by one,
You mark them twinkling out with silvery light,
And wonder how they could elude the sight.
The birds, of late so noisy in their bowers,
Warbled awhile with faint and feeble powers,
But now are silent in the dim-scene fowers:
Nor does the village church-clock's iron tone
The time's and season's influence disown:
Nine beats distinctly to each other bound
In drowsy sequence; how unlike the sound
That, in rough winter, oft inflicts a fear
On fireside listeners, doubting what they hear!
The shepherd, bent on rising with the sun,
Had closed his door before the day was done,
And now with thankful heart to bed doth creep,
And join his little children in their sleep.
The bat, lured forth where trees the lane o'er shade,
Flits and refits along the close arcade:
Far heard the dor-hawk chase the white moth
With hurring note, which Industry and Sloth
Might both be pleased with, for it suits them both.
Wheels and the tread of hoofs are heard no more;
One boat there was, but it will touch the shore
With the next clipping of its slackened oar;
Faint sound, that, for the gayest of the gay,
Might give to serious thoughts a moment's sway,
As a last token of man's toilsome day!

If all too much of Earth there be.

By O. W. W.

If all too much of Earth there be
In feelings I have breathed to thee,
If dreams that in my soul have dwelt,
Seem wilder than thine own hath felt—
O think how I have sought to be
In every hope and dream like thee,
And, when I heard thy sunny tone,
Have wished my spirit like thine own:
If sometimes I have dared to speak
A word that crimsoned o'er thy cheek,
If "dearest" be too fond a name
For me to breathe, or thee to claim—
Yet think how I have checked each word,
By which my lip, not heart, hath erred,
And, in its pure and sinless tone,
Have wished my spirit like thine own!
If Love my wayward bosom move,
To aught thy heart may disapprove,
If Passion and an earthly dream
Within my soul a moment gleam—
O think how much thou canst impart—
Of Virtue to my restless heart,
And breathe a sweet and sunny tone,
To make my spirit like thine own!

[FOR THE NEW-YORK AMERICAN.]
The Blasted Oak.

From a Painting by G. A. LUDLOW.

Dark on the heath—the night gloom fell,
Loud sighed the wind, with fitful spell
The lightning glared around,
And meeting clouds with angry roar,
The burthen of the tempest bore
Far o'er the trembling ground.

Hark! heard ye not 'mid torrents borne,
The echo of a distant horn
Upon the moaning blast?
And clattering hoofs? as if with speed,
For life—for life—spurred on a steed
It comes, and now—'tis past.

With bloody speed—and frantic mien,
Too well the rider's hate I ween
Of crime, of terror spoke,
And ever and anon he threw
A fearful glance—where lonely grew
On old and gnarled oak.

For 'neath that leafless trunk hath lain,
The mould'ring corpse of one long slain,
Oh! God! can such things be?
The rider spurred his courser on—
Oh! for the blessed beam of morn,
To light me cheerily.

On—on—the maddened courser fled,
His snorting nostrils speak his dread—
With visage ghastly pale,
The horseman spurred—my gallant steed
Why falter, at thy master's need?
Why tremble thus, and quail?

Avaunt ye spirits of the slain;
My horn shall gaily sound again,
To bid yon Loiterers haste—
He said—and wound a trembling blast—
Started his horse, as moaning, past
A shadow o'er the waste.

'Tis he—the murderer faintly cries,
Oh! God! I see his pleading eyes,
That wide and bleeding gash—
Ha! ha! 'tis but a shadow born,
Of clouds—(such oft the earth hath worn)
Scared by the lightning's flash.

They neared the spot—a forked light,
Played 'round the tree, and by the bright,
And vivid flame it cast—
I saw the murderer writhing fall
Then closed above, nights glooming pall
And louder moaned the blast.

ELLA.

SUMMARY.

Messrs. Catey, Lea & Blanchard will publish, on Saturday next, *The Cragon Miscellany*, number 2, containing *Abbottsford and Newstead Abbey*, subjects of lively interest for general readers. The volume is of 230 pages, and printed as the first.

Celebration of the North Carolina Declaration of Independence.—The Mecklenburg Declaration of Independence was celebrated with great éclat at Charlotte, N.C. on the 20th ult. A vast concourse of citizens from North and South Carolina assembled upon the occasion, including his Excellency the Governor, and several high official functionaries of the latter State. The Declaration was read by Mr. Osborne, and an oration delivered by Franklin Smith, Esq. The military was in attendance in great numbers, and the whole ceremonies were of the most imposing character. Upwards of six hundred persons sat down to a sumptuous dinner, and at evening there was a splendid ball. "Charlotte," says the Journal of that place, "has not seen such a day for sixty years."

NEW ENGLAND ANNIVERSARIES.—The anniversary of the battle of Lexington was celebrated on the spot recently, and from the oration of *Edward Everett* on the occasion—a man who, as Johnson said of Goldsmith, "touches nothing that he does not adorn"—we copy a fine account of the battle and its circumstances.

Newburyport, too, has been celebrating her two hundredth anniversary—and with genuine New England feeling.

Mr. Everett's Address at Lexington.

We are glad to set before our readers a portion of this Address, in which the circumstances of the Battle of Lexington are related. The discourse itself yields to none of the former efforts of its author, in eloquence, fullness or research, or adaptation to the occasion.—[Boston Daily Adv.]

On Saturday, the 15th of April, the provincial Congress, then in session at Concord, adjourned to meet again on the 10th of May. It is probable that the intelligence of this event had not reached General Gage in Boston, when, on the same day, he commenced his arrangements for the projected expedition. The grenadiers and light infantry were relieved from their several stations in Boston, and concentrated on the common, under pretence of learning a new military exercise. At midnight following, the boats of the transport ships, which had been previously repaired, were launched and moored under the sterns of the men-of-war in the harbor. Dr. Warren, on his way home from the Congress on Saturday, had expressed to the family of Mr. Clark, his firm persuasion, that the moment was at hand when blood would flow. He justly regarded the military movements of the following night, as a confirmation of this opinion, and despatched Colonel Paul Revere the next day, to this place, to bring the intelligence to Messrs. Hancock and Adams. They naturally inferred from the magnitude of the preparations, that their own seizure could not be the sole object, and advised the committee of safety, then sitting at West Cambridge, to order the distribution into the neighboring towns of the stores collected at Concord. Colonel Paul Revere, on his return to town on Sunday, concerted with his friends in Charlestown that two lights should be shown from the steeple of the North Church, if the British troops should cross in boats to Cambridge, and one, if they should march out over Boston neck.

Wednesday the 19th was fixed upon as the eventful day. Ten or twelve British officers were sent out the day before on horseback, who dined at Cambridge, and at nightfall scattered themselves on the roads to Concord to prevent the communication of intelligence from the town. Early information of this fact was brought to this place by Solomon Brown* of Lexington, who returned late from Boston market on the afternoon of the 18th.

* Mr. Brown is still living, but from the distance of his place of residence, was not able to attend, with the other survivors of Captain Parker's company, (ten in number,) at the celebration of the anniversary.

and passed them and was passed by them several times, as they sometimes rode forward or fell back on the road. A despatch to the same effect was also sent by Mr. Gerry of the committee of safety, at West Cambridge to Mr. Hancock, whose answer, still preserved, evinces the calmness and self-possession, which he maintained at the approaching crisis. In consequence of this information, a guard of eight men, under the late Colonel Monroe, then a sergeant in the Lexington company, was marched in the course of the evening to Mr. Clark's house, for the protection of Messrs. Adams and Hancock. At the same time Messrs. Sanderson, Loring, and Brown, were sent up towards Concord, to watch the movement of the officers. They came upon them unawares in Lincoln, and fell into their hands. About midnight, Col. Paul Revere, who had left Boston by direction of Doctor Warren, as soon as the movements of the troops were discovered, and had passed by the way of Charlestown, where he narrowly escaped two British officers, through Medford, and West Cambridge, giving the alarm at every house on the way—arrived at Mr. Clark's with despatches from Dr. Warren, for Hancock and Adams. Passing on towards Concord, Revere also fell into the hands of the British officers in Lincoln, but not till he had had an opportunity of communicating his errand to young Dr. Prescott, of Concord, whom he overtook on the road. At the moment Revere was arrested by the officers, Prescott succeeded in forcing his way through them, and thus carried the alarm to Concord. The intelligence sent by Dr. Warren to Messrs. Hancock and Adams, purported that a large body of the King's troops, (supposed to be a brigade of 1200 or 1500 men,) had embarked in boats from Boston.

After the detention of an hour or two in Lincoln, the British officers were informed by Col. Revere, of all the measures he had taken to alarm the country; and deemed it expedient for their own safety to hasten back toward Boston. On their way toward Lexington, they put many questions to their prisoners, as to the place where Messrs. Adams and Hancock were residing. As they approached Lexington, the alarm bell was ringing, and a volley was fired by some of the militia, then assembling on the green. Upon this they hastened their flight, and just as they entered the village their prisoners escaped from them. Colonel Revere repaired to the house of Mr. Clark, and the general apprehensions relative to his distinguished guests, having been confirmed by the interrogatories of the British officers, Messrs. Hancock and Adams were persuaded with great difficulty to withdraw from the immediate vicinity of the road. On the return of Colonel Revere to the centre of the village, he met Captain Thaddeus Bowman coming up the road, in full gallop, with the news that the British troops were at hand.

It was at this time, between four and five o'clock in the morning. Three messengers had been sent down the road, to ascertain the approach of the British army. The two first brought no tidings, and the troops were not discovered by the third, Bowman, till they were far advanced into the town. They had been put in motion about seven hours before on Boston Common. They crossed in boats, near the spot where the Court House now stands in East Cambridge; and there took up their march, from eight hundred to one thousand strong, grenadiers, light infantry, and marines. They crossed the marshes, inclining to their right, and came into Charlestown and West Cambridge road, near the foot of Prospect hill. It was a fine moonlight chilly night. No hostile movement was made by them, till they reached West Cambridge. The committee of safety had been in session in that place at Wetherbee's tavern; and three of its distinguished members, Vice President Gerry, Col. Lee, and Col. Orne, had taken up their lodging for the night, at the same house. The village, having been alarmed by Colonel Revere, was on the alert at the approach of the army; and Messrs. Gerry, Lee, and Orne, had risen from their beds and gone to their windows, to contemplate the strange spectacle. As the troops came up, on a line with the house, a sergeant's guard was detached to search it; and the members of the committee had but a moment to escape by flight into the adjacent fields.

It was now perceived by Colonel Smith, who

† Mr. Loring was present on the Stage, at the delivery of this address.

commanded the British detachment, that the country, on all sides, was in a state of alarm. The news had spread in every direction, both by the way of Charlestown and Roxbury. The lights in the North Church steeple had given the signal, before the troops had fairly embarked. It was propagated by the alarm bell, from village to village; volleys from the minute-men were heard in every direction; and as fast as light and sound could travel, the news ran through Massachusetts, I might say through New-England; and every man as he heard it sprang to his arms. As a measure of precaution under these circumstances, Colonel Smith detached six companies of light infantry and marines, to move forward under Major Pitcairne and take possession of the bridges at Concord, in order to cut off the communication with the interior of the country. At the same time also, he sent back to General Gage and asked a reinforcement, a piece of forethought which saved all that was saved of the fortunes of that day. Before these detached companies could reach Lexington, the officers already mentioned were hastening down the road; and falling in with Major Pitcairne, informed him, that five hundred men were assembling on Lexington green to resist the troops. In consequence of this exaggerated account, the advance party was halted, to give time for the grenadiers to come up.

And thus, fellow citizens, having glanced at all the other movements of this memorable night, we are prepared to contemplate that, which gives interest to them all. The company assembled on this spot, and which had been swelled by the British officers to five hundred, consisted in reality of sixty or seventy of the militia of Lexington. On the receipt of the information of the officers and the movement of the troops, a guard had been set, as we have seen, at the house of Mr. Clark, the evening before. After the receipt of the intelligence brought by Revere, the alarm bell was rung; and a summons sent round to the militia of the place, to assemble on the green. This was done by direction of the commander of the company, Capt. John Parker—an officer of approved firmness and courage. He had probably served in the French war, and gave many proofs, on this trying occasion, of a most intrepid spirit. About two o'clock in the morning, the drum beat to arms, the roll was called, and about one hundred and thirty answered to their names;—some of them, alas—whose ashes, now gathered in that depository, invoke the mournful horrors of this day,—for the last time on earth. Messengers were sent down the road to bring intelligence of the troops; and the men were ordered to load with powder and ball. One of the messengers soon returned with the report, that there were no troops to be seen. In consequence of this information, as the night was chilly, in order to spare the men, already harassed by the repeated alarms which had been given, and to relieve the anxiety of their families, the militia were dismissed; but ordered to await the return of the other expresses, sent down to gain a knowledge of the movements of the enemy, and directed to be in readiness, at the beat of the drum. About half the men sought refuge from the chill of the night, in the public house still standing on the edge of the green;—the residue retired to their homes in the neighborhood. One of the messengers was made prisoner by the British, who took effectual precautions to arrest every person on the road.—Benjamin Wellington hastening to the centre of the village, was intercepted by their advanced party, and was the first person seized by the enemy in arms, in the revolutionary war. In consequence of these precautions, the troops remained undiscovered till within a mile and a half of this place, and when there was scarce time for the last messenger, Capt. Thaddeus Bowman, to return with the tidings of their certain approach.

Anew, the last alarm, is now given: the bell rings,—guns are fired in haste on the green,—the drum beats to arms. The militia, within reach of the sound, hasten to obey the call, sixty or seventy in number, and are drawn up in order a very short distance in the rear of the spot on which we stand. The British troops, hearing the American drum, regard it as a challenge, and are halted at the distance of one hundred and sixty rods to load their guns. At the sight of this preparation a few of the militia on the two extremities of the line, naturally feeling the madness of resisting a force outnumbering their own ten to one, and supposed to be near twice as large as it was, showed a disposition to retreat. Captain Parker ordered them to stand their ground, threatening death to any man

who should fly,—but directed them not to fire unless first fired upon. The commanders of the British forces advanced some rods in front of their troops. With mingled threats and oaths, they bid the Americans lay down their arms and disperse, and call to their own troops, now rushing furiously on,—the light infantry on the right of the church in which we are now assembled, and the grenadiers on the left,—to fire. The order not being followed with instant obedience, is renewed with oaths and imprecations,—the officers discharge their pistols—and the foremost platoon fires over the heads of the Americans. Not one falls, and John Munroe, standing next to a kinsman of the same family name, calmly observed, that they were firing nothing but powder. Another general volley, aimed with fatal precision, succeeds. Ebenezer Munroe replied to the remark just made, that something more than powder was then fired, as he was shot himself in the arm. At the same moment, several dropped around them killed and wounded. Captain Parker now felt the necessity of directing his men to disperse, but it was not until several of them had returned the British fire, and some of them more than once, that this handful of brave men were driven from the field.

Of this gallant little company, seven were killed and ten wounded, a quarter part at least of the number drawn up, and a most signal proof of the firmness, with which they stood the British fire.—Willingly would I do justice to the separate merit of each individual of this heroic band; but tradition has not furnished us the means. A few interesting anecdotes have, however, been preserved. Jedediah Munroe was one of the wounded. Not disheartened by this circumstance, instead of quitting the field, he marched with his company in pursuit of the enemy to Concord, and was killed in the afternoon. Ebenezer Munroe, Jr., received two wounds, and a third ball through his garments. William Tidd, the second in command of the company, was pursued by Major Pitcairne, on horseback, up the north road, with repeated cries to stop or he was a dead man. Having leaped the fence, he discharged his gun at his pursuer, and thus compelled him in turn to take flight. Robert Munroe was killed with Parker, Muzzy, and Jonathan Harrington, on or near the line, where the company was formed. Robert Munroe had served in the French wars. He was the standard-bearer of his company at the capture of Louisbourg, in 1758. He now lived to see, set up for the first time, the banner of his country's Independence. He saw it raised amidst the handful of his brave associates; alas, that he was struck down, without living like you, venerable survivors of that momentous day, to behold it, as it dallies with the wind and scorns the sun, blest of heaven and of man,—at the head of the triumphant hosts of America! All hail to the glorious ensign! Courage to the heart and strength to the hand, to which, in all time, it shall be entrusted! May it forever wave in honor, in unsullied glory, and patriotic hope, on the dome of the capitol, on the country's strong holds, on the tented plain, on the wave-rocked top-mast. Wherever on the earth's surface, the eye of the American shall behold it, may he have reason to bless it. On whatever spot it is planted, there may freedom have a foot-hold, humanity a brave champion, and religion an altar. Though stained with blood in a righteous cause, may it never in any cause, be stained with shame. Alike, when its gorgeous folds shall wanton in lazy holiday triumph, on the summer breeze, and its tattered fragments be dimly seen through the clouds of war, may it be the joy and pride of the American heart. First raised in the cause of right and liberty, in that cause alone may it forever spread out its streaming blazony to the battle and the storm. First raised in this humble village, and since borne victoriously across the continent and on every sea, may virtue, and freedom, and peace forever follow, where it leads the way! The banner which was raised, on this spot, by a village hero,* was not that, whose glorious folds are now gathered round the sacred depository of the ashes of his brave companions. He carried the old provincial flag of Massachusetts Bay. As it had once been planted in triumph, on the walls of Louisbourg, Quebec, and Montreal, it was now raised in a New England village, among a band of brave men, some of whom had followed it to victory in distant fields, and now rallied beneath it, in the bo-

* Joseph Simonds was the ensign of the Lexington company on the 19th of April, 1775.

son of their homes, determined, if duty called them, to shed their blood in its defence. May Heaven approve the omen. The ancient standard of Massachusetts Bay was displayed for the confederating colonies, before the STAR-SPANGLED BANNER OF THE UNION had been flung to the breeze. Should the time come (which God avert), when that glorious banner shall be rent in twain, may Massachusetts, who first raised her standard in the cause of United America, be the last by whom that cause is deserted; and as many of her children, who first raised that standard on this spot, fell gloriously in its defence, so may the last son of Massachusetts, to whom it shall be entrusted, not yield it but in the mortal agony!

[From the Army and Navy Chronicle.]
ENGINEER ORDER, NO. 4.
ENGINEER DEPARTMENT,
Washington, 22d May, 1835.

The Chief Engineer has again the melancholy duty of announcing, with deep regret, to the Corps of Engineers the loss of another highly meritorious brother officer, Brevet Major GEORGE BLANEY, who died at Smithville, N. C. on the 15th inst.

As a testimonial of respect for the memory of the deceased, the officers of the Corps of Engineers, and of the Military Academy, are requested to wear the usual badge of mourning for thirty days.
C. GRATIOT.

Capt. J. A. Phillips, 7th Infantry, relieved from his staff appointment as Assistant Commissary of Subsistence, and acting Assistant Quartermaster, at the Military Academy West Point, and ordered to join his company at Fort Gibson, 11th May, 1835.

2d Lt. Edward Deas, 4th Artillery, assigned to duty in the Commissary General's Department.

Lt. W. W. Mather, 7th Infantry, relieved from duty at the Military Academy, after the June examination, and ordered to join his company.

INDIFFERENCE OF THE AMERICAN PEOPLE TO HUMAN LIFE.—We have had repeated occasions to express our conviction, that in this country, the comfort, safety, and life of man, when committed to the charge of steamboats, stage drivers, or builders, seem literally to be deemed of no moment. The most awful accidents, from all these sources, are of frequent occurrence, yet we never hear of any inquiry into the cause of them—or penalty imposed for the negligence, parsimony, or ignorance from which they almost always result. We subjoin two new instances of fearful interest, and venture to predict, that there will be no judicial investigation in either case.

[From the Wheeling Gazette of the 25th May.]

ANOTHER STEAMBOAT EXPLOSION—FORTY PERSONS MISSING.—By the arrival at this port this morning of the Steamboat Warsaw, Capt. Keating, we learn the painful intelligence, that the steamboat Majestic, while stopping at Memphis, Tenn., on her way from New Orleans to St. Louis, on Wednesday, the 13th inst., burst her boiler, by which disaster forty persons were either killed or missing. Eight bodies had been found on Thursday morning, when the Warsaw passed. The passengers were principally German emigrants, and there were twenty cabin passengers in addition, from various parts of the Union. We have no other particulars of this melancholy occurrence, though the papers will doubtless furnish them in a day or two.

NEW-ORLEANS, May 15th.—Awful Catastrophe.—The three story brick building on the south side of Canal street, and between Camp and Magazine streets, occupied as the Planters' Hotel, and kept by Charles Armstrong, fell to the earth last night at about half past two o'clock. Repairs had lately been making in the lower story, and it is presumed that too much of the support had been incautiously cut away.

The hotel was occupied as an eating and lodging house, and, it is calculated, contained, at the moment of the dreadful accident, between sixty and seventy inmates. The billiard room, which had been very full till late at night, had closed only a short time before. A young gentleman who had left it but a few minutes before the fall of the building, states that he passed to the opposite side of the street, to his boarding house, went up to the gallery in front, where he heard three distinct and loud cracks, resembling the discharge of small cannon,

then a sound like an earthquake, as the mass fell, and for a moment after, one, and only one, appalling cry, as if by the united voices of the sufferers! The alarm was directly given to the citizens, the bells rung, and engine companies turned out.

STEAMBOAT MAJESTIC.—There are no authentic accounts yet, of the actual number of sufferers, by the explosion on board this boat. The St. Louis (Mo.) Republican, however, of 25th ult., thus accounts for the occurrence, and states generally the number injured:

The steamboat Majestic arrived at this port last evening from New Orleans. We are sorry to hear that the boat met with a deplorable accident, just as she was leaving Memphis. The Captain had given orders, that the yawl which had been alongside should be taken astern; and while the crew were engaged in this work, the passengers, of whom there was a large number, rushed to the starboard side of the boat.

A short time intervened; the Captain gave orders to "trim the boat," and as soon as it was done the starboard boiler collapsed. Forty passengers were more or less scalded; of whom eight had died when the Majestic left Memphis, and several others were not expected to survive.

All the cabin passengers escaped unharmed;—the injury was confined to those on deck. The second engineer was also badly scalded.

NEW ORLEANS, May 20.—The diseases annually prevalent on the river Mississippi and its numerous tributaries, are again becoming rife. All the cases of cholera that were said to have occurred in this city were limited to passengers on boats coming down the river, in various parts of which numerous cases are still found. But no cholera exists in New Orleans, except the cholera morbus, common in other places at this period. Cases of bilious fever indeed occurred within the past few days, but not to any extent, nor are they alarming.

The very great negligence of voyagers on our western waters, and the very little care taken of them by the commanders of boats, are sufficient to engender disease. Hence the real source of disease on the Mississippi. We have personally witnessed these causes and effects, and must indignantly give our testimony against this culpable carelessness.

Now the small pox has broken out, and rages from Memphis to Natchez, and thence to Natchitoches.

WHALE LOST.—Capt. Richards, of ship America, arrived at New London from the Pacific ocean on the 20th January last, fell in with, in lat 38 56 S. lon 46 W. the wreck of the Merrimack, Pease master, of Newburyport—had the appearance of being in the water about 50 days.

[From the Evening Post.]

WEST POINT, June 1, 1835.

The Board of Visitors appointed by the Honorable the Secretary of War to attend the annual examination of the Cadets at the Military Academy, was organized this day by the appointment of the Hgn. Peter Y. Daniel, of Virginia, President, and Col. W. C. Lyman, of Georgia, Secretary. Number present:

Rev. J. Cogswell, Connecticut.

Hon. C. G. Ferris, John W. Hunter, Esq. Jno.

A. Graham, LL.D., New York.

Gen. W. T. Rogers, Hon. Calvin Blyth, Wm. J.

Leiper, Wm. C. Frazer, Esqrs., Phila.

Hon. P. V. Daniel, Col. Keith, Dr. E. H. Car-

michael, Virginia.

John Bragg, Esq. North Carolina.

Col. Wm. C. Lyman, Georgia.

Dr. E. S. Davis, South Carolina.

Thos. J. Pew, Joseph Holt, Esqrs., Kentucky.

Gen. Wm. Milroy, Indiana.

Col. P. Martin, Alabama.

Brigadier General Henry Atkinson, of the United States Army.

MEXICO AND THE UNITED STATES.—We learn from an authentic source, that the additional Article to the Treaty of Limits, between the United States and the Republic of Mexico, has been concluded and approved by the General Congress of Mexico, and in virtue thereof, the period within which the respective Commissioners of both nations should meet, and decide on the boundary between the two countries, has been extended to one year from the date of the exchange of the ratifications.
—[Jour. of Com.]

A patriot of the Revolution has enclosed \$500 to the Editors of the Commercial Advertiser, for the American Colonization Society; remarking, that "at this late period of his life, he cannot serve his country in any manner so beneficially, as in aiding that Society, in their wise and philanthropic endeavors, by degrees, to free the United States from a great and growing evil, and in some measure, to compensate the present generation of black men, for injuries our ancestors have done them and their fathers."

At the latest date, the French Chamber of Deputies was engaged in debate on the abolition of Negro Slavery in the French Colonies. The number of slaves in them is two hundred and seventy-eight thousand. In reply to several of the orators, (April 22d,) the President of the Council (Duke de Broglie) said—

"The moment was critical—that a hazardous experiment was now trying in England, and that in the uncertainty of its result it was the duty of Ministers to be silent; as to act otherwise would endanger the success of the experiment which Government might one day try—he would not say when—he would bind himself to nothing."

AMERICAN TEMPERANCE SOCIETY.—This Society held its anniversary meeting on the 26th instant, in the Park street Church, Boston, before a numerous and highly respectable audience. The following notice of its proceedings, has been furnished for publication in this paper:

"The report, which was partially read by the Rev. Dr. Edwards, the Corresponding Secretary, surpassed, if possible, in interest, any of the previous reports of the society, by the same able hand. One of its great objects is to show, that *alcohol is a poison*, and that too of the most deadly character, and—under whatever name—that it is injurious to the constitution of men in health. The report, in a most satisfactory manner, explodes the common error, that alcohol exists in a state of nature: it shows conclusively, that it does not follow, because fruits and grains are proper for man, that alcohol, which is formed by fermentation, *being a process of decay*, is also proper. The report takes the ground throughout, that it is with intoxicating liquors, under whatever title, that the friends of temperance have now to contend: on this broad and tenable ground, that so long as those drinks are used as a common beverage, there can be no hope of emancipating the world from the sin of drunkenness.

The following are among the remarkable, and certainly very encouraging facts, set forth in this report:

There are State Temperance Societies in every State but one of the Union,

There are eight thousand local societies,

Four thousand distilleries are represented as having extinguished their fires,

Eight thousand merchants as having abandoned the immoral traffic; and

Twelve hundred American vessels now navigating the ocean without the use of alcohol.

It speaks in high commendation of societies formed in England and this country, on the principle of total abstinence from all that can intoxicate, and from Strong Beer, as having been more injurious in England, than even ardent spirit. After the reading of the report, several able addresses were delivered, all advocating the principle of total and entire abstinence from every kind of intoxicating drink, as a common beverage. Amongst other important resolutions, the following was unanimously adopted:

As it has been proved by the experience of thousands in the United States, of all classes of persons, and in all kinds of lawful business, that abstinence from the use of all kinds of intoxicating liquor, as a drink, is not only safe but salutary, and as this is the only course in which it can be rationally expected, that intemperate persons will ever be permanently reformed, and as the example and kind moral influence of the temperate, is the grand means of leading the intemperate to adopt and pursue a course so essential to their present and future good. Therefore, resolved,

That the more extensively this course is adopted by all classes in the community, and especially by all members of Temperance Societies, the more rapid will be the progress of the Temperance Reform.

and the more certain the prospect that drunkenness and its evils will cease."

In connection with this subject, the following facts derived from an authentic source, will not be deemed uninteresting.

Temperance Items, connected with the Press.—The *Temperance Recorder*, established a few years since by the New York State Temperance Society, for the purpose of persuading the whole community to abandon the making, vending, and drinking ardent spirit, has perhaps had a patronage beyond that of any paper ever published. Its list of subscribers at one time rose to 200,000, but in consequence of its silence relative to fermented drinks, its patronage fell off, so that at the close of the last year, the number was reduced to about 50,000.—At the last annual meeting of the State Society, it was unanimously resolved that this paper should take higher ground, and urge on all classes the entire abandonment of all intoxicating liquors as a beverage. This change in the course of the paper has restored it again to favor, the lists have now risen to 100,000 and over, and a thousand or more subscribers a day is a very common occurrence.

The American Temperance Intelligencer, a large sheet, is now on its second year, 60,000 are required to meet the demand.

Of the American Temperance Almanac, for 1834, 300,000 were circulated. 1835, 160,000, the printer could not furnish any more in time.

The Almanac for 1836 is now in press, and striking off at the rate of 5000 to 6000 per day.—About 600,000 are already ordered.

Messrs. Talbot, Oliphant & Co. of this city, have offered to the Domestic and Foreign Missionary Society of the Protestant Episcopal Church, a free passage to China for their recently appointed Missionaries, the Rev. Messrs. Hanson and Lockwood, in the ship Morrison shortly to sail for Canton.

This is not the first, by many instances, in which the liberality of Commerce has, by these gentlemen, been made to advance the highest interests of civilization and religion. In this particular instance, it is marked with the most catholic spirit, for these gentlemen do not belong to the Episcopal Church.

A PARENT'S LOVE.—It is sometimes deemed by the cold-hearted, a mere rhapsody, to say of a parent's love, that it is stronger than death. In the affecting incident, however, related in the annexed paragraph, cut from the Bath (Steuben Co.) Advocate, the whole truth of that sentiment is most abundantly verified. "I cannot see him perish" are words that will find an echo in the heart of every parent, and sympathy in the bosom of all, who do not degrade the name and nature of man.

[From the Bath Advocate of 27th May.]

DISTRESSING INCIDENT.—Mr. Aaron Sisum, with his family, consisting of a wife and five children, on their way from Cherry Valley, Otsego co. to Allegany co. took passage on a boat on the Crooked Lake to Hammondsport, on the 20th instant.—While passing up the Lake, a little son, aged five years, accidentally fell overboard. After a moment's pause, the father exclaimed, "I cannot see him perish," and immediately plunged in after him. The sails were lowered, but it was impossible to check the progress of the boat in time to save them, and both immediately sunk—leaving an afflicted widow and remaining children in a land of strangers destitute of all means of support, except from the hand of charity. Mr. S. had in his pocket all the money they possessed.

With praiseworthy effort and liberality the citizens of Hammondsport afforded sufficient means to make them comfortable.

The Annapolis Republican of Saturday has the following additional particulars of the interesting incident which occurred in the harbor of that city last week:—

A party of pleasure, including the family of Col. Wallach, Commandant of Fort Severn, embarked on Monday last, and after spending a delightful day upon the water, rambling over the beautiful green banks of the Severn, and partaking of a repast upon the shores of the Round Bay, the schooner was returning with the party in the evening, when a sudden flaw of wind struck her—the main boom jibed, and carried one of the young ladies overboard. Quick as thought, Lieut. J. J. B. Wal-

bach, of the United States Navy, plunged into the river to save her. The spring by which he designed to throw himself as near as possible to her, owing to a sudden career of the vessel, was the means of plunging him to a great depth. When he rose, the object of his anxiety was no longer to be seen. Nearing the spot, however, she was discerned sinking below the waves. On being brought up, she very naturally clung to the only object within reach, for safety, but unfortunately in such a manner as to deprive him of the power of motion, necessary to keep above water. In a short time, both sunk together.

Rallying his strength, with an effort, he rose again with his fair charge, and not only sustained her long enough for her to breathe afresh, but with the utmost presence of mind, made dispositions to keep afloat; but entangled with clothes, and disabled from motion, his buoyance soon, of course, became exhausted, and both again disappeared.

It occurred to Lieut. W. as he sunk, to endeavor to reach the bottom, in order to obtain an impetus for re-ascending, but the depth was found too great, there was 24 feet water. It was probably with the last remains of strength that another exertion enabled him once more to regain the surface with his fair companion. But they soon sunk again. His brother, Lieut. Augustus B. Wallach, of the United States Army, who had been at the head of the boat when the accident occurred, on perceiving those overboard, springing into the river, reached the parties at this critical moment. In the act of bringing them up to the surface, the young lady insensibly placed her hand upon his head, so as effectually to keep him under water. In this position, however, he retained his presence of mind, and by swimming under water with his brother's hand upon his shoulder, contrived to sustain both for a considerable time, and to them all, a most eventful space.

All three however, became exhausted, and had sunk a full arm's length when the captain of the schooner, having succeeded in rounding his boat to, and launching a small crazy punt from her deck, arrived just in time to reach one of the party, and thereby bringing them all up to the surface.—The first breath of returning life in the young Naval Officer, was to sing out a direction to the raw hands thus left to manage the schooner, and which was now at considerable distance to 'haul that jib to windward, and put down the helm.' One of the officers laying hold of the little boat on one side, and the other on the other, they contrived to steady it so that the Captain could draw the lady on board without capsizing it—and in that posture they were paddled to the schooner and received on board.

[From the Western Carolinian.]

DREADFUL TORNADO.—We learn that a very destructive tornado passed over a part of this county on Saturday, the 9th May, near the section known as the Jersey Settlement. It prostrated every thing before it, not a house, tree, or fence was left standing where it passed. The destruction of property was very great; but the most melancholy circumstance was the death of a respectable young lady, whose name be believe, was Jones. She was standing in the corner of the house when it tumbled down and crushed her to death; when she was found, after the storm subsided, her head was severed from her body! We have not learned the extent of the tornado, but it embraced in width about a quarter of a mile.

[From the National Gazette.]

A letter has been received, per ship Liberty, from H. Piddington, Esq. Foreign Secretary of the Asiatic Horticultural and Agricultural Society, dated Calcutta, Dec. 24, 1834, and addressed to Dr. R. Harlan, announcing the following interesting discovery—

"You will learn, too, with pleasure, I doubt not, the splendid discovery of a country on the N. E. frontier, or the N. E. corner of Assam, in which, through forests of thirty days march the true Tea Plant abounds. This province, too, borders on that of Yumar in China, in which the plant is cultivated for consumption and sale. We have also had the flower and fruit sent down to Dr. Wallach, of the Honorable Company's Botanic Garden, who pronounces it to be the true tea plant; and who is, as you may well suppose, much gratified with the discovery. These facts are contained in a letter which I have just received from Dr. W. This discovery will perhaps cause a great revolution in the tea trade in a few years."

Was Mr. Rives, the founder of the French monarchy after the 3 days revolution? This question will not appear wholly without purpose, when the annexed paragraph from the London Times, is considered, and when it is known, that the substance of what is therein stated, has been frequently before alluded to.

Will not Mr. Rives, think it worth his while to give some explanation of his imputed agency in this matter?

[From the London Times.]

PARIS, April 18.—Among all the fabrications related in the Chamber and the newspapers on the subject of the American claims, and the treaty which reduced them to the form of a liquid obligation, it is a matter of surprise, especially to the members of the diplomatic body, with whom the fact is familiar, that neither deputies nor journalists have laid their hands on an anecdote, which would have thrown more light on the chief point at issue, than all that has resulted from a fortnight's incessant debate. During the first days of the revolution, when the future King of the French was still at Neuilly, and Lafayette was hesitating at the Hotel de Ville between the proclamation of the Republic, and the institutions of a monarchy surrounded by republican institutions, the Duke of Orleans sent across the barricades, to ask an interview of Mr. Rives, the American Minister; who, like most of the diplomatic servants of the United States, is known to have entertained opinions on the subject of government, having a decided leaning towards aristocratical and monarchical forms. The object of his Royal Highness was to induce Mr. Rives to go to the Hotel de Ville, and convey to Lafayette the effect of his own conviction on the all important question which was then under deliberation. The American Minister consented, and during his subsequent stay in Paris, as perhaps now at Washington, he delighted to recount the part he played at this crisis of the revolution, putting especial emphasis on the cordiality with which he was received by the venerable old man, who for the moment held the destinies of France in his hands, because in the representative of the American Republic, Lafayette thought he saw the personification of that pure form of government with which he desired that his country might be endowed. Suffice it to say, that the mission proved successful, that Lafayette allowed himself to be convinced, and that Mr. Rives knew how to exact from the King and his Ministers the price of that intervention, which had contributed so essentially to smooth his path to the throne.

For late papers from the Island of Jamaica, (Kingston dates of the 15th ult.) we are indebted to Mr. Gilpin of the Exchange reading rooms—in which, by the bye, we may say en passant, merchants, strangers, and others, will find every accommodation usually looked for in such a place.

The Governor of Jamaica, Lord Sligo, has just returned from the Caymanas, where he had been to announce to the proprietors that by reason of their slaves not having been registered within the time prescribed by the emancipation act of the British Parliament, they had become unconditionally free. The error or omission was the fault of Parliament, and not of the proprietors, and yet the latter bear the loss. They submitted at once to the decision, reserving to themselves the right of appealing to Parliament for an indemnity for the loss which they thus sustain, while the planters of Jamaica and other Islands, are permitted to require apprentice labor from their former slaves.

Jamaica was quite tranquil; but it seems to be feared in some neighborhoods that the apprentices system will not enable the planters to keep up any thing like their former supply of sugar. About the coffee plantations less solicitude is expressed; indeed, it is avowed, that the coffee may be cultivated without difficulty by European emigrants.

FEARFUL EARTHQUAKE.—The New Bedford Mercury of yesterday contains the following account of the effects of a most fearful Earthquake, in Chili, on the 20th Feb. last.

LATE FROM CHILI.—Destruction of the city of Concepcion and Talcahuana, by an Earthquake.—We learn by Capt. Whitton, of the ship Coral, at this port, 85 days from Talcahuana, the melancholy

intelligence of the entire destruction of the city of Concepcion and Talcahuana by an Earthquake on the 20th February. The following statement was drawn up by a gentleman who was an eye witness:—

"The morning of the 20th was clear and serene, but it will prove an ever memorable day to the miserable people now inhabiting the border hills in this vicinity. The first shock commenced at 20 minutes past eleven o'clock, and lasted with but slight intermission for 47 minutes; causing the hills and valleys to rise and fall like the waves of the ocean. During the continuance of the first shock, which was much the most severe, I expected to be destroyed every moment—it was almost impossible to keep upright.

Talcahuana is completely demolished—the buildings were not only shaken down, but the ruins of houses, stores, &c. were completely swept away afterwards by the sea, which retired about 15 minutes after the first shock, leaving the shipping entirely dry, at anchor in the harbor—it came in again in about two minutes, to the height of 25 feet above the usual mark, overwhelming the whole place. Men, women, and children fled for the mountains, but many were overtaken and swept to the ocean, by the receding waves, which completed the entire destruction of the town, depriving hundreds of people of their second garments—many who were in good circumstances are now completely destitute. Furniture of all kinds was carried away with the houses; not even leaving a vestige to inform the owner of the situation of his former residence. It would require an eye witness to be made acquainted with the complete destruction of the town by this awful calamity.

Concepcion, a city containing about 25,000 inhabitants, is one complete heap of ruins; the houses being built chiefly of brick. There is not one solitary building left standing within the limits of the city, and for leagues round. The shock came from a southeast direction, and in its way destroyed every thing. A number of small towns have been heard from—Chilian, Salea, Armadum, Lingus, Enivas, Peusul, St. Carlos, Vallaya, and Armiyles, were destroyed.

The number of lives lost could not be correctly ascertained. A new cathedral building in Concepcion, buried twenty workmen in its ruins. There were but two American ships in the harbor of Talcahuana at the time, besides the Coral—the Milton and the Nile. A small schooner was driven from her anchoring and drifted over the town."

Chili has been subject to earthquakes ever since its settlement by the Spaniards. The city of Concepcion was originally built three leagues to the north of its present site, but having been twice destroyed by earthquakes, the inhabitants removed to the south and built the city on its present location. Concepcion is represented by those who have visited it as a delightful place—the inhabitants high minded, and honest in all the relations of life. A number of Americans, principally mechanics, have located themselves in the city. Talcahuana, situated in lat. 36 42 N., lon. 83 06 E., being the port of Concepcion, and a place of considerable business. It has been the general resort of American whale ships for several years past—the harbor being one of the best on the coast. The town is situated almost on a level with the sea, large hills rising in the rear. The inhabitants, when the Coral left, were in a most deplorable situation.—Captain Paul Delano, who is known to many of our citizens, and to every one who he visited Talcahuana, has lost his little property, and was compelled to take shelter on board the shipping—his beautiful residence, the home of our countrymen, whether in prosperity or adversity, is completely swept away, and himself and lady narrowly escaped with their lives. No individual, not holding an official station from our government, ever rendered more substantial benefit to his countrymen than Captain Delano. Many of the perplexing and useless revenue laws of the country have been repealed through his instrumentality. Mr. Andros, an honest and honorable gentleman, who has done the supplying agency-business of late years, for whale ships, lost all his property.—

The view from the shipping in the harbor during the different shocks, is represented by an eye witness as awfully grand and terrific. The unusual trembling and agitation of the ship—the convulsions and heavings of the mountains and plains, as far as the eye could extend—the sight at a distance of the inhabitants, fleeing, they knew not whither, the violent rushing of the waters over

the ruins of a thickly populated town, sweeping the wrecks of the demolished habitations of the rich and poor, into one common chaos of ruin, was calculated to impress deeply the mind of the beholder.

VOLCANOS.—Several weeks previous to the first shock of the late destructive earthquake at Concepcion, two large volcanoes burst out on the southern ridges of the range of mountains known by the name of the "Cordilleras," and at the last accounts continued to emit large volumes of smoke and lava to the terror of the inhabitants of the neighboring provinces.

We yesterday perused a letter from Captain Paul Delano, dated Talcahuana, giving the particulars of the destruction of that place. We find no facts of importance in addition to those published yesterday. The destruction of towns and villages extended sixty miles in the interior.—[New Bedford Mercury, of yesterday.]

Brig Panope, Doane, reports that the American Consul, Thos. WOOLDRIDGE, Esq. died suddenly at Matagorda, on the evening of the 24th April, of apoplexy. He had been on duty but a short time.

BALLOON ASCENSION.—Mr. Zebulon Mitchell happily effected his ascent yesterday, from the Old Council Chamber Hill, according to agreement.—The day was uncommonly fine for the experiment, and a very respectable number of citizens assembled to encourage and patronize the sciences, witness the interesting process of generating hydrogen gas, and obtain a knowledge of chemistry.—Mr. Mitchell had advertised to take his station in the car at 4 o'clock. Some ten or fifteen minutes after that time having elapsed, without exhibiting him to the non-paying customers outside of "the Amphitheatre," who cared nought for chemistry, and came merely to see the sight, they began to grow restive, and judging, perhaps, from the gaunt appearance of the balloon, that there was to be a failure they proceeded albeit, very peaceably, to pull down some twenty yards of the fence which obstructed their view. This disclosed the car already occupied by the Aeronaut, who to satisfy them that all was right, directed those who held the cables to proceed through the breach. Having floated in this manner to some distance along the verge of the hill, he cut loose and ascended, doffing his hat, waving his flag, and scattering his verses in the approved style on such occasions. The breeze carried him in an easterly direction—in which he was proceeding when we last saw him.—Every thing was favorable for an ascent to a great height, except that the aerostat was not sufficiently inflated.—[Rich. Whig.]

[From the Boston Courier of yesterday.]

MR. LAURIAT'S BALLOON went off yesterday afternoon,—but he did not go with it, wisely preferring, no doubt, to remain on terra firma among his fellow-mortals, to contending with the powers of the air. We are not able to state what was done in the amphitheatre, where there seemed to be an immense crowd; we only made one of thirty or forty thousand spectators who watched the progress of the balloon after it rose above the enclosure.—Judging from the appearance, it was not more than half inflated.

[From the Salem Gazette.]

Aerostation.—Balloon mad, as this generation is, the aerostats of the present day tax our credulity less than those of a past generation. In 1796, citizen Campernas, a French hydraulic Engineer, wrote a long letter to Napoleon Bonaparte, then General in Chief of the army of Italy, from which we extract a paragraph or two. By the letter of Campernas, it appears that his plan had been examined by a Committee of the National Institute, who testified their approbation in a long report, extracts from which accompany the letter:—

Citizen General.—

The artist who addresses you, filled with the most lively gratitude, will erect, if the means of execution be afforded him, a vast edifice, whence, at the conclusion of his labors there will issue an Aerial Vessel capable of carrying up with you more than 200 persons, and which may be directed to any point of the compass. I myself will be your pilot. You can thus, without any danger, hover above the fleets of enemies jealous of our happiness, and thunder against them like a new Jupiter, merely by throwing perpendicularly downwards firebrands made of a substance which will kindle only by the contact and percussion at the end of its tail, but which it will be impossible to extinguish.

Or perhaps you may think it more prudent to begin at once by forcing the British cabinet to capitulate, which you may easily do, as you will have it in your power to set fire to the city of London, or to any of the maritime towns of England. From the calculations I have made, I am convinced that with this machine you may go from Paris to London, and return back again to Paris in twenty-four hours, without descending.

The object I propose is to establish in the great ocean of the atmosphere a general navigation, infinitely more certain and more advantageous than maritime navigation, which has ever disturbed the tranquillity of mankind—to restore the perfect liberty of commerce, and to give peace and happiness to all the nations of the universe, and unite them as one family. By great labor I have surmounted the multiplied obstacles which presented themselves before me; and my progressive discoveries are developed in a work which I have prepared, consisting of about 400 pages, and divided into five parts.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms. Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2.

MECHANICS' MAGAZINE, AND REGISTER OF INVENTIONS AND IMPROVEMENTS.

This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is stereotyped from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

All letters must be postage paid. Eleven numbers sent to one address for \$5.—and TWENTY-THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo. 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Vols. 6 and 7, or 1 and 2, new series, \$3 per volume.

QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$1 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher, D. K. MINOR,

35 Wall street, New-York.

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thorough printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

PUBLIC NOTICE.

THE undersigned, Commissioners for the amelioration of the navigation of the Richelieu or Chambly River, will receive at their office, in the borough of St. Denis, on the 15th of June next, sealed propositions for the construction or erection of a Dam or *Chaussee*, with a Lock; to be erected about three miles above the village of St. Ours, either in Cut Stones, Common Stones, *Pierres Brutes*, or in Wood, according to the plans and specifications made by W. R. Hopkins, Esq., Engineer, deposited, and where they can be seen at any time, in the hands of Joseph Cartier, Esq., one of the said Commissioners, at St. Antoine.

All propositions addressed by the mail must be sent free of postage. Two good securities will be required for the due execution of the aforesaid works.

Further information can be had at any time, from the undersigned, in addressing them at their respective residences, or from the said W. R. Hopkins, Esq., at Baker's Hotel, at the Chambly Basin.

ROCH DE ST. OURS, at St. Ours.

JOSEPH CARTIER, at St. Antoine.

JOS. T. DROLET, at St. Marc.

LS. C. DUVERT, at St. Charles.

L. F. DESCHAMBAULT, at St. Denis.

Office of the Commissioners, } 20-4
St. Denis, May 11, 1835.
The above Dam and Lock are in dimensions as follows: Lock 260 feet, Chamber 50 feet wide; Dam 675 feet long, 8 feet high.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order wheels, chairs and knees, and every other description of castings required for railroads. R-ly Feb 14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J-ly 17

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nails are hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh. August 15, 1835. A29 ME & R 17

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersunk heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are furnished with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. L. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. J-ly 20

H. BURDEN.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J. S. ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMASTOWN, at the Factory, Troy, N. Y. Sept. 13-17

RAILWAY IRON.

95 tons of 1 inch by 1 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
800 do. 2 do. do.	of 45 degrees, with spli-
800 do. 2 1/2 do. do.	cing plates and nails to
	soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 32, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, and 4 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Local Governments, and the Drawback taken in full payment.

A. & G. ALSTON, 9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71 meow

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG.

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to the inquiries respecting the instruments manufactured by me, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish the following information. The whole number of Levels now in possession of the department of construction of the road is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graving Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that the patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer absolutely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germanstown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

mi 17

German, and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JUNE 13, 1835.

[VOLUME IV.—No. 23.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JUNE 13, 1835.

RAILROAD LOCKS.—We publish to-day another communication from "M," upon this novel, and yet very important, subject. It does not yet seem to arrest the attention of engineers. They will not, we hope, let it pass without a word of comment.

NEW MOTIVE POWER FOR RAILROADS, is the title of an article published in this number of the Journal, from the Richmond (Va.) Compiler. It is a suggestion well worthy of attention, which it will doubtless receive in these days of experiments.

BLOSSBURG AND PAINTED POST RAILROAD.—In our columns to-day will be found the notice from the Commissioners, for opening the books for subscription to the Stock of the above Railroad. With its characteristic liberality, the Pennsylvania Legislature has guaranteed a dividend of 5 per cent. for 20 years, on the Stock of this work; and from the information contained in the report of the Engineer, Richard C. Taylor, Esq., we have not a doubt that the dividend will be much greater, as the vicinity of Blossburg abounds with an inexhaustible supply of bituminous coal, equal to the best Liverpool, and the route for the road is uncommonly feasible, running the entire distance upon the banks of the Tioga or Chemung river. Considering the unbounded market for this coal, and the outlet for an immense quantity of lumber, we think the Legislature of Pennsylvania could very safely say that the Stockholders should receive 5 per cent. interest.

NEW JERSEY RAILROAD AND TRANSPORTATION COMPANY.—The following gentlemen have been unanimously elected Directors of the New Jersey Railroad and Transportation Company for the ensuing year:

John S. Darcy, Ashbel W. Corey,
William W. Woolsey, George P. Molleson,
Thomas Saltes, George L. Schuyler,
Elihu Townsend, John P. Jackson.

At a subsequent meeting of the Board, the following appointments were unanimously made:

Gen. John S. Darcy, President.
Elihu Townsend, Treasurer.
John P. Jackson, Secretary.

William Pennington, Attorney and Counselor.
A. W. Corey, Esq. having declined the situation of Superintendent, in consequence of ill health, George L. Schuyler, Esq., was unanimously appointed to succeed Mr. Corey as Superintendent.—[Newark Daily Adv.]

CHESAPEAKE & OHIO CANAL COMPANY.—We have received the seventh annual report of the Directors of this Company, which was made to the Stockholders by the President, George C. Washington, on Monday last. It is a well written paper, and presents the affairs of the company clearly and succinctly.

We gather from it that a continuous canal is now opened for navigation 110 miles from the basin, in Washington, to 8 miles above Williamsport.

The entire cost of the canal, including all expenses, is estimated at \$4,200,590.

The canal from Georgetown to Little Falls is 80 feet wide at the water line, and 7 feet deep; and to Harper's Ferry averages full 60 feet in width and 6 in depth; from that point to eight miles above Williamsport it is reduced to fifty in width and 6 in depth, and will retain the same proportions to Cumberland.

There are no obstructions on the canal to prevent the free passage of steamboats; the only permanent bridges being at an elevation of 17 feet above the water line.

There are 59 locks; and the elevation of the canal so far as completed is 353 feet.

There are 5 aqueducts, all constructed of solid masonry; and 136 culverts.

The canal is fed by five dams. They are constructed on the most approved plans, of the best materials, and give promise of great strength and durability.

Engineers are now locating the line of the canal to Cumberland.

Experiments are now being made to test the practicability of navigating the canal with steamboats. As yet nothing definite has been ascertained, but the Directors do not despair of ultimate success.

The revenue of the canal is improving, and its early completion to Cumberland, and consequent advantages to the stockholders and the state, will be looked forward to with momentous interest.—[Balt. Chronicle.]

The following statement, relative to the South-Carolina Canal and Railroad Company, has been furnished us, which we cheerfully lay before our readers.

At a meeting of the Stockholders of the South-Carolina Canal and Railroad Company held at their office, 7th of April, 1835—John Ravenel, President, in the chair—

The following Report from the Committee on Accounts was read:

Agreeably with a resolution of the Board passed on 20th March last, requesting the Committee on Accounts to report upon the debts and liabilities of the Company, and to suggest such means as they may deem proper to meet the same, and other necessary expenditures on road and machinery, the following is submitted to your consideration:

By the accompanying statement of the affairs of the Company made up to the 1st instant, the debts (exclusive of the Loan of \$100,000 from the State and interest due thereon to 3d March, 1835), amount to \$216,533 67.

It is also liable for the following work under contract and now progressing, to wit:

For 6 locomotives under construction in Liverpool, by R. Stephenson & Son, delivered on the road, - - -	31,800 00
Do. 2 do. do. by Eason & Dotterer, Charleston, - - -	11,500 00
Do. 8 tenders do. at the depositary (a portion of materials being already provided), - - -	1,600 00
Do. 150 burthen cars do. do. - - -	31,000 00
Do. duplicates ordered from England, - - -	1,940 00
Do. blacksmith shop, house for engines and cars, and additional tracks, at Hamburg, - - -	2,000 00
Do. buildings at Aiken for engines, - - -	900 00
Do. turnout to be constructed, - - -	1,000 00
Do. fences, and alterations to depositories, - - -	500 00

Making a total of - - - \$298,773 67
The contractors of the greater part of the above enumerated machinery being bound to deliver, under penalty, your Committee believe that on the 15th October next the available power and means for business will be as follows, to wit: 22 locomotives, 400 burthen cars, 21 passage do., 7 baggage

do. This provision is estimated as equal to three freight trains of 12 to 14 cars each, and one passenger train, daily, from each end of the line, leaving 5 reserve engines; and will enable the Company to transport, annually, 149,000 bales of cotton down at \$1 per bale, and 28,440 tons of freight up at \$10 per ton; which would amount to \$533,440—passage and mail money not included.

But as the capacity (as above calculated) will probably exceed the business offering, the following is submitted as an estimate, below which we will not fall for the year to commence the 15th of October next, to wit:

60,000 bales of Cotton, at 75 cts.	
per bale, - - - - -	\$45,000 00
12,000 tons of freight up, at \$10	
per ton, - - - - -	120,000 00
Passage money, - - - - -	100,000 00
Mail money, - - - - -	10,000 00

Making the probable total receipts, - - - - -	\$275,000 00
From which deduct the following expenses:	
For current expenses upon the business of the road, - \$130,000 00	=
Do. embankment, 15,000 00	
Do. new machinery, 30,000 00	
	175,000 00

Leaving a balance of net profits, - - - - - \$100,000 00 if the debts were paid. In confirmation of the above estimate, we beg to bring to your view, that for the year which ended on the 1st instant, the receipts were \$183,974 07—the work having been done by an average force not exceeding 7 locomotives and 125 burthen cars, under numerous disadvantages. Notwithstanding our liability to be misled and the frequent disappointments attendant upon calculations of this kind, in the view of your Committee, an equipment so full in machinery and other means as will be ready by the 15th October, and the daily improvement of the road by the progress of the work of embankment, authorize the belief that we shall then be prepared for every probable exigency. And that the capacity, usefulness, and value of the road, are about to be fully and permanently established. With such prospects, it is deemed the true interest of the Stockholders to pay the debts of the Company—to relieve it of the numerous disadvantages of daily financial arrangements—and, without delay, to place it in a situation which will command public confidence, and give to the stock its true value. To do this, two modes have been suggested. The first is the consolidation of the debts by the issue of bonds, redeemable at eight, nine, and ten years, and bearing interest at the rate of 6 per cent. per annum, payable quarterly.

The second is, the increase of the capital stock by the sale of 3000 shares at \$100 per share, on the following terms, to wit: \$10 payable at time of subscription, 10 do. on the 20th July, 10 do. on the 20th October, and 10 do. monthly afterwards, until the whole be paid. The said shares to be entitled to any dividend that shall be made after July next: provided they shall have been paid up in full on or before the 20th of October—the Stockholders, when the books shall be opened, to have the preference for two days only. If more stock be then subscribed than three thousand shares, the whole shall be divided among the subscribing Stockholders, *pro rata*, as to the number previously held by each.

To the first, or the issue of bonds, it is objected, That it will not improve our situation, inasmuch as we shall still be in debt, and under all the disadvantages of being so: for companies, like individuals, are mistrusted or confided in, as they are under-stood to be indebted or otherwise. Nor would it be fair to argue from the comparatively few instances of those who have found advantage in being in debt, as they are exceptions to the general rule. If the public mind could always know the real situation of a company, its means and prospects, as well as its debts, the stock would not be liable to undue depression, and the interests of the Stockholders would not suffer; but the fact is generally otherwise, and with the idea of debt is associated the disadvantages that commonly attend it. In the case under consideration, the debts of the Company are believed to work direct injury to the Stockholders by affecting public confidence and consequently the value of the stock.

2nd. That the interest to be paid will then be taken as it now is, from the receipts of the road, and of course will continue to diminish, as it now does, the dividends. While Stockholders would be paying a higher rate of interest on the bonds, than many of them receive from their capital otherwise invested, not only transferring the advantages of a good investment to those who may lend upon said bonds, but permitting their property to remain under the depression believed now to result from its being encumbered with debt.

3rd. The improbability of obtaining here, or elsewhere, the amount necessary to accomplish our purpose at the proposed rate of interest.

The second proposition, viz. the increase of the capital stock, appears in all respects advisable. If our estimate of receipts be fair, and we believe it fully to be so, they will be equal to 8½ per cent. annually on \$1,200,000, or 12,000 shares.

The present number of shares is 9,000. Your Committee, therefore, recommend the sale of 3,000 shares of additional stock, which will produce \$300,000, and pay the existing debt and contracts of the Company, as previously stated, except that to the State of \$100,000, which not being due until the 7th April, 1857, and being at the rate of 5 per cent. per annum, it is deemed inexpedient to include in the proposed provision.

JOHN RAVENEL,	} Committee on Accounts.
JOHN HARTLEY,	
GEORGE GIBSON,	
WILLIAM DAVIDSON,	

On motion of Mr. John Robinson, seconded by Mr. D. Perkins, Resolved, That the Report with its recommendations be adopted; and that the Board take measures to carry the same into effect.

Extract from the minutes.

JOHN T. ROBERTSON, Secretary.

At a meeting of the Direction of the South-Carolina Canal and Railroad Company held on 7th April, 1856.

Resolved, That the books be opened for Three Thousand Shares of additional stock to the Stockholders only on the 27th and 28th of April, and should they not take up the whole on those days, then the books to be opened to the public on the 29th instant, for subscriptions on the terms prescribed in the recommendations of the Report adopted by the Stockholders.

Extract from the minutes.

JOHN T. ROBERTSON, Secretary.

The \$300,000 dollars, we are informed, have been subscribed. The old stock is

current at 109, and the new scrip at 106½: showing, conclusively, that those who have borne the heat and burthen of the undertaking, and who are, it is to be presumed, familiar with its condition and prospects, have full confidence in the success of the road.

(For the American Railroad Journal.)

Remarks on the Substitution of Locks for Inclined Planes.

In my last communication on this subject, I stated that the extra cost of constructing the locks in question was more than counterbalanced by advantages not yet enumerated. One of these is found in the circumstance, that the locomotive moves continually with the train throughout the whole route. Where inclined planes are employed, the danger and difficulty of passing the engine over them are so great, that the attempt is rarely, if ever, made. The consequence is, that at each plane the locomotive, which propels a train of cars, must be exchanged for another previously heated, so that a much greater number must be kept in immediate preparation for use than though this necessity for change did not exist.

But the principal advantage to which I alluded as overbalancing the extra expense of constructing the locks in question, is the diminution of the expense of grading, which would result from their adoption. The annual expenditure of a stationary engine being so very great, and that expenditure being nearly the same, however inconsiderable the height to be ascended, it becomes a matter of great moment that the whole elevation should be made at one point so as to require but one stationary engine. But Nature, in moulding the earth, evidently did not fashion its surface with a view to the most economical and convenient construction of inclined planes. The ascent from low to high grounds is frequently extended, either gradually or by successive partial elevations, through a distance of miles. Under these circumstances, by means of deep excavations and high embankments, the ascent is concentrated into a short space, and is then overcome at once by means of an inclined plane and stationary power. This occasions an immense cost, the greater part of which might have been avoided by the use of locks. In this case there would have been no necessity of making the whole ascent at once. It is wholly immaterial whether the locks necessary for this purpose are placed contiguous, or at the distance of miles from each other. We can, therefore, accommodate our work much more nearly to the natural surface of the ground, and thus each lock will probably save more than sufficient to defray the expense of its construction.

The recommendations of the locks in question, therefore, are: first, economy in the construction of the road by diminishing the expense of grading; secondly, economy in the operation of the road, by dispensing with stationary engines, by enabling the same locomotive to continue on

through the entire route, and also to move a greater load, since the facilities of rising perpendicularly are rendered so great that it will be practicable to lay the rails more nearly horizontal than at present. These advantages would all be felt, though no difference were made in the direction of the route in consequence of the adoption of this system, and would abundantly recommend its introduction. But these are not all. The dread of engineers for every slight elevation being overcome by dispensing with the necessity of inclined planes, it will be readily perceived that the route of a railroad may be made much more direct than at present, and thus not only the expense of constructing many miles of road, but the cost and time of transportation over it, be curtailed; and, finally, the danger to which life and property are exposed in passing over inclined planes will be almost entirely annihilated.

The only objection of any validity which I have heard urged against the locks in question is, that they have never been tried. That caution, which serves as a barrier to the introduction of visionary schemes and unsubstantial novelties, is a most useful quality; but in the present case we seek to introduce nothing new, but only the application of known powers and principles in a new method and for a new purpose. The properties of the screw and the powers of a steam engine are both well tested and understood. If, by means of the former, a few men are able to raise the largest ships, can any one doubt that the same power, properly applied, would raise a few railroad cars of one half the weight? And if human strength can effect this, will there be any scepticism as to the efficacy of a steam engine in producing the same result? There is no room for doubt; there is no possibility of a failure. But to make assurance doubly sure, let us enter into a brief mathematical estimate. The proprietor of the screw-dock in this city has informed me, that fifty men are sufficient to man all the screws at once, and that they will easily elevate a ship weighing two hundred tons a height of two feet in the space of thirty minutes. Now, the engines employed on the Liverpool and Manchester railway are of 80 horse power. What ours are in general, I know not, but let us suppose them to be of 20 horse power. One horse is generally reckoned equivalent to six men. Suppose we say five, and the power of our engine will then be equivalent to that of 100 men; but when our engine is said to be of 20 horse power, the velocity of that power is supposed to be 20 miles per hour—call it fifteen—the velocity of human power does not exceed 2 miles per hour. The effect of a given power is proportional to its velocity, so that the power of 100 men, provided it moves at the rate of 15 miles per hour, is the same as that of 750 men moving only two miles per hour. The effective power of our steam engine is, therefore, 15 times as great as that employed in raising ships on the screw-dock. But the weight we shall wish to elevate will never exceed 100 tons, or one half

the weight of a large ship. The proportion between our power and weight is, therefore, 30 times as great as in the case of the screw-dock. If, therefore, in the latter case, they can raise their weight 10 feet in 30 minutes, we shall be able to raise ours the same height in 1 minute, or 30 feet in 3 minutes. M.

[From the Richmond Compiler.]

NEW MOVING POWER.—The article below from Mr. James Herron, civil engineer, upon the subject of a new propelling power upon railroads, is one which deserves, and will unquestionably receive, the calm and dispassionate consideration, not only of scientific men, but of all who feel an interest in the advancement of science. The friends of Internal Improvement should give it their most patient attention. Its novelty may startle them, but what great suggestion in any age did not at first excite doubt of its feasibility? Witness the fate of Fulton and Oliver Evans. They were deemed insane and visionary in their day, but they are now ranked amongst the wisest men of our country, and the sigh of regret often escapes at the ingratitude and dullness of their countrymen.

Mr. Herron may expect to combat with incredulity, ignorance, and personal rivalry; but still he will find intelligent men disposed to consider with an impartial disposition the merits of his scheme. We pretend to but little science, but we confess we are struck with the feasibility of his plan. We think it deserves examination, and we are glad to find that an engineer, high in the estimation of the public, not only gives Mr. Herron's views a fair and liberal consideration, but seems disposed to concur in the principles upon which they are based.

In this era of improvement, every man who can make even the slightest addition to the cause of science, should be encouraged to the fullest exertion of his faculties for the public weal.

Hydrodynamic Railway, or the Application of the Power of Rivers to the Rapid and Cheap Transportation of Produce and Merchandise.

It has long been with me a matter of doubt, whether the water used in the lockage of canals was not in many cases an injudicious application of a valuable power, as in the case of a canal located along the valley of a great river having considerable fall in its bed, like that of the river James, which has 1222 feet fall from Covington to tide water, or about 4.74 feet per mile, rendering at least one lock necessary for every two miles in the average.

On investigating the subject, I find that the water power of the river is of itself equal to the transportation of a greater quantity of tonnage than can be passed through the largest canal, and this too with the astonishing rapidity peculiar to railroads.

I will therefore lay before you, in as succinct a manner as possible, this new though simple deduction of science.

The locks of the Chesapeake and Ohio Canal are 100 feet long, 15 wide, and, say we take one of the most approved lift, 8 feet, the "prism of lift" will then contain 12,000 cubic feet of water, which will weigh 750,000 pounds. Every time the lock is emptied, this quantity is transferred from a superior to an inferior level. If the valves are opened simultaneously, I am informed that the lock can be filled and

emptied in little more than two minutes; but say that it takes three. Now, this water is power, and if it were applied to a properly constructed "breast wheel," or where the fall of water is greater, to a "pitchback," we should have four-fifths of it available to set any machinery we think proper in motion. Let it be applied to an endless chain or rope, passing over suitable rollers along the line of a railway, after the manner of the stationary system of steam engines, we shall have a water power railway, entirely free from the objections that can fairly be urged to the stationary steam engines, of the necessity of keeping up the fire and steam, &c.

When the stations are two and a half miles apart, one twentieth of the power, according to Tredgold, will be expended in moving the chains; but I will allow a tenth of the power to effect this object on two mile stations, the chain being worked but for one mile.

We have then the four-fifths of 750,000 pounds, (the one-fifth being lost in the application to the water wheels) equal, 600,000 pounds, which, falling 8 feet in three minutes, is equal to 1816 pounds moved half a mile in the same time; which is at the rate of 10 miles an hour. Deducting from this the one-tenth, as that part lost in moving the chain, leaves 1637 pounds. And as 10 pounds are equal to the transportation of a ton, with the commonest railway wagons, it follows that the above power is equal to the transportation of 163.7 tons over half a mile of the road, while a boat would be passing through the lock of the canal; or it will transport 81.8 tons over a mile of the road in the same time, which is at the rate of twenty miles an hour!

But the maximum rate of transportation on canals is 2½ miles an hour, and as the mass moved is inversely to the velocity, we shall at this rate be able to transport 654 tons.

The water used would be at the rate of 66.6 feet per second. James river, even at Covington, in a dry season, yielded nearly three times this quantity, as appears from the Report* of Mr. Crozet, who measured Jackson's river and Dunlop's creek in August and September, 1826. The mean of the results obtained by this engineer is 177.6 cubic feet per second, or 10,656 feet per minute; and we have this quantity with 7.81 feet fall per mile, the average down to Pattonsburg; before reaching which, however, the volume of water is more than doubled; and as we descend the river, although we have less fall per mile, we have at least six times the quantity of water to compensate for it; and the fall is still about 3½ feet per mile.

The heavier trade being descending, will add to the effect of this power; but disregarding this favorable circumstance, omitting the decimals in the fall per mile, and taking the minimum quantity, we have 10,656 cubic feet of water, equal in weight to 666,000 pounds, which, if permitted, will of course fall the 7 feet in a minute, and is therefore equal to 4,662,000 pounds falling one foot. Deducting one-fifth for loss in application, leaves 3,729,600 pounds. Now the load we can transport will depend on the velocity at which we would travel—say that it shall be 10 miles an hour, which is 880 feet per minute.

Dividing 3,729,600 by 880, the quotient is 4,238 pounds, moving with the velocity of 10 miles an hour!

From 4,238 deduct the one-tenth part, for

* 5 Vol. Board of Public Works, page 108.

that lost on mile stations, in moving the chain, or rope; and dividing the remainder by 10 for the friction per ton of the carriages, and we have 381.5 tons transported at the rapid rate of 10 miles an hour!

And as each and every mile furnishes its own moving power, it follows that it is equivalent to keeping this quantity in motion on each mile throughout the line at the same time. And as the distance from Richmond to Covington is 257½ miles, this may amount to the enormous quantity of 98,236 tons; or to the transit and delivery of 3,815 tons hourly!

Having thus demonstrated the amplitude of this moving power, to an extent probably far beyond any demand we shall be able to make on it—which will be better understood by the general reader from the fact, that but 17 hours would be equal to the transportation of a greater quantity of tonnage than passed over the whole Baltimore and Ohio Railroad in a year, ending 30th September, 1833—it now remains to show that it can be employed at a reasonable expense.

The expense of erecting works for hydrodynamic transportation will depend on their scale, or magnitude, and on the greater or less permanent character of the materials used in their construction; also, on the extent to which we would employ the motive power. With regard to the latter, however, it should be observed, that we obtain it so cheaply, and in such excess, as to obviate, to a great extent, the necessity of expensive grading. This adaption of fixed power to an undulating surface, of any degree of slope, renders it peculiarly applicable to mountain localities, as by its means we can cross the bends of the river, thus shortening the distance, while a canal, or even an ordinary railroad for locomotives, should be conducted round them.

Another important advantage derived from the employment of this cheap power, is that we can substitute, for the iron rail, a broad granite tramway, similar to that extending from London to the West India Docks; which, although it will cost more per mile in the first instance, yet it will have great permanency to compensate for this. But the most important advantage to be derived from the granite tramway, is, that any man may bring his own farm-wagon, and, leaving his horses behind him, be drawn to market at a rate of 10 or 20 miles an hour, which would be in less time than would be spent in passing the locks of a canal: thus freeing the work entirely from the odious charge of monopoly brought against railroads.

To form an estimate of the cost, it will be necessary to suppose the works adapted to some definite amount of trade. Say that it shall be to the delivery of 100 tons per hour, or to the transportation of 50 tons at a time, at the rate of 10 miles an hour.

For this purpose I will suppose it necessary to erect a dam at every four miles; and that they may be built in the most substantial manner of stone masonry, I will estimate them at \$10,000 each; the average width of the river up to the Blue Ridge is 699 feet; above the Ridge, it will only be 275 feet. For water wheels of the best and most durable construction, say \$3000.

Thus we have 13,000, which, divided by 4 miles, gives \$3250 per mile, as the cost of the moving power.

Estimate of the expense.
Motive power, or proportional cost of
dams per mile, - - - \$3,250
Ropes, a double line per mile, - 1,800
Rope rollers, put up, - - - 850

*A broad granite, or marble tramway, double track, - - - 8,000
Grading and bridging per mile, say 2,000
\$15,900
Add 10 per ct. for superintendence, 1,590
\$17,490

High and unfavorable as the above estimate is, yet the whole cost of the moving power, including dams, water wheels, ropes, and rollers, will be much less per mile than such locks as those of the Chesapeake and Ohio Canal, which cost, as I am credibly informed, \$1500 the foot lift.

I have estimated for ropes, as they are in more general use than chains; and the above will be the cost of the newly invented rope, saturated with India rubber, expressly for this purpose; which is said to increase its strength as well as its durability.

When the stations or water wheels are placed 4 miles apart, each wheel would have to work 2 miles of the road at a time; but did the trade require it, double, or probably treble the foregoing tonnage could be delivered by erecting an additional water wheel at each station.

The following is the estimate of the amount of power to work the 4 mile stations, which those conversant with the subject will perceive to be very ample.

Friction and resistance of two miles of rope, - - - 600 lbs.
Ordinary friction of 50 tons of carriages and goods, 10 lbs. - 500 do.
Allowance for occasional gravity, at 20 lbs. per ton, - - 1000 do.

Power allowed at the rate of ten miles an hour, - - - 2100
2100 pounds moved 880 feet in a minute, is equal to 1,848,000 pounds moved 1 foot; which is equal to 154,000 pounds falling 12 feet in the same time, which is, also, equal in weight to 2464 cubic feet of water. To which add one-fourth, for loss in application, and we have 3090 feet per minute, or rather more than 51 feet per second.

For the sake of conveying an idea of the probable cost on a large scale, I have supposed isolated dams to be used at regular distances, but the engineer will of course adapt his works to suit particular localities, sometimes preferring a continuous canal, substituting water-wheels in place of locks, and thus discharging the water, as it is used, into the next consecutive reach below. Or where great length of level occurs, the wheels may be made to discharge their water into the river, to be again taken out of the next dam.

On canals already constructed, where they have considerable lockage, and plenty of water, it is obvious that the trackage may be effected by the foregoing means; that is, by erecting a water-wheel along side of a lock, and extending a chain down the margin of the canal on the one side, which would be returned up the other.

And as they no longer need the tow-path, they may lay a light rail track, on which passenger cars may be drawn by the same power at any required velocity.

But in many cases, where they have not a superfluity of water, they had better substitute water wheels for their lock gates, widen their tow-path, and lay down a railway.

In conclusion, I invite investigation by

* Wood and iron rail tracks, like those on the Petersburg Railroad, could be laid in a double track for 6000 dollars a mile. They would last much longer than when locomotives are used.

men of science, as it is certainly a subject of great importance to the country, now so extensively engaged in works of internal improvement.

JAS. HERRON,
Civil Engineer.

Richmond, Va., May 26, 1835.

AMERICAN PATENTS.—For an improvement in *Axles and Boxes for Railroad Cars*; Dexter C. Force, and Frederick Davis, city of Baltimore, November 6. The axle is to be turned and made true in the usual way, and upon it is to be placed a metal ferule, or tube, fitting it exactly. The wear from running is to be between the ferule and the box contained in the hub of the wheel, so that no wear whatever shall take place on the axle itself. The material of which the ferule, or tube, is to be made, is not particularized, but it is said that it may be "either of composition, or of iron made case-hardened." There is no claim, but it is sufficiently plain that the patent is taken for the using of the ferule, or tube, between the axle and the box.

For *Thorough Braces for Carriages and Railroad Cars*; Frederick Davis, city of Baltimore, Maryland, November 6. These thorough braces are to be made of wood or of iron, although the latter appears to be preferred; it is to be of the kind called band iron. The brace is to extend along under the lower side timbers of the carriage, like those of leather, and is to have one or two hinge joints near its middle, where the body is to be attached to it. To strain, or take up the brace, there may be shackles at the ends, where it is attached to the jacks, furnished with a tightening screw and nut. Sometimes the brace is made double at each end, a piece, forming a strap, being attached to each jack; these pieces, and the ends of the braces, have rows of holes, through which bolts may pass, and by sliding these upon each other, the bolts may be passed through different holes, and the length of the brace be thereby regulated. "The improvements to which I lay claim as original, are the forming the entire brace of iron, other metal, or wood, in the peculiar manner I have described, so jointed and attached to the body as that it may be free to act on it without obstruction, when jolted or put in motion by the roughness of the road; and also the application of it to all descriptions of carriages or railroad cars, where thorough braces are required; also the application of the screw and the fixtures described to carriages where body loops are used, so as to raise and lower a body at pleasure, and to give a pleasant motion to the vehicle, without the use of the leather braces heretofore employed."

[From the Baltimore American.]

The Maryland State Loan of two millions, to bear an interest of six per cent. and to be irredeemable for thirty-five years, has been taken by Messrs. J. I. Cohen, Jr. and Brothers, of this city. The money is to be applied to the completion of the Chesapeake and Ohio Canal to Cumberland.

A Loan of a million of dollars, to bear the same interest and to run for the same period, is also required by the State for the completion of the Susquehanna Railroad to York. Offers will be received by the Treasurer at Annapolis until July 15.

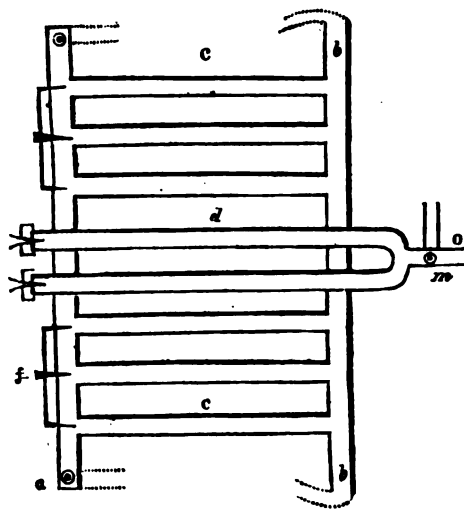
On the subject of the two millions Loan, we find the following paragraph in the Annapolis Republican of Saturday.

The Maryland State Loan, of two millions of dollars, for which we have had some of the large dealers in stock in competition, such as Messrs. Biddle, Chauncey, Moss, Cohens, &c. was finally taken yesterday by the Messrs. Cohens, of Baltimore, at a small advance upon the limit.—The terms will depend upon whether Bonds or Certificates be issued, which the Treasurer reserves the right to decide.

[From the London Mechanics' Magazine.]

Improvement in the Fire Bars of Locomotive Engines.

SIR,—The Rev. Dr. Lardner, in his evidence given before the Select Committee, says, "that he has witnessed a new set of grate bars melted in a single trip between Manchester and Liverpool." From this I conclude that the fire bars of locomotive engines are generally red hot; and supposing this conclusion to be correct, it strikes me that the red hot bars may be rendered of use to the engine—first, by increasing the energy of the fire, should the steam flag on the ascent of long hills, or in going over heavy roads; and, second, by producing a brilliant light, when locomotives undertake night journeys. Both these objects I propose to effect, by using hollow fire bars, and making them serve as so many small oil-gas retorts; or at other times permitting the air to pass through them to the furnace.



Suppose the front bar *a*, and back bar of the grate *b*, hollow, and of larger dimensions than the hollow fire bars *c c c*, all which open into them, except the two centre bars *d d*, which pass through both. In the front bar *a*, just opposite each fire bar, are entered jet points *f*, connected with a small forcing pump, with which the attendant may alternately inject oil into the bars on the right and left of the centre; which oil being converted into gas will pass into the bar *b*, from each end of which a pipe should pass upwards to the side or front of the furnace, as the form of the boiler may render most advisable. Previously to injecting the oil, the valves *e*, in the bar *a*, should be screwed down to prevent the air from entering. A pipe from each end of *a* should be carried down, and then to the forepart of the carriage, and end in a funnel.

To supply the gas for lighting the carriage, let the two centre bars, after passing through the back bar *b*, be united. There may be placed at *m* a three-way cock, to allow the passage of the air through the pipes by day, when the jet caps are unscrewed; and a communication may be opened by the pipe *o*, (which should pass through the cold water supply tank,) with the gas holder, during the night, the oil to be injected into the bars, *d d*, alternately by the engine.

I remain, sir, yours respectfully,

J. R. WHITE.

Wells, Somerset, Feb. 24, 1835.

P. S.—Has not Colonel Macerone given us a pretty good hint of the manner in which Dr. Church effects his condensation? There must certainly be some strong resemblance

between Mr. Hall's mode and Dr. Church's. Since speaking of one leads to mentioning the other, why not place Hall's fascine of condensing tube horizontally, and supply the place of water with an air draught or blast to the furnace, thus warming the air and condensing the steam? J. R. W.

RAILROAD.—We understand that the locomotive engine performed the journey yesterday from Boston to Lowell in one hour and seventeen minutes. The engine used on this occasion is an imported one, of large size, intended for the baggage train, and not for the passenger cars. There are some half dozen engines now building at the machine shop, (some nearly done,) which are intended to do the thing in less than one hour each way.

The completion of this magnificent improvement, (which, for solidity and permanence of construction, is not surpassed,) is a matter of universal congratulation. The future progress and prosperity of this town are placed as far out of the reach of all evil contingencies as any thing merely human can be. We can now fairly claim the advantageous distinction, that no inland town in the United States, (not a port of entry like Cincinnati or Albany,) is in possession of so many local advantages, or so many of the materials and means of expansive growth, and progressive advancement in business, wealth, and population, as the town of Lowell.—[Lowell Courier.]

QUOSQUE TANDEM?—To what lengths shall we go, where shall we stop—not in conspiracies, but in steamboat improvements? Heretofore the North River boats, which perform the distance of 150 miles, between this city and Albany, in from eleven to twelve hours, have been considered paragons. A new competitor however, the *Lexington*, is afloat which does some two hundred and ten miles in twelve hours! We take the annexed account of this boat, and her wonderful performance, from the Journal of Commerce.

The *Lexington* made her passage to Providence in twelve hours and twenty-eight minutes, after deducting eight minutes for stops, and her passage back from Providence to opposite the Dry Dock, in this city, was performed within twelve hours. For a part of the way her speed was twenty miles an hour. The distance from New York to Providence is called two hundred and ten miles. The construction of the *Lexington* is in several respects novel, and as she acquires her superiority from these novelties, they will be interesting to all persons engaged in the building of vessels. She is 208 feet long, has 22 feet beam, and 11 1/2 feet hold. She is timbered in a manner to give the greatest degree of strength, and is put together with the utmost accuracy and niceness of workmanship. But that which enables her to endure, on so long a line, the immense pressure which bears upon the stem and stern while she is forced through the water at so rapid a rate, is that the deck is an arch, thus bringing the pressure against the ends of the timbers and planks, instead of against their sides. The stroke of the piston is 11 feet, the diameter of the water wheels 24 feet, and the revolutions 21 to 23 a minute. The boiler and the weight of machinery, as far as possible, is placed in the hold. Some of the passengers breakfasted in Boston yesterday morning. The *Lexington* was built by Bishop & Simonsen under the direction of Capt. Cornelius Vanderbilt, her owner. Her construction exhibits great knowledge of mechanical principles, and a peculiarly bold and independent genius. We ought to add, that notwithstanding her great speed, there are no wood-piles necessary on deck, and the expense of fuel is not more than half so great as in an ordinary boat. The speed with which she came down from Providence would carry her to New Orleans in four days.

[FOR THE NEW YORK AMERICAN.]

A HINT TO CAPTAINS AND ENGINEERS OF STEAM BOATS.—Water will boil away very fast at a sudden change of the weather, and more so just before a rain. This circumstance may be one of the causes of the Steamboat boiler bursting so frequently. If water boils away fast, steam must be generated fast,—the boiler also will lose water faster than the pump is able to supply it, and the decreasing quantity of water in it, being acted upon by the usual heat, may produce steam too fast for the strength of the boiler at such particular periods.

The fact that water, before rain, boils away much faster than usual, almost every cook and housewife knows perfectly well, and as it does so in a tea-kettle, it must do the same in a steam boiler, and consequently will produce at such times, effects not before calculated upon.

The thermometer rises and falls frequently, twenty or more degrees during a few moments; at such a time it is probable that steam is made faster than usual, and precaution should be used. In England where the changes of the weather are neither so great nor sudden, the bursting of the boiler is a rare occurrence. R.

NEW AND VALUABLE DISCOVERY.—An extensive Marble Quarry has just been discovered in this town, which, from present appearances, bids fair to rival the richest Quarries of Italy. Two specimens have been shown us, the one in a rough state, the other having undergone the operations of the chisel. Though unable to declare its peculiar species, yet in the fineness of its grain, and the brilliancy and regularity of its variegated colors, it far exceeds the celebrated Italian black and gold marble. The piece now before us combines the various colors of green, black, purple, flesh-color, exhibited in various shades, and the whole interspersed with a fair white, running in different directions, like the traces of a water course on an elegantly executed painting. A specimen is now in the hands of a gentleman of this place who has worked many years in the marble business; he has tried it, and pronounces it far superior to any European marble he ever worked.—[North River Times, Haverstraw.]

METEOROLOGICAL RECORD.

For the month of April, 1835—kept at Avoylle Ferry, Red River, Lou. (Lat. 31° 10' N., Long. 91° 59' W.) by P. G. VOORHIES. [Communicated for the American Railroad Journal.]

Days.	Morn.	Noon.	Night.	Wind.	Weather.	Remarks.
1	60	71	69	calm	cloudy	Red river rising
2	60	76	71	s. light	..	..
3	61	75	68	calm	clear	..
4	54	74	68	NE	..	smoky, pine woods on fire
5	44	67	61	calm	..	..
6	43	66	56	NE	..	foggy morning—day clear
7	44	68	61	NW. light	..	..
8	45	72	72	calm	..	smoky
9	50	65	60	..	cloudy	—rain at night
10	50	72	66	..	clear	foggy morning—clear day
11	60	77	68	s. high	..	all day [river at a stand
12	66	73	70	s. light	cloudy	shower in the morning
13	56	68	63	NE	..	all day—river falling
14	57	61	56	N	..	..
15	52	58	50	NE	..	rain and showers all day
16	46	66	60	calm	clear	..
17	44	70	64	SE	..	..
18	60	61	63	..	cloudy	rain all day
19	71	71	69	s. high	..	drizzling all day
20	66	71	65	calm	..	..
21	56	72	64	..	..	..
22	58	72	72	..	..	..
23	54	80	74	..	..	foggy morning
24	62	72	70	..	..	clear at noon
25	70	72	67	SE	..	thunder and rain all day
26	64	72	70	calm	..	..
27	64	70	66	N	clear	Red river rising
28	50	72	68	calm	..	..
29	59	68	70	sw	cloudy	rain and thunder all day
30	70	76	72	calm	clear	.. in even'g.

Red river rose this month, 1 foot 3 inches—and is below high water mark, 6 feet 2 inches.

[From the "Mechanics' Magazine and Register of Inventions and Improvements."]

SEABURY AND YOUNG'S IMPROVED PATENT
BARK MILL.

We have received, from Messrs. Seabury and Young a drawing and concise description of their Bark Mill, to which we referred on the cover of the April number. They furnished us with drawings of the different parts, two only of which we have had engraved: one, a cross section, showing the interior of the mill; and the other the apparatus for cracking the bark as it passes in, to the mill.

We have never seen one of them in operation, but are induced to believe that it will be found a first rate machine, not only for the purpose for which it is designed, but also, if made a little finer, for grinding apples, and for breaking corn on the cob for cattle, or preparatory to its being ground into meal.

One of the mills, addressed to Gibert & Son, New-Haven, was some time since left in front of our office, and has attracted much attention, but we are unable to answer the numerous questions put relative to its cost, &c. and would suggest to the patentees the propriety of furnishing the necessary information.

Fig. 1.

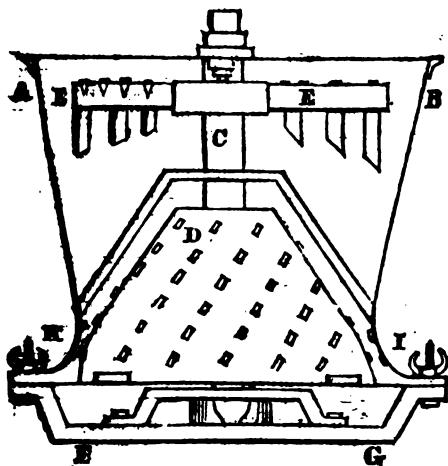


Fig. 2.

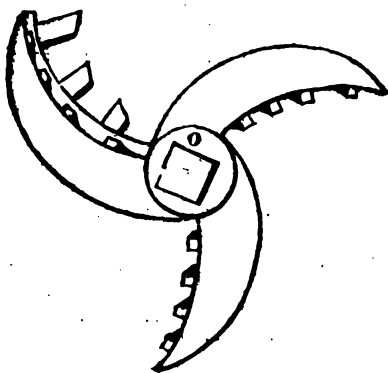


Fig. 1 represents a cross section of the mill when in position for use. A B, the pot; D, the nut or cone, with numerous projections on its surface, which revolves within the pot; C, the upright shaft by which the mill is put in motion; E E, revolving arms or breakers, with teeth pro-

jecting both upwards and downwards, which crack the bark as it passes into the mill; F G, the regulating beam, which is operated upon by the screws, H I, and raises or lowers the revolving cone, as the bark requires to be finer or coarser.

Fig. 2 represents the revolving arms as seen in Fig. 1, E E, attached to the upright shaft C, which passes through the mortice O. The object of these arms is to prepare the bark for the mill.

The following is one of the numerous favorable letters from one who has used the mill; and of Mr. Williams, we can speak as a competent and judicious judge of its merits.—[Ed. M. M.]

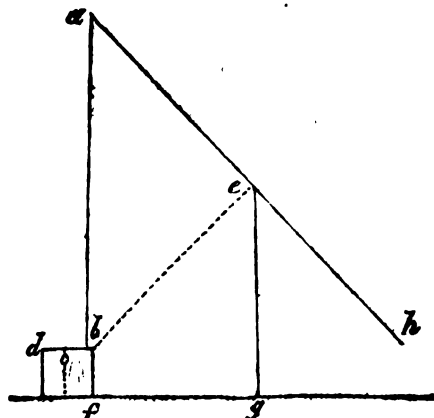
Messrs. Seabury & Young:

GENTLEMEN,—The bark mill I purchased of you I have had in operation about five weeks. I am highly pleased with it, and prefer it in my establishment to any one I have ever used. As an experiment, I have ground half a cord of bark in twenty-eight minutes, (forty-five revolutions,) and ground it well. I can cheerfully recommend it to the public, as a valuable improvement. Should you consider the above of any service to you to present to the public, you are at liberty to publish it. THOMAS WILLIAMS.

Vernon, Nov. 30.

To find the Length of the Sweep and Crutch for a Well—the Depth of the Well given.

Rule—The square root of half the square of the depth of the well, with the height of the curb added, is equal to the distance from back side of curb to centre of pin on which the sweep hangs; and the square root of half the space of that distance, with half the width of the curb added, is equal to the distance the crutch should be from the well, and the height of curb added gives the height of the crutch from the ground, consequently the length of the sweep will be twice the distance from the curb to centre of pin, less one foot. But to make it work easy, there should be an allowance of about six inches in height, and in the distance from the well, that is, the pin 6 inches lower, and 6 inches further from the well, which will give about one foot more on upper end of sweep, which allowance is in consequence of the upper end of the sweep being smaller.



$$\text{Thus—}\sqrt{a b^2 \div 2} = b e$$

$$\sqrt{b e^2 \div 2} + c b = g f$$

$$\sqrt{b e^2 \div 2} + f b = g e$$

$$\text{Then, } 2b e = a h.$$

Examples—I have a well 91 feet deep, and the curb around it 3 feet high, and 3 feet square—required to know the length of the sweep, height of crutch above the ground, and how far I must set the crutch from centre of the well.

$$21 + 3 = \sqrt{21^2 \div 2} = 17 \text{ feet, distance } b e \text{ from curb to pin.}$$

$$\sqrt{17^2 \div 2} + 1.5 = 13.528 \text{ feet, distance from well.}$$

$$\sqrt{17^2 \div 2} + 3 = 15.028 \text{ feet, height of the crutch.}$$

$$\text{And } 17 \times 2 - 1 = 33 \text{ feet, length of sweep.}$$

Then, as was stated above, we will make an allowance of six inches, or 0.5 of a foot, $13.528 + .5 = 14.028 \text{ feet.}$

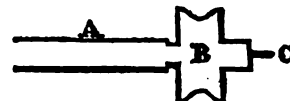
$$15.028 - .5 = 14.528 \text{ feet.}$$

S. A.

[From the London Mechanics' Magazine.]

Easy Method of Drilling Holes in Glass for Philosophical Instruments.

SIR,—Having discovered what I consider to be a new and also very superior method of cutting holes in plate glass for electrical and other machines, and also of cutting glasses for optical instruments, I am induced to send you a description of the same, in order that it may be beneficial to others. I will first describe the instrument necessary to be made for the purpose, and then state how it is to be used. Make of thick sheet tin a tube 3 or 4 inches long, the diameter of which, measuring from the outside edge, must be somewhat smaller than that of the hole required. Let this tube be converted into a drill, thus:



A is the tube; B the head of the drill, turned out of the wood, part whereof goes about an inch into the tube; C is a piece of iron wire for the pivot. The open end of the drill should have a few notches made in it with a file, so as to admit the emery, necessary to work with facility.

Determine the size of the hole you want, say half an inch in diameter; then cut such a hole in a piece of flat wood, being not less than 2 inches square, and half an inch thick. Next, mark on the plate glass the situation of the hole wanted; take some melted beeswax, with, or without rosin, and fix the piece of wood on the glass, having the hole exactly over the place previously marked; place the glass on something flat, whereon some baize or carpet has been first laid, to prevent the glass from sliding during the process; mix plenty of grain emery with water, and put it into the open part of the drill; now place the drill in the hole of the wood, and with a breast-plate and drill bow, about 2 feet long, commence drilling. You must work at first very slowly to avoid chipping the edge of the

glass, and afterwards proceed at a quicker rate, always taking care not to press on the drill more than sufficient to keep it steadily working, for otherwise there will be great danger of breaking the glass. When the drill is almost through the glass (which may be ascertained by looking at the other side of it), you must remove the carpet or baize, above alluded to, to obviate the danger of chipping the edge of the hole, and then proceed very slowly until the operation is quite finished. You will thus obtain a clean edged circular hole, with a corresponding piece of glass, and this without incurring the least risk of breaking. In this way a piece of plate glass, a quarter of an inch thick, may be cut through in less than ten minutes.

I have adopted this mode of cutting holes in plate glass for electrical machines, and it is obvious that it may be also applied to the cutting of glasses for optical instruments. Here, however, the diameter of the inside of the drill must, to allow for friction, be a trifle larger than the diameter of the glasses required; for if no allowance be made, it will be found that the piece of glass will be somewhat smaller than was required.

I am, &c. F. H.

Bath, Dec. 29, 1834.

AGRICULTURE, &c.

(From the Horticultural Register.)

ON THE CULTURE OF MILK-WEED, (*Asclepias Syriaca*).—Some four or five years since, in a conversation with George Manners, Esq. the British Consul for Massachusetts, on the various kinds of edible vegetables, cultivated in our gardens, he observed that, during a recent visit to Canada, he was informed that the young shoots of the milk-weed were used as a substitute for asparagus, and asked me if I had ever heard of their being cooked in the United States. I replied, that I perfectly recollected, when a boy, my mother often had them gathered from the fields and road-sides, with the dandelion, shepherd's sprouts, nettles, and other plants, which were collected as greens; but that I had never seen the plant thus used elsewhere, or heard it named as a culinary vegetable; but that I certainly would make an experiment in its cultivation, and as to its qualities, as an addition to our garden pot-herbs.

Having collected the seed in the autumn, it was sown early in the spring in drills, and covered an inch deep. They came up freely in four or five weeks, and when the plants were two years old, I took up a portion of the roots, and set them out about eight inches apart, in a trench six inches deep. The ground had been manured and thoroughly dug over, previously to forming the trench. The following spring, when the shoots were four or five inches high, they were cut, tied up in bunches, boiled and served up with melted butter, like asparagus; and they were as tender, and to my taste quite as delicious a vegetable, resembling in flavor the youngest and most delicate string beans.

As the plant is very hardy, exceedingly

prolific, easily cultivated, and such a valuable addition to our early vegetables, I consider a bed of it nearly as desirable as one of asparagus.

No better mode of cultivation can be adopted, than that for asparagus, as described by Mr. Chandler, in his interesting, instructive, and able article, which appeared in the third number of the Horticultural Register,—except the roots of the milk-weed should not be covered more than five or six inches deep.

Mr. Chandler is entitled to the gratitude of his fellow citizens for the valuable result of his experiments; and I freely declare that the mode he adopted and recommends, is the very best which I have ever seen published. I can confirm it, by having followed a similar process, but by no means so perfect in all its parts as that which he has so successfully tested. As a practical, intelligent, zealous, and enterprising tiller of the earth, he has no superior in this State; and the commendable gentlemen who have established a Farm School on Thompson's Island, could not have made a better selection in a superintendent of the art of cultivation in all its branches.

Asclepias (*Swallow-wort*), is a numerous genus of plants, there being forty-two species, which have been described by botanists, two of which only are found in Europe, but three in South America, while there are eighteen indigenous to the United States, and the others are divided between the West Indies and Africa. Many of the varieties are cultivated as ornamental plants in England and France, but the following kinds, natives of this country, are considered the most beautiful, besides being more hardy than those of more southern climes; still many of the latter are considered worthy of the green-house.

1. *Muschata*, so called by Bartram, for its strong and agreeable musk scent, is peculiar to the natural meadows of South Carolina, Georgia, and Florida. It is a low plant, of not more than five or six inches in height, with flowers of a pale green color, inclining to yellow.

2. *Venosa*, has leaves elegantly variegated with white and crimson veins, and the stems terminate in an umbel of pale flesh-colored flowers.

3. *Pulchra*, — Water-silk-weed, — has nearly erect stems, four or five feet high; umbels very small; flowers crimson purple. Grows on low, wet land, by the side of ponds.

4. *Variegata*, — Variegated. Leaves rough, umbels compact and come out from the side of the stalk; flowers of an herbaceous odor.

5. *Nivea*, — White, or Almond-leaved. Stalks two feet high, and of a dark green. Leaves deep green above, and pale beneath, smooth and rather stiff. Flowers green, with white nectaries.

6. *Incarnata*, — Flesh-colored, — has several upright stalks about two feet high, at the top of which are produced close umbels of purple flowers. Blooms in August.

7. *Decumbens*. — The stalks are declining, hairy, a foot and a half high; leaves narrow, umbels compact, at the extremity

of the branches; flowers a bright orange color.

8. *Verticillata*. Stalks slender, upright; umbels at the extremity of the stems; leaves in whorls of four, five, and six together; flowers small and of a greenish white color. Found in Roxbury and Dedham; blooms in July.

9. *Tuberosa*, — Butterfly-weed. Root large, fleshy, branching, and somewhat fusiform, but it is only by comparison with other species that it can be called tuberos; stems numerous, growing in bunches from the root, hairy and dusky red; flowers numerous, erect, and of a beautiful bright orange color; grows in Woburn and Newton; blooms in August.

10. *Obtusifolia*, — Blunt-leaved. Stems erect, supporting a terminal umbel, at a distance from the leaves, which are opposite, ovate, heart shaped at the base; flowers large, of a greenish white, tinged with red; it is found in Cambridge and Mount Auburn; blooms in July.

11. *Phytoloccoides*, — Poke-leaved. A tall, large flowering species, of a delicate appearance; stem erect, four or five feet high; leaves large; umbels nodding, flowers large, petals green, nectaries white or flesh colored; grows in low grounds; blooms in June.

12. *Purpurescens*, — Dark-flowered. Stem erect; flowers of a dark crimson purple; grows in Cambridge and Newton, but is rare.

13. *Quadrifolia*, — Four-leaved. A delicate species, growing in dry woods; stems about a foot high; flowers flesh colored; is found in Roxbury and Brookline, and blooms in June.

14. *Viridifolia*, — Green flowered. An inelegant species, with small greenish umbels; is found in Leicester; blooms in July.

For the description of the third and sixth preceding species, I am indebted to Dr. Bigelow's excellent work, on the plants in the environs of Boston. There is a beautiful colored engraving of No. 9, and a more particular account of it, in his other most able and splendid publication, called Medical Botany.

15. *Amoena*, — Oval-leaved. Stalks from a foot and a half to three feet high; at each joint are two large leaves, which are blunt, thickish, stiff, smooth, with purple nerves; umbels rise from the top of the stalk and some of the upper axils; flowers of a bright purple color.

16. *Bursa*, — Red-flowered. Stem upright; umbels many, from the same common peduncle; a native of Virginia.

17. *Parviflora*, — Small-flowered. A native of South Carolina and Florida.

18. *Syriaca*, — Milk-weed, or Silk-weed. This species abounds all over our country, and for the many useful purposes to which it may be applied is deserving of especial attention. The root is perennial, and in April or May, throws out, like asparagus and hops, a great number of shoots; the stems rise to six or seven feet in height in a rich soil. When the leaves or stems are broken off, a milky substance, of a viscid consistence, exudes, from whence the plant derives one of its most general trivial names. The flowers appear in July, and

are in umbels of from twelve to sixteen on one stem, each containing thirty or forty single flowers, which adhere to the umbel by a long slender stalk, and has a sweetish odor. Each bunch of flowers is succeeded by three, four, and sometimes ten long, flat, and rough pods, which enclose numerous round, flat, thin, yellowish brown seeds, wrapped up in a beautiful shining white and soft kind of silk, which constitutes their wings, and by means of which they are conveyed with ease to a great distance by the wind; it has also given rise to the other trivial name, by which the plant is known in some parts of the country.

The great utility of the *Syriaca* or milk-weed in the arts has not been understood but since the middle of the last century, although it was introduced into Europe at a much earlier period.

A manufactory of articles from the silk was established in Paris in 1760, and it has long been employed at Lausanne, with advantage, as candle-wicks. Mr. Schneider of Liegnitz, has been distinguished for the zeal he has evinced in relation to the cultivation and preparation of this article, and has recommended it in two different pamphlets.

In the application of it to paper-making, Mr. Schmid, of Lunenburg, made a variety of very interesting and instructive experiments.

The cultivation of the plant has been found very easy. Mr. Schneider began in 1785, with but six plants, and in 1793 he had a plantation of 30,000, which yielded him 800 pounds of silk the first crop, 355 the second, and 600 the third. They were planted in rows about two feet apart, with a sufficient distance between the roots in each row. The silk was separated into two parts, the longer being used for spinning, and the shorter for hat making and beds.

Mr. Schmid, who was an ingenious manufacturer of paper, made several experiments with the capsules, or pods, which gave the following results:

1. From the interior white rind of the pods he obtained writing paper, pretty white, of good quality, and similar to the silk paper of the Chinese.
2. From the external green part of the pods, a greenish colored paper was made, which, when sized, was stronger than paper made from rags. It was almost as close in its texture as parchment, and even when unsized did not suffer the ink to pass through it. It was excellent wrapping paper.
3. From the bark of the stems he obtained a paper so like, in every thing, to paper made from rags, that the difference could scarcely be distinguished.

The silk when taken from the pods, and being freed from the seeds, is hung up in thin bags in the sun, and when perfectly dry, may be used without any further preparation, instead of feathers, horse hair, wool, or cotton, for cushions, bolsters, pillows, mattresses, and coverlets. From eight to nine pounds is sufficient for a bed, bolster, and two pillows. It is lighter and warmer, when used in forming coverlets or

comforters, than cotton or wool, and is nearly equal to eider-down.

For spinning, the staple of the silk is too short, when taken alone, and therefore is combined with flax, wool, cotton, or raw silk.

One third of this silk, with two thirds of cotton, forms a very excellent mixture for gloves, stockings, and other articles of like manufacture. One part of this silk, and two of rabbits' fur, forms hats exceedingly light, soft to the touch, glossy, and which have a great resemblance to beaver hats.

The plant throws around it long roots with new eyes; these can be cut off in autumn or early in the spring, before the milk flows, and may be divided into pieces from four to six inches long, which may be planted in trenches, four or five inches deep, in an oblique position, with the eyes or buds standing up.

Where the plant grows wild in abundance, a bed for culinary purposes could be easily formed, from the roots in the manner above described, and would be fit for use the second spring; by which two years would be gained over plants raised from the seed.

Besides the above named articles manufactured from the silk, I recollect having seen, at several of the annual exhibitions of the Massachusetts Agricultural Society, in Brighton, tippets, capes, bonnets, and various other articles, which were very beautiful. They were formed by sewing the tufts of silk by the part which is attached to the seed, to linen, cotton, or silk cloth in rows, one overlapping the other, like the shingles on a roof. They had the appearance of the most delicate and rich fur; and so simple was the work that a child could execute it.

For embellishing the outer borders of pleasure grounds, the skirts of roads, avenues, clumps of trees, the sides of groves, and to intermingle with shrubs, all the American varieties may be used with picturesque effect.

On examining some botanical works since writing the above, I found that Parkinson had received the *Syriaca* from this country, and cultivated it in his botanical garden of rare plants, as early as 1629. He called it Virginia Silk, and it was stated that the French Canadians were in the habit of eating the tender shoots as substitutes for asparagus.

It is but little trouble to form in every garden, side by side, beds of dandelions, sea-kale, milk-weed, and asparagus, which, from the last of March, until the green peas appear, will afford a daily and various supply of delicious vegetables. They are all perennial plants, and when once set out, and properly taken care of in autumn and spring, will yield abundant crops, for all time, without removal.

H. A. S. DEARBORN.

Roxbury, March 9, 1835.

[From the *Genesee Farmer*.]

PROPAGATION OF FRUIT.—There is not naturally a propensity in the human mind to take much pains in raising fruit, without some stimulating or exciting agency. The mind must be excited to some object

before it will produce any unusual effect. The subject before us, no doubt, has been frequently brought before the readers of the *Genesee Farmer*, and may have been presented in such a light as to render it useless for me to attempt any addition thereto. But, however, even if this be the case, there may be some who did not give the attention to it which its importance demands; and it may be well to stir up their minds by way of remembrance—not that I possess or profess any superior knowledge on this subject, but by frequently conversing on these things we retain them in our memory, and are prepared to impart such information relative to them as is required.

It is not a little singular indeed, after all that has been said and done, that there is such an astonishing apathy in relation to the cultivation of fruits, the luxuries of which add so much to the comforts and conveniences of life. However, by the aid of an exciting agency, such for instance as the *Farmer*, we see that people begin to take an interest in this subject, and the means are facilitated for acquiring practical knowledge relative to this and every other subject to which such a journal is devoted.

The propagation of fruit, as practised in different ways, has materially benefitted all those who are engaged in the useful occupation of raising it. Grafting and inoculation are the most successful methods now in operation for propagating fruit. And to these two then I shall confine myself, to make some remarks and observations for the consideration of all who are concerned.

1st. Grafting.—This may be successfully practised on apples, pears and plums, and I think to better advantage than by inoculation. The modes of performing this operation are different, but I have generally given preference to what is called cleft grafting. The mode of procedure is as follows: After the stock is chosen, select a smooth place and cut it off—even the top with a knife; this being done, make a slit near two inches deep down the middle of the stock, with a knife prepared for the purpose; then prepare the scion; (taken from a vigorous shoot of the foregoing year, which should be cut in February,) sloping it on each side from a bud or eye, but leaving it thinner on that side which goes into the stock than on the outside, so that it may conform itself to the slit of the stock; then place the scion in the stock so that the inside bark of both may come exactly together. After this is done, the wounds of the stock are covered with an application of wax. The scions should be left with two or three eyes on them, and in case the stock be large, two of them may be inserted in one cleft, one on each side. Let not the scions be loose nor pinched, but a right temperature is necessary for their ready germination.

I have endeavored to render the method so plain, that it shall be the excuse of no one for not adopting it, for every one that has not good fruit may have it by a little exertion of their own. The only remaining difficulty is making the wax, and this can be done with but very little expense. Take 5 lbs. rosin, 2 lbs. beeswax, and 3 lbs. melted tallow, melt them together, and turn

it off into cold water, and work it till hard. This quantity of composition will be sufficient to set a number of thousand grafts. The means have been greatly facilitated for the making and application of this composition, from what they were when the old dirty method of using clay was practised. By a little attention, a person who has never practised it may perform the operation with complete success.

The best time for grafting is when the tree is about an inch through, taken off close to the ground. Although apples do well when put into the top of large trees, pears treated in this manner, my experience satisfies me, will never answer, because they will not unite firmly; hence their aggeneration cannot be effected, and when loaded with fruit they are apt to blow off. Undoubtedly the most suitable tree for the pear is the thorn-apple. The aptitude of their fixidity to this, as far as my observation has extended, is not equalled by any other tree. However, if these cannot be procured, small apple trees will answer, if grafted close to the ground, and the earth raised around them. This may be performed in April or May.

2d. Inoculation.—This method of propagation, it seems, is better adapted to peaches, neotarines, plums, &c., than grafting. I will give a description of a method as most successfully practised: "In August, take off a vigorous shoot from the tree to be propagated; then make choice of a stock about three or four years' growth, and in a smooth part of it make a down-right slit in the bark a little above an inch long, and another crosswise at the bottom of that, to give way to the opening of the bark; then with a penknife gently loosen the bark from the wood on both sides, beginning at the bottom; then prepare the bud by cutting it off, entering pretty deep into the wood, as much above as below the bud, to the length of the slit in the stock; after the bud is thus prepared, with the point of the knife and the thumb take out the woody part of it, carefully preserving the eye of the bud; then put the bud in between the bark and the wood of the stock at the cross slit, leading it upward by the stalk where the leaf grew till it exactly closes; then bind it about with coarse woolen yarn, the better to make all parts close regularly, and the bud incorporate with the stock, and the operation is done. The bud will be incorporated in about three weeks' time, when the yarn should be loosened, that it may not gall the bud. All buds should be taken from a vigorously growing shoot, and used immediately."

The choicest and the rarest varieties of fruit may be produced in a very short time by the above methods of treatment, and in fact I have known instances of grafts bearing the same year they were inserted—but they generally begin to bear in about three years. And who but he who has no taste for nature's richest productions would not even try the experiment? I have no doubt but all those who undertake the operation, will perform it with complete success, and ultimately be compensated for all extra expense and trouble.

We have a kind of apple, the value of which in the summer, (for they are not

good until then,) is from one dollar to one dollar and fifty cents, and we have kept them a year from the time they were gathered. They are called by the name of Rock Apple. They are pleasant flavored and annual bearers, and I think they might be profitably recommended to all orchardists. I mention this circumstance only to show the propriety and utility of propagation. As the season for grafting has approached, I hope the fruit growers of this country will avail themselves of this opportunity for having their plantations stored with the choicest varieties of fruit. R. S.

[From the Genesee Farmer.]

BURYING BEES.—Mr. Tucker: It is two years this spring since I first commenced bee-keeping. In the out-set I had no knowledge whatever of their management, and it was a stipulation of the bargain with the person of whom I obtained them, that he should, as occasion required, impart to me such facts as his experience would justify, in regard to their culture. This agreement was satisfactorily performed; and, aided by the information thus received, my success, for a tyro's, was such as to create an almost enthusiastic interest in this branch of rural industry.

In the autumn of 1833, I selected four hives, (double the number with which I commenced,) for wintering. Three of these had so limited a supply of honey, that I was advised to bury them, an operation which, in my mind, was little preferable to throwing them away. But I concluded to "try the experiment," and on one of the last days of November, they were "deposited beneath the little mound," where my mind figured them as possessing the interminable repose of "their last resting place." My absence on "the return of spring," that season when dying worms are wooed again to life, and the faded wing of the insect receives new colorings, beautifully wrought, from nature's dye, prevented me the pleasure of witnessing their exhumation, but the person who took them from their temporary sepulchre, (which was done about the 20th of March,) informed me that on their first introduction to the air and light, their animation was as perfect as that usually exhibited by bees in June. He said that he did not find half a gill of dead bees in all the hives. These hives gave swarms earlier and more frequently than the one that remained above ground, during the ensuing summer.

Last fall I concluded to continue "the experiment" with a single hive. The one selected was very light, probably not containing a sufficiency of honey to carry them half through the winter, had they been kept the usual way. In consequence of a rainy season through the last of November, they were not inhumed until December, probably as late as the 10th. They were occasionally fed in the fall, lest their supply should not be sufficient to insure a subterranean existence. My faith was as wavering when these last were buried, as on the previous winter, and as often as I looked at the spot where they were interred, I viewed it as the grave of my little insect friends.

They were taken up on the 28th of

March, and much to my satisfaction, found that the second experiment had terminated with the same happy results as the first. Not two dozen were lost, and *new comb was actually formed while they were in their "dark abode."*

My "modus operandi" is as follows. A hole is dug considerably larger than the hive, or hives, in every respect. On the bottom of the hole two sticks of three or four inches in diameter are placed for each hive, and on these the floor board, which should be a sound one, is placed. Another board, (two inch plank is preferable,) is put on the hive, and dry straw is as compactly as is convenient placed around it. This, in rainy weather, if the ground is clear from frost, allows the rain to pass freely down, while the space between the blocks furnish a ready reservoir, from which it is absorbed by the earth, without offering any injurious effects to the bees. The earth is placed upon the hive in a conical form, to turn the water from the hives, the top of which are about four inches below the surface. With respect to the experiment of 1833-4, I cannot say whether the apertures of the hives were closed, but in that of 1834-5, they were not. This experiment succeeded, but whether it is the best way of proceeding I shall not advise.

I regret that I did not weigh my hives, in both instances, previous to burying and on disinterring them, that the amount of food consumed might have been ascertained. But my experiments were both of them faithlessly tried, and unnecessary ceremonies were dispensed with. The quantity of honey consumed, however, was small, as none but very light hives were selected, and their weight in the spring was apparently nearly as great as in the fall. It is my intention in future experiments to mark items more particularly.

In selecting the spot for burying, a dry, and cold, rather than a warm one, should be chosen. An individual of my acquaintance buried on the south side of a dry hill, and an entire loss of all thus treated was the consequence. I attributed it, (though perhaps some other defect was the cause,) to such situations being more exposed to frequent freezings and thawings, subjecting the insects to more frequent change of temperature, a circumstance injurious to all that comes within its influence. If the situation is such as that the ground will freeze immediately after the trust is committed to it, and remain so until time to "remove the deposits," to me it would appear most favorable. Yours, etc.

WILLIAM BACON.

Richmond, (Ms.) April 23, 1835.

STUMP LIFTER.—Capt. L. Norcross, of Dixfield, Maine, has invented a new machine for lifting out or removing stumps. It consists of a large screw placed in a nut, which is attached to legs like those of a surveyor's compass. These, being sufficiently strong, are placed above the stump, and it is then grappled to the screw by chains or hooks. A large sweep, like that used in some old fashioned cider mills, having a nut to fit, is put upon the screw, and horses or oxen hitched on the other end, by means of which the stump is raised from the ground by driving round the sweep.

(From the Maine Farmer.)

CAN ONE HUNDRED AND FIFTY BUSHELS OF INDIAN CORN BE RAISED ON AN ACRE OF LAND?—Mr. Holmes: In a late communication in the Maine Farmer I stated my opinion that 150 bushels of Indian corn might be raised on an acre of land. This I am aware may be thought an unguarded assertion by some, perhaps most of the readers of the Farmer. This, however, was not carelessly or thoughtlessly made. It never has been my object to countenance wild and visionary schemes of fancied improvements; but to establish simple truth. Yet as this project is considerably greater than has been obtained by distinguished agriculturists, perhaps an exposition of my view may be proper.

One hundred and fifty bushels is 38,400 gills: of course, if we can raise this number of ears on an acre, that will make one gill each, it will be done. We all know that it does not require a very large ear to yield one gill of shelled corn. Mr. Bowles states that in rearing his crop the last year of 116 bushels to the acre, he planted 8000 hills with 4 plants to each hill; this, allowing one ear to each plant, would be 32,000 ears to the acre, and to have produced the quantity here mentioned would have been only one gill and one fifth to each plant, or four gills and four-fifths to each hill. That this cannot be obtained by extra manuring seems to be evident for this reason, that excessively high manuring produces such a luxuriant growth of stalks and leaves, that the sun and air are too much excluded to mature the ear. Here then is the principal difficulty, how then can this be obviated? I have frequently observed a perceptible difference in the proportion of the ear to the stalk in different kinds of corn under the same treatment, as regards manuring and cultivation. Cannot an improvement in the habits of the corn plants be made in this respect? Satisfactory experiments have determined that the same variety of corn, as well as other plants, may be brought to ripen earlier or later, by selecting for a number of years in succession seed that ripens earlier or later, as the case may be. But I have never been made acquainted with the fact that experiments have been tried in like manner for the purpose of obtaining a variety that should excel the superiority of the ears in proportion to the size of the stalks. Experiments on many kinds of vegetables have been tried, with remarkable success, to render the fruit more perfect in proportion to the vines or stalks. For instance, cabbages and melons and many others. A writer in the 2d vol. of the Maine Farmer page 115, says, "In reference to seeds, it has long been known to farmers and gardeners, that those that are new and fresh produce plants with more luxuriant foliage, and less inclined to run into flowers and fruit, than such as have been kept some time." "These circumstances," he says, "are carefully considered in the culture of cucumbers and melons, the seeds of which are seldom used until several years old. A similar attention to this law, in reference to the seeds of other vegetables, is productive of equal benefit. Peas, for example, are well known as apt to run to straw, where the ground is rich and moist. The employment of old seed is the only suitable remedy." A friend of mine once stated to me that his father, who was an experienced farmer, said that one bushel of old rye was worth two of new to sow. This was winter rye. I know not the reason of his preference, I mention it to excite the

curiosity of others to try experiments. H. C. says, (see page 131, of New-York Farmer) success in raising double ears or obtaining a seed that has this propensity, must depend, there is reason to believe, much more upon the selection of the seed for a succession of years from stalks bearing twin ears than upon the circumstance of its being the eight or twelve rowed kind. It may be remembered that H. C. was discussing the merits of these different varieties of corn. It recognizes however the existence of the principle we are now advancing, viz., the controlling effect of selecting seed from plants whose peculiarities we wish to continue.

If a propensity to produce twin ears may be obtained in this way, I know not why any other might not to some extent. I do not expect that all plants are alike susceptible of so great an alteration in their habits as some we have mentioned, but as the tendency to an excessive luxuriance of growth in the stalks of many kinds of plants seems at present to present an almost insurmountable obstacle to future improvement as to increasing their products to the acre, the subject is well worth a patient and persevering investigation.

There is another particular to which I would invite public attention, which is this. H. C. says, (also at p. 131, New-York Farmer, before referred to,) the richer the soil is made by manure, the later in all cases is the ripening of the corn, as the forage becomes more luxuriant and succulent. That this is a fact I admit as far as late ripening is concerned, but I do not admit the cause assigned. If I am correct in my observation, the most luxuriant corn shows its tassels and silk first and also fills the ear the soonest, though it does not ripen so soon. What is the cause of this? As far as my observation extends, the same remark will apply to grain. As I have given my views at some length on the effect of fermentation on the vegetation of grain, I will not enter into details on that point, but observe, that though Indian corn will bear the effect of excessive fermentation much better than grain, yet I am some suspicious that a re-rooting process may take place in corn, somewhat similar to grain, and this will certainly, if it does take place, protract the ripening of the stalk at the bottom, and of course the ear. Public attention does not appear to have ever been directed to this point. Another thing bears strongly on my reflection, though I am hardly willing to vouch for it, that I have at some time or other seen appearances on the roots of corn somewhat similar to those I have seen on grain. It is from a consideration of these facts that I have been led to advance the idea, that when we are properly skilled in the nature and use of manures, as well as have a correct understanding of what may be effected in the habits of plants, by attention to selecting seed in the best manner, as well as the best method of cultivation, that our crops of almost all kinds may be somewhat advanced.

Once more, and I have done with this subject for the present. I have never been in the practice of using Lime and Gypsum and other manures of a similar nature myself. I shall make a beginning this year. That these manures have "wonder working powers" I have no doubt, and when used with skill will be of essential benefit in producing the effect desired. But we must not expect complete success all at once; nor will it do to establish theories on solitary facts, we must have decisive evidence of a plenary kind.

J. H. J.

Peru, April, 1835.

(From the New-England Farmer.)

WASH FOR FRUIT TREES.—A friend and patron of our paper wishes us to inform him what is the most improved wash for fruit trees, and says, "If I remember right there has been an improvement on Forsyth's composition." The following was, some years since, recommended by Mr. Benjamin Wheeler, of Framingham, Mass.

"Dissolve two pounds of potash of the first quality in 7 quarts of water, for the bodies of the trees. If the limbs are covered with moss or lice, I take a painter's brush and apply the solution to the moss, &c. with care not to touch the leaves or buds. It may be done at any time of the year when we are most at leisure. Once in two to four years is generally sufficient. I have no general rule, however, but wash them as often as they appear to need it, which is always when the bark is not smooth.

"No person need be afraid," Mr. W. continues, "of this application's injuring fruit trees; but it may be applied with the utmost confidence. I have used it for nearly twenty years with great effect. The reason it has not been more generally used is that it has been fashionable to daub the trees with lime, clay, manure, and other compositions, which take two or three years to wash off before the tree will look natural. When this solution of potash is applied it has the desired effect immediately. It kills the moss and lice at once, and the first rain that comes washes the bark perfectly smooth, and gives it a fair, natural, and healthy color."

ORIGIN OF "HERBEMONT'S MADEIRA GRAPE."—* * Since I wrote to answer your inquiry, I have learned a little more concerning the origin of the vine called "Herbemont's Madeira." It certainly has been received from France, under different names, and also from Madeira. It is most undoubtedly one of the most esteemed families of vines in Europe. In certain situations in this country, Charleston for example, it does most admirably well. It has been received from France by the names of "Muscat gris," "Pineau," and "Maurillon." I have not yet been able to learn by what name it has been received from Madeira. It changes some of its characters so much in this country, as scarcely to be known again—for here it grows to the size and vigor of our strongest native vines. The nomenclature of the vines is, in Europe, in such a chaotic state, that it would take the labors of at least twenty Hercules to clear it up. Now that this culture is fairly begun in this country, we should be very particular with our names; and confusion in nomenclature is frequently inextricable, at the same time that it is exceedingly disadvantageous to the cultivators. The names should be short; if possible, and unchanged after they have been adopted. I would suggest, for example, that the excellent kinds introduced by the names of "Norton's Virginia Seedling," and "Cunningham's Prince Edward," be simplified, by suppressing every thing but the names of the gentlemen entitled to the honor of naming them.—N. HERBEMONT.

[Farmers' Register.]

NEW-YORK AMERICAN.

JUNE 6-12, 1835.

FOREIGN INTELLIGENCE.

From Paris, we have our papers to the 24th April, by the Albany.

The *Journal du Havre* of Thursday, 23d April, has the following:—"Commodore Elliott, of the American frigate the Constitution, arrived here this morning from Paris. It is believed that the Constitution will sail this evening."

The Constitution was at Cherbourg on the 24th, to take in water.

The *Paris dates* are of the 28th of April. The *Courrier Francais*, and other opposition papers, pretend to quote Mr. Livingston as saying, in relation to the amendment requiring explanations previous to the payment of the indemnity, that his return to Washington would be the signal of hostilities. This is manifestly a fabrication. Mr. Livingston would not be guilty of the indiscretion of saying such a thing, even if he thought it; and he is too sagacious a man, and understands the affairs of both countries too well, to entertain any such opinion.

This is a question which will not be decided by silly talk, or shallow blustering, or idle rhodomontade on either side—but by the calm good sense, and reason of the thing, and by the mutual interest of each of the parties, to preserve a good understanding with the other.

It must not be disguised however, from our readers, that Mr. Livingston, as we have from private but authentic sources, the certain assurance—considers the proviso in question, so nearly tantamount to a rejection of the indemnity, that he feels himself bound by the spirit of his instructions, to return in the Constitution to the United States—which frigate therefore may be hourly looked for.

On the other hand, the French Ministers are desirous to avert all difficulty, as the following extract from a letter, written by a gentleman who is not at all likely to be mistaken, will show.

Extract of a letter from Paris, dated April 22d, 1835.

"The departure of Mr. Livingston for America will doubtless occasion much speculation. I can give you the positive assurance, however, as received from M. de Broglie through my friend M. Jay and others, that Ministers attach not the slightest importance to the amendment of which you will hear so much. They are (said M. de Broglie) perfectly satisfied with the explanations already given by Mr. Livingston, and they propose submitting an amical note at Washington, inviting the U. S. Government to confirm these explanations.

It is simply to comply with the decision of the Chamber as imposed on them, and for the purpose of protecting them before the Chamber. Mr. Livingston however, takes a very different view of the case.

The famous process going on in the Chamber of Peers, against a mass of 500 or 600 persons, taken up in the Lyon's affair has placed, the government in a very awkward situation; it was one of the greatest errors of Louis Philippe, and how it is to be got over, is difficult to say.

This market continues to be good, for cotton.—The American planters must make much money this year, and the merchants who had nerve to do business notwithstanding the high prices, will make money also."

Parliament having been prorogued till the 12th of May, in order to give time for the new elections rendered necessary by the late ministerial appointments, there is nothing of much interest from England. Many of the new official persons had been re-elected; among them Mr. Labouchere, the Master of the Mint, whose opponent was young D'Irresch, the author of Vivian Grey; and Mr. Foxlett Thompson, for Manchester. The great strug-

gle, however, was to be against Lord John Russell, for South Devonshire; and very strenuous efforts were making by the Conservatives to defeat him there, if possible.

The following members of the administration have already been returned without opposition:—Right Hon. T. B. Rice, for Cambridge; Sir T. Troubridge, for Sandwich; Sir J. C. Hobhouse, for Nottingham; Lord Seymour, for Totness; Mr. W. H. Ord, for Newport. An opposition is threatened to Lord J. Russell, in Devonshire; to Lord Morpeth in Yorkshire; to Mr. Labouchere, at Taunton; and to the Lord Advocate, at Leith; but we have very little doubt that in all these cases it will be unsuccessful. The only places where a contest has actually taken place are Manchester, where it will be seen that the President of the Board of trade has defeated the Tory candidate by an overwhelming majority of not less than 1366, and Taunton, where Mr. Labouchere has been returned by a majority of 170 over Mr. D'Irresch.

With the Ministerial candidates, at the last general election, rejection was the rule, not the exception; at the elections consequent on the breaking up of the late and last Tory Administration, we have well grounded hopes of being able next week to announce that the members of a liberal Ministry have been returned to Parliament, without a single exception. So much for Conservative prognostications.

The affairs of Spain seem pretty much as usual, though the new commandant for the Quech, Valdez, has declared, it is said, he would not see Madrid again till he had put an end to the insurrection. A rumor that France had been called on by the Cabinet at Madrid to interfere more effectively, for the suppression of the civil war, is discredited by the London papers—which justly argue, that even civil war is to be preferred, to the perilous intervention of a foreign army.

THE RESTORATION OF THE JESUITS.—We copy the following from the *Standard*:

"Rome, Jan. 23, 1835.—At a solemn sitting of our Holiness the Pope at Rome, it was decreed—

"His Holiness the Pope Gregory XVI., in consequence of a report which we, the Secretary of the 'Holy Congregation for the Propagation of the Faith,' (i. e. the Jesuits,) have made to him, has given and accorded to us in the name of our Lord and Saviour, as his representative, &c., as follows:

"1. Plenary indulgence, applicable by means of the prayers of the church for the souls in purgatory, as well as applicable to all and to each of the faithful, of both sexes, who, truly penitent, and having confessed and received the sacrament, shall visit devoutly the church of Montmartre, in the diocese of Paris, (under the Restoration it was Mount Valerian,) as well as the great cross of Calvary, which is erected in the same church, and shall so visit the church and cross aforesaid on the days of the fetes of the invention, and of the exaltation of the holy cross, and shall pray devoutly there for the propagation of the faith. (The cross here spoken of was a cross planted by the Jesuits under the Restoration.)

"2. A partial indulgence of 100 days to be gained twice in the month, by those who shall visit devoutly the great cross, or Calvary, in the church aforesaid, on the days designated by the ordinary.

"Given at Rome, &c. HYACINTHE."

(i. e. M. de Quelen, Archbishop of Paris.)

TURKEY.

The following is the address of his Excellency Muhammed Nouri-Effendi, Envoy Extraordinary and Minister Plenipotentiary of the Sublime Porte, to His Most Gracious Majesty, at a public audience granted yesterday:—

"Selected for this mission through the confidence reposed in me by my august master, the Sultan, to be his representative to your Majesty, I deeply appreciate the honor conferred in an audience which furnishes me with the opportunity for expressing to your Majesty the particular sentiments of His Imperial Highness.

"The perfect harmony that has existed so many years between the Sublime Porte and Great Britain is not solely founded upon esteem and personal considerations; it exists upon political interests, which can only serve to strengthen the friendship already subsisting between the two august Courts.

"The commerce of Great Britain has experienced

in the Ottoman Empire perfect freedom and facilities, such as have not been met with in any other country, and the people of his Highness have enjoyed without restriction the admirable productions of industry created by your Majesty's subjects.

"In consequence, the Sublime Porte, duly appreciating and esteeming the importance of our friendly relations with one of the most enlightened and most powerful nations among the powers of the earth, does not doubt but that a system both benevolent and reciprocal will gain the entire solicitude of your Majesty's Government, and that it will shortly be considered as a means only for strengthening more and more the bonds of friendship which unite the two Powers.

"This union, Sir, is one of the objects most precious and nearest to the heart of his Highness, my august master, and it is a proof of the sincere and affectionate sentiments proffered by him for your Majesty's royal person.

"April 29, 1835."

THE EARTHQUAKE IN CHILI.—By an arrival at Baltimore, we have been put in possession of Valparaiso papers to the 18th of March. They contain the particulars of the terrible earthquake on the 20th of February, the ravages of which were even more extensive and deplorable than would appear from the verbal accounts already published. Almost the whole of the Southern section of the Republic has been swept, as with the besom of destruction. Even at the island of Juan Fernandez, more than 300 miles from the coast, the earthquake was felt with tremendous violence. The sea at the anchoring ground retired to such a distance, that where there had been twelve fathoms water, the ground was laid bare: but soon after, the sea returned with such fury, that it completely demolished the town. The governor and garrison saved themselves by fleeing to the heights; but beyond this, the particulars had not been received.—We subjoin such translations as our time permits, and shall perhaps give others in a future number.

VALPARAISO, March 4.—Every day we receive new details of the sad calamity which has befallen the greater part of the cities and towns in the Southern section of the Republic. The ruin of Concepcion and Talcahuana is complete. At Concepcion there remains only one house for the shelter of the inhabitants. Of Talcahuana, according to the more recent advices, not a vestige remains. After the earthquake, the sea retired from the coast where the town was situated, about a mile, and then rolled in over the whole town, and in its reflux swept it almost entirely away.—The fragments that remained were demolished and buried by two subsequent seas which successively overwhelmed the site of the town. When the sea had regained its usual level, the inhabitants, all of whom at the approach of the inundation fled to the neighboring heights, returned to the place where the town had been situated, and for several days many of them have been engaged in disinterring some remnants of their property. The sea rose 33 feet above its ordinary level, and drove into the town-square the national bark Mapocho, and placed other vessels in imminent danger.

The road from Talcahuana to Concepcion is almost entirely destroyed by the deep fissures and sloughs which have been created, consequently the destruction of property and the interruption of the channels of intercourse which facilitate the subsistence of a town, must be alarming.

TALCA, Feb 20.—Two hours ago this town ceased to exist. This may truly be said; for its regular and comely edifices, which gave it the third place among the cities of Chili, are transformed into a mass of ruins, or buildings so essentially damaged that they cannot be inhabited without great danger.

Talca is 120 miles N. E. of Concepcion. At San Juan de Dios, where some bricklayers were at work when the earthquake came on, they almost all perished. Children and grown persons have alike disappeared from the number of the living, and in short, the whole presents a scene of deplorable calamity.

The movement of the earthquake was not so violent as it was long-continued. It commenced here at about 8 minutes past 11, and it is calculated that the two principal shocks lasted 3 minutes and 20 seconds.

VALPARAISO, March 5.—By letters and passengers brought by vessels which arrived here day before yesterday, yesterday, and to-day, the news is confirmed of the ravages of the earth-

quake in the provinces of Concepcion and Maule.

Concepcion, Talcahuana, Penco, Tome, Arauco, Colcura, Pemuco, Yumbel, Rere, Los Angeles, La Florida, Coelemu, Ranquil, Cauquenes, San Carlos, Quirigua, and other towns of both Provinces, have been ruined in consequence of that terrible event. Talcahuana, Penco and Tome were thrice inundated by the sea, and in Arauco and Colcura it rose to the walls. In the port of Concepcion also, it rushed back and forth several times.

The loss of lives in Concepcion does not exceed 50 odd; in Talcahuana, very few.

If we except the national schooners Juana and Jertudis, which were stranded in the port of Concepcion, no other vessels have suffered irreparable injury.

The earthquake is said to have been occasioned by the eruption of the volcano of Antuco, in the latitude of Concepcion, and about 30 leagues from the coast.

For the sufferers \$8000 had been subscribed in Valparaiso prior to the 16th March, \$1000 in the Almendral, \$6196 at Santiago, two Convents \$3300.

[From the Journal of Commerce.]

A WEEK LATER FROM BUENOS AYRES.—By the brig Paulina, Captain Clark, we have received Buenos Ayres papers to April 4th.

The balloting which was going on at the date of our previous advices, had resulted in the ratification of the resolution of the House of Representatives appointing Gen. Rosas to the chief authority of the Province,—by a vote of 9316 to 4. Gen. Rosas is therefore Governor of Buenos Ayres, with extraordinary powers.

A treaty of peace and alliance has been celebrated between the Governments of the Provinces of Tucuman, Santiago del Estero, and Salta.

An engagement took place on the 7th of March, between a body of Buenos Ayrean troops and Indians on the one part, and a body of hostile Indians under Lanquitriz, on the other. The latter were totally defeated, with the loss of killed, 133 Indians, and 67 Squaws—prisoners, the Caciques Guichel, Lamen and his son Antil, and 353 Squaws, besides 34 Christian captives, of both sexes, recaptured—and there also fell into the hands of the victors, 2000 sheep, 300 goats, 200 oxen, and 132 horses.

As if the Republic of La Plata were not sufficiently broken to pieces, a section of Salta called Jugui, has seceded therefrom, and declared itself independent. It adds one more to the allied Provinces constituting what is sometimes called the Republic of La Plata.

SUMMARY.

THE REPUBLIC OF LETTERS.—Under this title *Mr. Geo. Dearborn*, of this city has published in weekly numbers, at 6 1-4 cents each, during the past year, a periodical, embodying a choice selection of approved literary works.

The 52 numbers published, constitute two handsome volumes, embracing, as by reference to the advertisement, will be seen, some of the standards of English literature.

In order to inspire additional confidence in the selections for this publication, and in the discrimination and taste, which will be exercised in that matter, the publisher has made an arrangement with *Mrs. A. H. Nicholas* of this city, to superintend this department. Competent as she herself is, to such a task, she will yet be further aided by the suggestions of her brother *C. F. Hoffman*—and by those of *Washington Irving*, *G. C. Verplanck* and *E. Everett*.

Under such auspices, we cannot go wrong, in claiming for the Republic of Letters—large and general patronage.

A night boat is now running on the ferry between this city and Powles Hook. After the 15th, the Newark Railroad Company will also run a night car. All such arrangements contribute to mutual benefit and convenience.

ACCOUNTABILITY OF STEAMBOAT CAPTAINS, STAGE OWNERS, &c.—We have been instant in season and out of season, to arouse public attention

to the necessity of subjecting to the penalty, which the laws will not fail to inflict upon carelessness, ignorance, or recklessness, all through whose instrumentality, accidents in steamboats, or other public conveyances, occur.

In furtherthrance of this purpose, we annex, from a London paper, the report of a case in Scotland, as affording an instance in point of the value of such investigation; whereby, if there be criminality, it is ascertained and punished—and if not, the fact is made manifest, and the party against whom rumor and suspicion might otherwise be operating disadvantageously, is sent forth free and unimpeached. Hence it is clearly for the interest of all, but guilt, that such investigation should be had:

CIRCUIT COURT, GLASGOW, April 22.

Robert Wallace, master of the Kilmun steam vessel, was accused of culpable homicide. The charge was to the effect that he had contravened the 44th and 46th sections of the regulations of the river Clyde trustees, formed under act of Parliament, in having navigated his vessel at a greater distance from the quay at Dunglass than was necessary for the reception of passengers from a small boat coming off from that quay—in having thrown a rope to the small boat for the purpose of attaching it to the steam vessel, at a time when, from the state of wind and tide in the river, it was improper and unsafe to do so, and dangerous to the lives of the persons on board—and also with setting the paddles of the steam vessel in motion while the said small boat was attached to her, or at least before the boat was removed beyond the influence of the steam vessel—by all, or part of which neglects and contravention of the regulations, the small boat was run down, and at least nine individuals were culpably, recklessly, and negligently drowned, and bereaved of life by the pannel, Robt. Wallace. Mr. Wallace pleaded Not Guilty to the charge.

Several witnesses were examined for the prosecution, two of them bricklayers, who had been on board the small boat, and two of them passengers in the Kilmun; but from none of the evidence could there be adduced the slightest imputation upon the character or conduct of Captain Wallace upon the melancholy occasion referred to. It was proved that the weather was stormy—that the small boat was over crowded—that Captain Wallace called distinctly to the ferryman to let go the rope, when he found the streamer to be in a perilous position—that he did not direct the engine to be put in motion till he had so called at least twice—and that had the hold of the rope from the small boat been withdrawn when the orders were given, the accident would not have happened.

After proceeding with part of the evidence the Advocate Depute stated to the Jury, that he had thought it his duty to bring the case before them for the purpose of satisfying the ends of justice—and in deference to that anxiety so universally felt that every case involving, as this did, a great loss of life, ought to receive every possible investigation—also, that the public might have an opportunity of seeing whether any blame was attachable to the pannel, or any other person, in the melancholy event which had occurred; and likewise by instituting a trial here, to induce others to act in similar circumstances with the greatest caution. Having, therefore, brought forward the case, he was satisfied that he had done enough to show the Jury and the public that no blame whatever could be attached to any party, and now considered himself perfectly justified in proceeding no further with the case.

Mr. MAITLAND (Counsel for Mr. Wallace) said he had been instructed by that gentleman to thank the Public Prosecutor for having brought the case before the public, and also for having in so very handsome a way withdrawn it. That respectable gentleman, he observed, would never cease deeply to regret the loss of life that had occurred in circumstances with which he was so intimately connected, however guiltless he might be of the causes which led to that catastrophe.

The Jury having returned a verdict of Not Guilty, the Court dismissed Mr. Wallace from the bar, after stating that he left it with a character not only unimpeached, but, on the contrary, with the credit of having always conducted himself with great propriety.

EDWARD JOHNS has been recognized by the President as Russian Consul at New Orleans.

SPIRIT OF ENTERPRISE.—We understand it has been determined upon by the inhabitants of the thriving town of Flushing, to immediately open a correspondence, by Committee, with the various Manufacturing interests of Newark, Patterson, Lynn, and other towns in different parts of the Union, calling their attention to the superior advantages which Flushing presents, and offering land, &c. to them at a low perpetual rent, with the privilege of purchase, as an inducement for them at once to locate themselves in that town.—[Communicated.]

LICENCES IN BROOKLYN.—We learn from the Brooklyn Advertiser, that the Common Council of that city have resolved,—

1. That no retail license be granted to a Grocer.
2. That licenses be granted to citizens only.
3. That Tavern licenses be granted strictly in conformity with the Act in such case made and provided.

This is bravely done in our sister city; and may operate, possibly, advantageously upon our own Common Council.

PUBLIC SCHOOL SOCIETY.—From the 13th Annual Report of the Trustees of the Public School Society of this city, it appears that the number of schools under its charge, including 23 primary schools, is 55, comprising an aggregate of 13,897 pupils, 7354 of whom are males, and 6543 females. Increase during the year, 1396. Of the whole number, 1942 are colored, viz. 611 males, and 631 females. The expenditures of the Society, for all purposes, including buildings and the payment of \$10,000 to the Savings Bank, have been, during the year ending May 1st, \$115,518 95. The receipts have amounted to an equal sum, including a balance of \$8400 21 on hand at the commencement of the year, and \$15,000 borrowed. Balance in the Treasury 1st of May, \$1336 09. Of the receipts, \$78,462 45 comes from the School Commissioners. The whole debt of the Society at the present time is \$45,000. The value of their real estate is probably three or four times that sum.—[Journal of Commerce.]

WILD, WILDER, WILDEST.—The spirit of speculation in this country, is now going rapidly through these degrees of comparison. We have seen some of the positive, and even of the comparative degree in this city; but the superlative was left for Charleston, where, as we learn from the Courier of the 3d inst., the subscription to the new "Bank of Charleston," of which the capital is only two millions, exceeded, in the city of Charleston alone, eighty-one millions of dollars; and as books were opened in other parts of the State, that amount was swelled probably to ninety millions of dollars.

As one fourth was required to be paid down at the time of subscription, the sum paid into the hands of the commissioners in Charleston, was twenty millions, two hundred and seventy-seven dollars!—more than ten times the whole capital.

The task of distributing this stock is one, that no one need envy to the commissioners.

There is a common saying, "It will be all the same an hundred years hence"—and a deal of true philosophy is there in the proverb. How insignificant appear all the quarrels, and clashing interests, and opposing plans and strokes of outwitting policy, and shrewd diplomacy, which agitate us now, when we consider that "a hundred years hence" the result, whatever it may be, of all this turmoil will not then be felt by those who will then be upon the stage! *The descendants of Charles I. of England, and Oliver Cromwell intermarried in the fourth degree.*—[Alexandria Phoenix.]

PASSAGE IN SHAKESPEARE CORRECTED.—"Vaulting ambition that o'erleaps itself," should be "its sell." Sell is saddle an Spenser and elsewhere, from the Latin and Italian. This emendation was shown to the late Mr. Hazlitt, an acute man at least, who expressed his conviction that it was the right reading, and added somewhat more in approbation of it.—[Landor's Examination of William Shakespeare.]

FLUSHING PROPERTY.—About one hundred lots in the village of Flushing were sold by Messrs. Franklin & Jenkins yesterday. The whole sale was gone through with at prices deemed unusually high. Most of the Lots were 25 to 100 feet, and brought from 250 to 600 Dollars each; others measuring 50 to 100 feet sold, the highest, at 1500 Dollars.

Yesterday, a son of Jacob Van Clief, six years old, fell into a well at Staten Island, through the door of the casing—the well was forty feet deep, with 12 feet of water in it. A rope was thrown to him which he made fast to his body, and was hauled up uninjured.

It would seem that the traffic in wives is not confined to England; but, though in other countries they may not be more beloved, they appear to be more dear. The *Gazette du Limousin* states that, a few days ago, two artisans of Compreignac, near Bellac, struck a bargain over their cups, by which one transferred his wife to the other for 1,000 fr. The repudiated spouse, however, who is young and handsome, refused to give herself up to the purchaser, who has threatened to bring an action against the husband upon the contract, which is duly signed and sealed.

IMPORTANT TO MARINERS.—Several successful experiments have been tried on the North Humber Bank, with a portable apparatus admirably adapted for conveying a line from a distressed ship or wreck, to the shore.

The apparatus consists of a gun (manufactured by Mr. Blanch, gun maker, of Hull), which will propel a line made fast to an arrow to the distance of 150 to 200 yards, and thus obtain from even a single individual on the beach, all the assistance which such exigencies require.—[Army and Navy Chronicle.]

A traveller in the Island of Cuba has estimated that ten thousand dollars worth of cigars are consumed daily in the city of Havana.

The Navy Commissioners have issued proposals for the delivery of white oak keelpieces and other timber for eight seventy fours, eight frigates, and ten sloops of war, by the first of August, 1836, at the naval stations of Portsmouth, Boston, New York, Philadelphia, and Norfolk. This is an addition of nearly one third to our present naval force. We observe in the list of the European navies, that several States have a large proportion of steam vessels, and particularly the English and French. Would not steam ships be greatly the most efficient force for the defence of our coast with its large bays and rivers?

The Boston Commercial Gazette, making a comparison of our naval resources with those of other nations, estimates that we have at present in the merchant service about 70,000 seamen.—[Balt. Am.]

A tremendous storm of both wind and hail occurred a few days since in Robertson and Sumner counties, (Ten.) Some of the hail stones are said to have been weighed and to have been of the incredible size of *three quarters of a pound weight*!—There was a great destruction of timber and much damage done to the plantations but no lives lost so far as we have heard.—[Nashville paper.]

CHOLERA.—This disease seems slowly ascending the western waters, and settling at various points along the Mississippi valley. The Pittsburgh Statesman, of the 27th ult., says the steamboats arriving at Louisville have had many cases on board; but it makes no mention of the disease having taken root on shore, yet, at that point.

A PARENT'S LOVE AGAIN PAINFULLY EXEMPLIFIED.—On Friday last, the sloop John Felter, owned and sailed by Capt. Lemuel June of this place, put in at Pullen's Point for freight. Mrs. June, and her little son about four years of age, were on board, having just returned from New York. The captain and his hands had come down to the village, leaving Mrs. J. and the child on board, when the latter accidentally fell overboard. The tide was running strong at the time, and the mother, regardless of her own life in her anxiety to save her child, plunged in after him. Their cries were heard by a man some distance from the Point, who hastened to the spot barely in time to snatch the mother from a watery grave. He then discovered the

child some rods from the vessel, drifting with the tide. He sprang into the boat, and soon brought him to shore, but not until the vital spark had fled.—[Haverstraw Times.]

A STRING OF PUNS, GOOD, BAD, AND INDIFFERENT.—An auctioneer ought to be by nature strong; for, though only one man, he is often called upon to *knock down a lot*. Spring is welcome to the trees, because, they are *re-leaved* by its approach. Those persons who are in business the most *sharp*, usually get the most *blunt*. All blood may be said to be useless which is *in vein*. It is remarkable, that in music those strains please the most which are allowed to be *dull set*. The trade of a blacksmith is one of little labor to himself, inasmuch as most of his work is done by a *vice*. A statesman begins to *lower* himself when he consents to be *hired* by others. The additional day to February once in four years seems very naturally to increase the *spring* necessary for a *leap year*.—All persons who can *defer* their laughter until a convenient time, should be taken to the Humane Society, as extraordinary cases of *suspended animation*.—Those damsels who admire mustachios must be insincere in saying they dislike *hair lips*.—When people have *red hands*, they should always play at *loo*, as every thing is gained at that game by a *palm flush*.—Pugilists begin their battles from a paradox; for they stand up and "*fall to*."—James Eastman, the thief who tried to escape up the chimney, and was stopped by the grate, must have found a *great bar* to his rising.—In classing birds, we should say weather-cocks are meant for the *church*; but *hens* are decidedly the *lay* subjects of the state.

Extracts from Irving's *Abbotsford*.

WASHINGTON IRVING'S FIRST BREAKFAST WITH SCOTT.—On the following morning, after an early breakfast, I set off in a post chaise for the Abbey. On the way thither I stopped at the gate of Abbotsford, and sent the postillion to the house with my written introduction and my card, on which I had written that I was on my way to the ruins of Melrose Abbey, and wished to know whether it would be agreeable for Mr. Scott (he had not yet been made a Baronet) to receive a visit from me in the course of the morning.

In a little while the "lord of the castle" himself made his appearance. I knew him at once by the description I had read and heard, and the likeness that had been published of him. He was tall, and of a large powerful frame. His dress was simple, and almost rustic. An old green shooting coat, with a dog whistle at the button hole, brown linen pantaloons, stout shoes that tied at the ankles, and a white hat that had evidently seen service. He came limping up the gravel walk, aiding himself by a stout walking staff, but moved rapidly and with vigor. By his side jogged along a large iron-grey stag hound of a most grave demeanor, who took no part in the clamor of the canine rabble, but seemed to consider himself bound, for the dignity of the house, to give a courteous reception.

Before Scott had reached the gate he called out in a hearty tone, welcoming me to Abbotsford, and asking the news of Campbell. Arrived at the door of the chaise, he grasped me warmly by the hand: "Come, drive down, drive down to the house," said he, "ye're just in time for breakfast, and afterwards ye shall see all the wonders of the Abbey."

I would have excused myself, on the plea of having already made my breakfast. "Hoot man," cried he, "a ride in the morning in the keen air of the Scotch hills, is warrant enough for a second breakfast."

I was accordingly whirled to the portal of the cottage, and in a few moments found myself seated at the breakfast table. There was no one present but the family, which consisted of Mrs. Scott, her eldest daughter Sophia, then a fine girl about seventeen, Miss Ann Scott, two or three years younger, Walter, a well grown stripling, and Charles, a lively boy, eleven or twelve years of age, I soon felt myself quite at home, and my heart in a glow with the cordial welcome I experienced.—I had thought to make a mere morning visit, but found I was not to be let off so lightly. "You must not think our neighborhood is to be read in a morning, like a newspaper," said Scott. "It takes several days of study for an observant traveller that has a relish for auld world trumpery. After breakfast you shall make your visit to Melrose Abbey; I shall not be able to accompany you, as I have some household affairs to attend to, but I will

put you in charge of my son Charles, who is very learned in all things touching the old ruin and the neighborhood it stands in, and he and my friend Johnny Bower will tell you the whole truth about it, with a good deal more that you are not called upon to believe—unless you be a true and nothing-doubting antiquary. When you come back, I'll take you out on a ramble about the neighborhood. To-morrow we will take a look at the Yarrow, and the next day we will drive over to Dryburgh Abbey, which is a fine old ruin well worth your seeing"—in a word, before Scott had got through with his plan, I found myself committed for a visit of several days, and it seemed as if a little realm of romance was opened before me.

The General Affection entertained for Scott.—These simple anecdotes may serve to show the delightful play of Scott's humors and feelings in private life. His domestic animals were his friends; every thing about him seemed to rejoice in the light of his countenance: the face of the humblest dependant brightened at his approach, as if he anticipated a cordial and cheering word. I had occasion to observe this particularly in a visit which we paid to a quarry, whence several men were cutting stone for the new edifice; who all paused from their labor to have a "crack wi' the laird." One of them was a burghess of Selkirk, with whom Scott had some joke about the old song:

"Up wi' the Souters o' Selkirk,
And down with the Earl of Home."

Another was precursor at the Kirk, and besides leading the psalmody on Sunday, taught the lads and lasses of the neighborhood dancing on week days, in the winter time, when out-of-door labor was scarce.

Among the rest was a tall, straight old fellow, with a healthful complexion and silver hair, and a small round crowned hat. He had been about to shoulder a hod, but paused, and still looking at Scott, with a slight sparkling of his blue eyes, as if waiting his turn; for the old fellow knew himself to be a favorite.

Scott accosted him in an affable tone, and asked for a pinch of snuff. The old man drew forth a horn snuff box. "Hoot, man," said Scott, "not that old mull: where's the bonny French one that I brought you from Paris?" "Troth, your honor," replied the old fellow, "sic a mull as that is nae for week days."

On leaving the quarry, Scott informed me that when absent at Paris he had purchased several trifling articles as presents for his dependants, and among others the gay snuff box in question, which was so carefully reserved for Sundays, by the veteran. "It was not so much the value of the gifts," said he, "that pleased them, as the idea that the laird should think of them when so far away."

The old man in question, I found, was a great favorite with Scott. If I recollect right, he had been a soldier in early life, and his straight erect person, his ruddy yet rugged countenance, his gray hair, and an arch gleam in his blue eye, reminded me of the description of Edie Ochiltree. I find that the old fellow has since been introduced by Wilkie, in his picture of the Scott family.

SCOTT AND HIS DOGS.—Scott continued on, leading the way as usual, and limping up the wizzard glen, talking as he went, but as his back was towards me, I could only hear the deep, growling tones of his voice, like the low breathing of an organ, without distinguishing the words, until pausing, and turning his face towards me, I found he was reciting some scrap of border minstrelsy about Thomas the Rhymer. This was continually the case in my ramblings with him about this storied neighborhood. His mind was fraught with the traditional fictions connected with every object around him, and he would breathe it forth as he went, apparently as much for his own gratification as for that of his companion.

"Nor hill nor brook we paced along,
But had its legend or its song."

His voice was deep and sonorous, he spoke with a Scottish accent, and with somewhat of the Northumbrian "burr," which, to my mind, gave a doric strength and simplicity to his elocution. His recitation of poetry was at times magnificent.

I think it was in the course of this ramble that my friend Hamlet, the black greyhound, got into a sad scrape. The dogs were beating about the glens and fields as usual, and had been for some time out of sight; when we heard a barking at some distance to the left. Shortly after we saw some sheep scampering on the hills, with the

dogs after them. Scott applied to his lips the ivory whistle always hanging at his button-hole, and soon called in the culprits, excepting Hamlet.—Hastening up a bank which commanded a view along a fold or hollow of the hills, we beheld the table prince of Denmark standing by the bleeding body of a sheep. The carcass was still warm, the throat bore marks of the fatal grip, and Hamlet's muzzle was stained with blood. Never was culprit more completely caught in *flagrante delicto*. I supposed the doom of poor Hamlet to be sealed; for no higher offence could be committed by a dog in a country abounding with sheep walks. Scott, however, had a greater value for his dogs than for his sheep. They were his companions and his friends. Hamlet, too, though an irregular impetuous kind of youngster, was evidently a favorite. He would not for some time believe it could be he who had killed the sheep. It must have been some cur of the neighborhood, that had made off on our approach, and left poor Hamlet in the lurch. Proofs however, were too strong, and Hamlet was generally condemned. "Well, well," said Scott, "it's partly my own fault. I had given up coursing for some time past, and the poor dog has had no chance after game to take the fire edge off of him. If he was put after a hare occasionally he never would meddle with sheep."

I understood, afterwards, that Scott actually got a pony, and went out now and then coursing with Hamlet, who, in consequence, showed no further inclination for mutton.

THE ORIGINAL OF EDIE OCHILTREE.—A further stroll among the hills brought us to what Scott pronounced the remains of a Roman camp, and as we sat upon a hillock which had once formed a part of the ramparts, he pointed out the traces of the lines and bulwarks, and the praetorium, and showed a knowledge of castrametation, that would not have disgraced the antiquarian Oldbuck himself.—Indeed, various circumstances that I observed about Scott during my visit, concurred to persuade me that many of the antiquarian humors of Monk-barns were taken from his own richly compounded character, and that some of the scenes and personages of that admirable novel were furnished by his immediate neighborhood.

He gave me several anecdotes of a noted pauper named Andrew Gemmells, or Gammel, as it was pronounced, who had once flourished on the banks of the Galla Water, immediately opposite Abbotsford, and whom he had seen, and talked and joked with when a boy; and I instantly recognized the likeness of that mirror of philosophic vagabonds and Nestor of beggars, Edie Ochiltree. I was on the point of pronouncing the name and recognizing the portrait, when I recollected the incognito observed by Scott with respect to the novels, and checked myself; but it was one among many things that tended to convince me of his authorship.

His picture of Andrew Gemmells exactly accorded with that of Edie as to his height, carriage, and soldier-like air, as well as his arch and sarcastic humor. His home, if home he had, was at Gallsheils; but he went "daundering" about the country, along the green shaws and beside the burns, and was a kind of walking chronicle throughout the valleys of the Tweed, the Ettrick, and the Yarrow; carrying the gossip from house to house, commenting on the inhabitants and their concerns, and never hesitating to give them a dry rub as to any of their faults or follies.

A shrewd beggar like Andrew Gemmells, Scott added, who could sing the old Scotch airs, tell stories and traditions, and gossip away the long winter evenings, was by no means an unwelcome visitor at a lonely manse or cottage. The children would run to welcome him, and place his stool in a warm corner of the ingle nook, and the old folks would receive him as a privileged guest.

As to Andrew, he looked upon them all as a parson does upon his parishioners, and considered the alms he received as much his due as the other does his tythes. I rather think, added Scott, Andrew considered himself more of a gentleman than those who toiled for a living, and that he secretly looked down upon the painstaking peasants that fed and sheltered him.

He had derived his aristocratical notions in some degree from being admitted occasionally to a precarious sociability with some of the small country gentry, who were sometimes in want of company to help while away the time. With these Andrew would now and then play at cards and dice, and he never lacked "siller in pouch" to stake on a game, which he did with a perfect air of a man to whom

money was a matter of little moment, and no one could lose his money with more gentlemanlike coolness.

Among those who occasionally admitted him to this familiarity, was old John Scott of Galla, a man of family, who inhabited his paternal mansion of Torwoodlee. Some distinction of rank however, was still kept up. The laird sat on the inside of the window and the beggar on the outside, and they played cards on the sill.

Andrew now and then told the laird a piece of his mind very freely; especially on one occasion, when he had sold some of his paternal lands to build himself a larger house with the proceeds.—The speech of honest Andrew smacks of the shrewdness of Edie Ochiltree.

"It's a' varra weel—it's a' varra weel, Torwoodlee," said he; "but who would ha' thought that your father's son would ha' sold two gude estates to build a shaw's (cuckoo's) nest on the side of a hill?"

[From the London Quarterly Review.]

M. Beaumont on the Americans.

M. de Beaumont speaks of himself as having travelled a good deal in England before he visited the United States. Yet in many of his criticisms on their manners and usages, he appears to be quite unconscious that he is spending his ingenuity on circumstances which he might have found in the old country just as well as in the new. The style of female education for example, which he expatiates upon through several chapters, is fundamentally the English one—and we hope no French criticisms will ever induce the Americans to lay it aside in favor of that which M. de Beaumont so sentimentally lauds. If this picture, however, be not grossly overcharged, our descendants have certainly pushed the ancient English plan to a rather hazardous extent, and all our Joe Miller stories about match-making mothers and aunts, and soft-eyed damsels who, nevertheless, keep an eye on the main chance, must fail to convey any adequate notion of the business-like sayings and doings of an American ball room. He says:—

"The women of America have in general cultivated minds, but little imagination, and more of sense than sensibility. The education they receive is entirely different from that which is given to their sisters in France. With us, the young girl remains till the day of her marriage under the entire protection of her parents—she reposes peaceful and unsuspecting, because near her there is a tender solicitude which watches and sleeps not—she has no need to reflect while there is another to think for her; she partakes the occupations and the sentiments of her mother, merry or sad, according as she happens to be at the moment—never beforehand with life, quietly gliding with its natural current. In America, she is free before she is adolescent—with no guide but herself, she treads, as at a venture, paths unknown to her feet. The first steps are the least dangerous—childhood traverses life as a light skiff plays without risk on a sea without rocks. But when the stormy billows of young passions are to be encountered, what is to become of that frail bark, with its swelling sails and inexperienced pilot? The education of America takes precautions against this danger: the fair maiden receives, at a very early period, full information as to the snares she will have to meet. Her instincts would be poor guardians for her; they place her under the protection of her reason: thus enlightened as to the allurements which are to surround her, she goes forth, trusting in herself alone for the means of escape. Her prudence never fails her. But all this deprives her of two qualities charming above every thing else in early youth—candor and simplicity. The young American female has need of knowledge to be virtuous—but she is too knowing to be innocent. This precocious liberty gives a serious turn to all her reflections, and stamps her character with something of the masculine.

"An excessive coquetry is, however, a trait common to all the young American girls, and it is also a consequence of their education. For every one who has passed her sixteenth summer, the one great interest of life is a marriage. In France, she desires it—in America, she seeks for it. In the midst of that all-busy society, where everybody has some positive material object in hand, she too has her concern—her business—her industry: it is to find a husband. The men about her are cold, chained to their worldly affairs—she must go to them—a powerful charm must be called in to attract them. Do not let us be surprised, then, if the

young girl who lives in the midst of them is prodigal of her studied smiles and tender glances: her coquetry is, to be sure, a well considered and prudent thing; she has measured the space within which she may play herself off—she knows the limit which she must not pass. Grant that her artifices are not in themselves to be applauded—you must at least allow that her aim is irreproachable—it is only to be married. Coquetry, with us, is a passion; in America, it is a calculation. Even if the young lady who has formed an engagement continues somewhat of her former procedure, this is a matter not of taste but of foresight. Her lover may break his faith: she is aware of this, and goes on gaining hearts, from the wish, not to have two at a time, but to have a second in reserve in case the first should fail her."—Vol. i. p. 25.

M. de Beaumont, however, if he may be considered as a little too severe on the pretty damsels of the United States, does as ample justice as any other traveller to the undoubted purity of their matrons. On this head, indeed, the reports of all the recent witnesses agree most completely—and to us most delightfully, for here again we are proud to say, we recognise the manners of England in those of her descendants. M. de Beaumont speaks, like a Frenchman as he is, about the old societies of Europe, as if they were all as corrupt on this score, as for aught we know the society of Paris may still be—but we need not enlarge upon a blunder which every English reader will at once trace to the right source. He tell us,--

"You may estimate the morality of any population, when you have ascertained that of the women; and one cannot contemplate American society without admiration for the respect which there encircles the tie of marriage. The same sentiment existed to a like degree among no nation of antiquity; and the existing societies of Europe, in their corruption, have not even a conception of such a purity of morals. In America, people are not more severe than elsewhere, as to the disorders and even the debaucheries of single life; one meets with abundance of young men whose manners are notoriously dissolute, and who are thought none the worse of on that account. But society has no toleration for any tampering with conjugal faith; it is as inflexible towards the man who tempts as the woman who yields: both are banished from its bosom—and to meet this stern award it is not even necessary to be guilty; it suffices to have incurred suspicion.

"The morality of the American women, moreover, is protected by other circumstances. The man there, engrossed with positive interests, has neither the time nor the soul for tender sentiments and gallantries: he pays court once in his life—that is when he desires to arrange his marriage. The question then is, not an intrigue, but—a piece of business. He has not leisure to be in love, still less to be amiable. That taste for the fine arts, which blends so well with the enjoyments of the heart, is forbidden to him. To be suspected of any passion for Mozart or Michael Angelo would destroy him in public opinion. Condemned by the manners of his country to shut himself up within the dry circle of utility, the young American is equally devoid of the wish to please women and of the capacity to seduce them."—Vol. i. p. 29.

In a note on this passage he thus qualifies one of his statements:—

"It is true that one may meet here and there by accident with a young man whom the chances of a hereditary fortune and a polished education have qualified to take part in the intrigues and gallantries of society—but their number is so small that they can do no harm; and if they show but the slightest symptom of a disposition to trouble the peace of a fireside, the whole American world is at once in league to combat and crush the common enemy. This explains why American bachelors, with fortune and leisure, never remain in the United States, but come to live in Europe, where they find intellectual men and corrupt women."—Vol. i., p. 349.

The majority of his European readers will hardly thank our author for this last sentence. American 'bachelors with fortune and leisure' pass rapidly through England—but we never heard of any such 'rare fois' establishing his European roost elsewhere than at Paris, Brussels, Rome, or Naples.

We are sorry to say that our next extract must be one of a less agreeable description. It refers to that popular indulgence for unfair bankrupts, which has already been adverted to in the discussion about M. Ludovic's proposed marriage with

Miss Mary Nelson of Baltimore. M. de Beaumont says, in one of his notes—

'I don't know if there exists anywhere so much commercial prosperity as in the United States—yet among no people on the face of the earth are there so many bankruptcies. The commerce of these States is placed under the most favorable circumstances that can be conceived—an immense and fertile soil, gigantic rivers, numerous and well-placed harbors—a people enterprising, calculating, with a natural genius for maritime life—all these conspire to make this a nation of merchants, and to crowd its industry with riches. But for the very reason that success is so probable, men pursue it with an unbridled ardor: the spectacle of rapid fortunes intoxicates the observers, and they rush blindfold to their aim—hence ruin. Shortly after my arrival in America, as I was entering an apartment in which the *élite* of the society of one of the principal cities in the Union were assembled, a Frenchman, an old resident in the country, said to me, 'Above all things speak no ill of bankrupts.' I did well to follow his advice, for among all the rich personages to whom I was presented, not one but had failed at least once in the earlier part of his career.

'All the Americans being engaged in business, and most of them having more or less frequently failed, it follows that to be a bankrupt is a nothing. An offence of which so many are guilty ceases to be one. The indulgence for bankrupts springs, then, from the commonness of the misfortune; but its principal cause is the facility with which men there rise from such a fall. If the bankrupt were lost forever, he would be abandoned to his misery; people are more lenient when they know that he will recover himself. This is not a very generous feeling, but it is in human nature.

'It is now easy to understand why there is no law to punish bankruptcy in these States. Electors and legislators all are alike traders and subject to a failure; they have no wish to punish an universal sin. Such a law, moreover, were it made, would remain inoperative: the people, which make the law by its mandates, executes or refuses to execute them in its tribunals, where it is represented by the jury. In this condition of things, nothing protects American commerce against fraud. No trader is compelled to keep any sort of book or register. There is, in short, no legal distinction between the merchant who yields to real misfortune, and him whose bankruptcy has been the fruit of extravagance, dissipation, and fraudulence.'—Vol. i. p. 363.

CURIOUS ASTRONOMICAL THEORY.—We state the following on the authority of M. Arago, the eminent French Astronomer:—If we place in a horizontal line a series of figures of which the law is evident (each double the preceding)—

0 3 6 12 24 48 96 192
and afterwards add 4 to each, we shall have a series denoting the relative distances of the Planets from the Sun: thus—

4 7 10 16 28 52 100 196
Mer. Venus, Earth, Mars, Jup. Saturn, Uranus.
If 10 represents the distance of the Earth, 4 will be that of Mercury, 7 Venus, 16 Mars, and 52, 100, and 196 the respective distances of Jupiter, Saturn, and Uranus. This law was known as far as 100, before the discovery of Uranus; and the distance of that planet being found to correspond, affords a very remarkable confirmation of its truth. But it will be observed there will be a deficiency of one unit between Mars and Jupiter, and nearly at the proportional distance of 96 from the Sun. This planet was named Ceres; and since, three others have been found—Pallas, Juno, and Vesta—all of which have their orbits so near to each other, as to lead astronomers to believe that they are fragments of a larger planet which had been shattered into pieces by some internal explosion, or the shock of a comet.

MODE OF PRESERVING MILK FOR LONG VOYAGES.—Provide a quantity of pint or quart bottles, (new ones are perhaps the best;) they must be perfectly sweet and clean, and very dry before they are made use of. Instead of drawing the milk from the cow into the pail as usual, it is to be milked into the bottles. As soon as any of them are filled sufficiently, they should be immediately well corked with the very best cork, in order to keep out the external air, and fastened tight with pack thread or wire, as the corks in bottles which contain cider generally are. Then on the bottom of an iron or copper boiler spread a little straw; on that

lay a row of the bottles filled with milk, with some straw between each to prevent them from breaking, and so on alternately, until the boiler has a sufficient quantity in; then fill it up with cold water. Heat the water gradually until it begins to boil, and as soon as that is perceivable draw the fire. The bottles must remain undisturbed in the boiler until they are quite cool. Then take them out, and afterwards pack them in hampers, either with straw or saw dust, and stow them in the coolest part of the ship. Milk preserved in this way has been taken to the West Indies and back, and at the end of that time was as sweet as when drawn from the cow.—[London paper.]

[From the Baltimore American.]

CULTURE OF TEA.—We find in the last number of the Westminster Review the fullest and most interesting account we have ever met with of the nature and culture of tea, a commodity which forms the chief bond of connexion between the empire of China with its population of three hundred and fifty millions, and the rest of the world.

The tea plant is a bushy evergreen shrub, which if permitted to attain its natural size will grow to the height of twelve feet. In botany it constitutes by itself a distinct genus, of which there is but a single species, the plants yielding the different kinds of black and green teas being in reality no more than permanent varieties, the result of long culture. The plant has been cultivated in China from time immemorial. The latitudes in which it thrives best are from 23 to 30 north. Like the vine it is cultivated on the sides of hills in preference to plains. It is raised from the seed, and yields its first crop in from two to three years. When the best teas are raised, the plant is carefully pruned and prevented from attaining a height exceeding two or three feet. The production of good tea depends upon soil, locality and season, fully as much as that of good wine; like it, too, the produce varies according to the care with which the crop is collected and prepared for use. From the same plant are commonly taken in each season four crops, which is another cause of variety in tea as it appears in the market. The younger the leaves the higher is the flavor. The earliest crop is taken in the beginning of Spring, and the last in August.

The growth of teas of sufficiently high flavor to keep for a considerable time, and fit in consequence for exportation, was for a long time confined to two Provinces—Fokien, which yielded black tea, and Kiangnan, which yielded green tea. Of late years, owing to the great demand for teas in Europe and America, the culture has been extended to three additional provinces. The two original provinces, however, produce the best: the worst comes from the district of Woping in Canton.

In China, contrary to the usage of the other great despotisms of Asia, the soil is private property, and is very minutely subdivided. The leaves of the tea plant are picked by the cultivator's family, and conveyed at once in a fresh state to the market, where they are purchased by a particular class of dealers, who dry them under a shed, and in this imperfect state of preparation dispose of them to a second and higher class of traders, who sort the teas according to their qualities, and after completing the process of manufacture, pack them in chests. The tea arrives in Canton about the middle of October, and the busiest period of the trade exists from that time to the end of December. The traders in green tea amount in number to about four hundred: the dealers in black are less numerous but more wealthy. They accompany their chests, carried mostly by porters from distances of several hundred miles to Canton. In Canton the sorts quoted for export do not exceed fifteen in number, about eight of which are black and six green, the prices varying from twelve to sixty cents a pound.

In regard to the consumption of tea in different countries, the writer remarks that all the nations of Asia east of Siam and Cambodia are what may be termed habitual and immemorial consumers of tea. With the Chinese themselves the tea-pot is in constant requisition, from morning till night, with persons of both sexes, of all ages, and all conditions. They use it always without milk, and frequently without sugar. Supposing—that is a very reasonable supposition—that each inhabitant on an average drinks twice as much as each inhabitant of Great Britain, the annual consumption in China would be half a million of tons.

The use of tea in Europe commenced about

one hundred and eighty-five years ago, and in this time the consumption has raised from a nameless fraction to nearly thirty thousand tons. A greater quantity is consumed in Great Britain than in all the rest of Europe and America. As to the question whether China will be able to supply any great quantity in proportion to the increased demand, the writer in the Westminster thinks there is no doubt but it will. The culture which was extended from two to five provinces, to meet European demand, can be extended to many others. The land in which tea is cultivated consists of hills and mountains of no remarkable fertility, and not suited for the production of corn. Of these, notwithstanding the highly cultivated state of the plains and valleys of China, there is much unoccupied.

The effects of tea upon the human frame are those of a very gentle stimulant, producing an exhilaration of spirits. It is to this alone that it owes its general adoption. The diversity in the flavor of the different varieties, is probably fully as great as in the different varieties of wine. The Chinese themselves, and the oriental nations generally, hardly consume any thing but black tea. The English consume one part of green to four parts of black. The Americans, on the contrary, consume two parts of green to one of black.

June 8th.

DEAR MR. EDITOR.—I propose sending you from time to time, scraps, (of which the present is a sample;) if you find them to your taste. I give your journal "the preference," as a vehicle for publicity, from a natural penchant, for a place that we have visited and where we have been well treated; having had the honor, about a year ago, of appearing in your columns in the shape of some lines addressed to a fat militia Colonel. W.

[FOR THE NEW YORK AMERICAN.]

Musings.—By Placius, in the Country.

"When my mirth ceases to be instructive, it shall never cease to be innocent."—[Aspersion.]
Once more upon the hills, rejoiced and free—
Dear nature! welcome is thy face to me—
Welcome thy woods and streams—my heart is sick
Of paths of stone, and Avenues of brick;
Of muddy brooks that course no leafy bowers,
Whose scent, oh! Nature, breathe not of thy flowers—
Jarred with the din of Commerce, and the strife
Of man with man for pelf, or very life.
To this green spot for refuge do I flee—
My chains are snapped and I again am free—
Farewell ye streets! where lime dust clouds the air,
I quit with smiles what cost me many a tear—
Ye docks farewell! nor wonder that I run,
What's in bad odour 'tis the thing to shun—
Exclaim: no more I watch your fall or rise,
"There is no speculation in these eyes."
Break, all ye banks! I heed not how ye go,
Save me but this, whereon the violets blow.
Welcome! ye bugs, wasps, humble-bees and flies!
Mosquitoes! pipe your dulcet melodies!
Buzz, snarl, and sing;—"ye are not so unkind"
As the vile insects I have left behind—
The top, fanatic, politician, thief,
Turn bugs to joys, and make their bite relief.
Ye bull-frogs, shout! for sweeter is your roar
Than such as abolition croakers pour—
Come, climb the hills, ye jaded spirits, come!
Whom fame, or thrift, have bound so long to home—
The sight of woods, the breath of flowery plains!
Will kindle youth again within your veins.
Merchants! a truce to traffic—"take the goods"
The Gods provide ye! in the fields and woods.
Ye doctors! here's the physic for the blood;
Oh! leave your patients for your mutual good—
A little while, come breathe these genial airs,
"I'll aid your own health, and establish theirs—
Ye amiable lawyers, leap these brooks and fences,
And leave your causes to their consequences—
Ye editors!—ah no—I lost ye quite,
Remain, to give these musings to the light—
Brokers of Wall-street! Babel of the town,
Come mount the hills, and let the stocks go down—
Agrarians!—stay—my muse is out this time,
For they who grovel are unfit to climb.
Place me upon some green and breezy height,
With the mad town, though distant, yet in sight;
Where I can see her face, avoid her din,
Enjoy her charms, and shun the filth within.
Here let me sit, to soothing thoughts resigned,
And muse on all the follies left behind—
My page will prove more pleasant than profound,
I love to tickle, rather than to wound;
When fools are sunk in dullness' slumber low,
A feather wakes as quickly as a blow.
In satire's shaft, my pen will not assume
The part of barb, but only that of plume.
No. 1.

W.

We are glad to see this marked No. 1, and shall await, with eagerness, that what is so cleverly begun, shall be unfailingly continued.—[Ed. N. Y. American.]

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of EIGHT pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Term, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2

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This work is STEREO-TYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$2.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

* All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Vols. 6 and 7, or 1 and 3, new series, \$3 per volume.

QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
35 Wall street, New-York.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by J. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 224 Water street, New-York; A. M. Jones, Philadelphia; T. Janvier, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

142am

H. BURDEN.

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thorough printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P. Post Office, New-York, postage paid, and they will be promptly attended to. May-14

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-4f

BLOSSBURG AND PAINTED POST RAILROAD, OR TIOGA NAVIGATION COMPANY.

By an Act of the Legislature of the State of Pennsylvania, passed the 14th day of April, 1835, five per cent. interest is guaranteed to the Stockholders of said Company for the term of twenty years.

The books for subscription of the above Stock will be opened at the Exchange in the City of New-York, on Monday, the 22d day of June inst., where one or more of the Commissioners duly authorized will attend.

SAMUEL W. MORRIS,
URIAH SPENCER,
ELIAH WELSH,
HIRAM BEEBE,
CURTIS PARKHURST,
THOS. DYER,
IRA KILBURN,
THOS. PUTNAM,
WM. WILLARD, Jr.
ASA MANN,
JOHN KNOX,
ROBERT TUBBS,

Commissioners.

June 6, 1835-2t

PUBLIC NOTICE.

THE undersigned, Commissioners for the amelioration of the navigation of the Richelieu or Chambly River, will receive at their office, in the borough of St. Denis, until the 15th of June next, sealed propositions for the construction or erection of a Dam or Chaussee, with a Lock; to be erected about three miles above the village of St. Ours, either in Cut Stones, Common Stones, Pierres Brutes, or in Wood, according to the plans and specifications made by W. R. Hopkins, Esqr., Engineer, deposited, and where they can be seen at any time, in the hands of Joseph Cartier, Esqr., one of the said Commissioners, at St. Antoine.

All propositions addressed by the mail must be sent free of postage.

Two good securities will be required for the due execution of the aforesaid works.

Further information can be had at any time, from the undersigned, in addressing them at their respective residences, or from the said W. R. Hopkins, Esqr., at Bunker's Hotel, at the Chambly Basin.

ROCH DE ST. OURS, at St. Ours.
JOSEPH CARTIER, at St. Antoine.
JOS. T. DROLET, at St. Marc.
L. C. DUVERT, at St. Charles.
L. F. DESCHAMBAULT, at St. Denis.

Office of the Commissioners, } 20-4t
St. Denis, May 11, 1835. }

The above Dam and Lock are in dimensions as follows: Lock 280 feet, Chamber 50 feet wide; Dam 675 feet long, 8 feet high.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. E-1y feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Blacker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J36 1f

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.

August 15, 1833.

A39 MF& R

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

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Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMASTURNER, at the Factory, Troy, N. Y. sep13-1v

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
300 do. 1 1/2 do. do.	14 to 18 feet, counter sunk
40 do. 1 1/2 do. do.	holes, end cut at an angle
800 do. 2 do. do.	of 45 degrees, with split
800 do. 2 1/2 do. do.	dog plates and nails to
	soon expected.

250 do. of Edge Rail of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 24 1/2, 31, 31 1/2, 34, and 34 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7lineowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

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SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1833.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the Levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

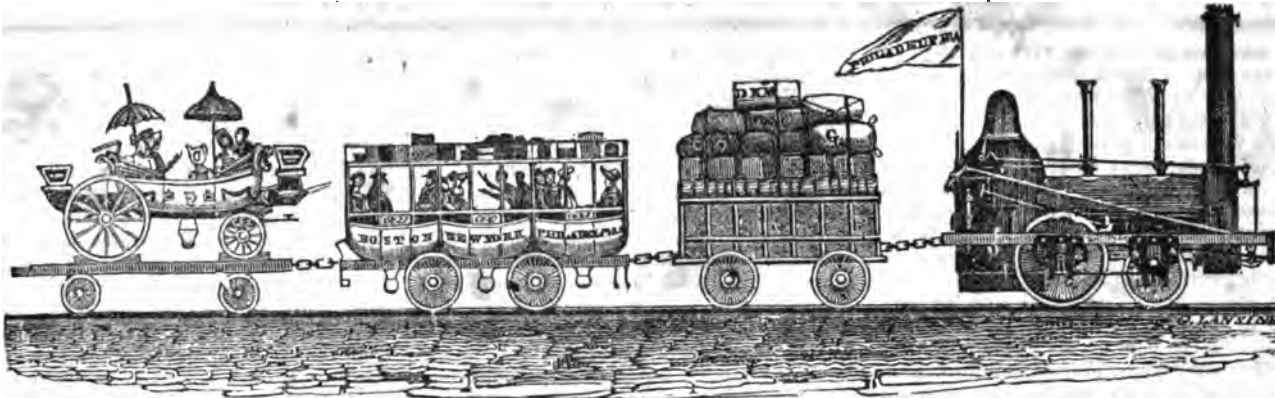
German town, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

German, and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JUNE 20, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JUNE 20, 1835.

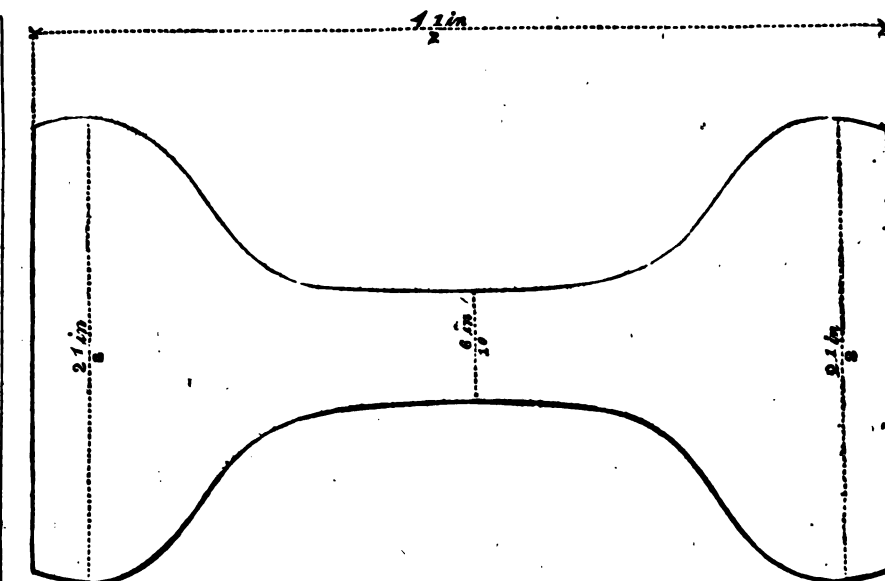
We have been again favored by Mr. G. RALSTON, of Philadelphia, now in London, with an interesting letter, from which we make the following extract; and we take this method of returning our thanks for the numerous favors conferred upon us and our readers, by Mr. Ralston, in forwarding early accounts of improvements in the construction of railroads and railroad machinery. He will please to accept our especial thanks for the Report of Dr. Barlow, "on the transverse strength and other properties of malleable iron," of which we shall endeavor to give a full account in our next number; and also for the papers on "Pneumatic Railways," one of which, containing the opinion of Professor Faraday, and Dr. Lardner, will be found in this number.

Of this "new plan" we confess that we are not able to form an opinion, as we have time only to print, not to read it. We shall take time to read the other before it is published, and hope then to be able to give a more correct idea of the project than we now possess.

Extract from a Letter, dated

LONDON, May 12, 1835.

Dear Sir,—I observe by the "American Railroad Journal," which I received from New-York yesterday, that you have published two papers which Mr. Robert Stephenson kindly allowed me to copy from his original MS., and which I sent to the "Journal of the Franklin Institute" in Philadel-



phia. These articles are, 1st, Mr. S.'s Report on the "Undulating Railway System," and 2d, his "Remarks on the best form for Railway Bars."

I am very much pleased that you insert matter of such excellent quality in your useful Journal, and to enable you to continue the subject "of the best form of rail," I beg you will accept a book I send herewith, being a Report and Appendix made by Professor Barlow to the London and Birmingham Railway Company on this subject. You will observe that he controverts Mr. Stephenson's arguments in favor of "fishbellies," and gives a decided preference to parallel rails. I think this report will please your numerous readers. I must call your attention to the circumstance that, on the Liverpool and Manchester Railway, they are now taking up (as rapidly as is convenient) the fishbellies of 35 lbs. per yard, and laying down in their place parallels of 60 lbs. per yard. You know the increase of weight of locomotives on this road is very considerable; they formerly weighed 4 or 5 tons—they now weigh 10, 11, and 12 tons. So also on the Stockton and Darlington Railway, the rails originally weighed 28 lbs. per yard; they have removed them, and substituted rails of 45 lbs. per yard. On all the railways in use, or being constructed in this country, they consider heavier lo-

comotives, and of course stronger rails, as most expedient and economical. Enclosed I send you a tracing of the new rail for the "Grand Junction Railway," (from Birmingham to Warrington, to make the connexion, by railway, from London to Liverpool.) [See accompanying figure.] You will observe that it is a parallel rail, of 60 lbs. per yard, and that it is somewhat in form of Mr. Robert Stephenson's (our distinguished countryman) T rail—having as much base, which rests upon the ground, as surface for the wheel to run upon. The Engineer of this railway is Sir George Stephenson, (lately knighted by the King of the Belgians,) the father of Mr. Robert Stephenson, who is the Engineer of the Birmingham and London Railway. These two eminent men being in habits of constant intercourse, I think it highly probable that this form of rail has been adopted with the sanction of both of them; and if it be so, the fishbellies will never come into favor again.

I also send you two papers on the "Pneumatic Railway System," contrived and patented by our countryman, Mr. Pinkus, of Philadelphia. The shares for the Company have all been taken with great eagerness, and a line of a few miles in length is to be immediately laid down near London, for the purpose of testing its practicability and utility. The members of the association, as

well as many others, are very confident of success; but we shall soon see whether it will answer as well in practice as it promises in the working model.

I am very much pleased that you advocate with so much ability and zeal that magnificent project, a railway from the Hudson to Lake Erie. I read your articles with deep interest, and hope your judicious exertions will be crowned with success. As I am in the midst of railway iron, locomotives, and persons connected with all projects of internal improvements, I will be happy to serve you, or the readers of your excellent Journal, by procuring information, or in any other way that may be pointed out to me as acceptable.

I am, very respectfully,
Your most obt. serv't,
GERARD RALSTON.

PNEUMATIC SYSTEM OF RAILWAY.

Royal Institution, 3d Feb., 1835.

My Dear Sir,—The points in your letter of the 26th of last month, which you put to me for an opinion, are such that I have no hesitation in agreeing with you upon them.

To enumerate briefly these points:—the principle of communication of power is correct; the use of local steam engines is highly advantageous, both for cheapness of force and capability of varying it when required; the necessity for levels will, I presume, therefore be greatly obviated; the association of cylinder and rails is such, that the whole road must (with sufficient thickness in the cylinder) have great strength and firmness; the absence of locomotive engines removes much of the cause of derangement which the road would have to sustain; and I do not see how the governor and carriages can leave the railway.

You know my objection to giving a general opinion in reference to the profitable application of the plan in question; but I may here add, that the reserve I feel originates simply in my possessing no practical knowledge of the construction, expense, and profit, of ordinary railroads.

I am, my dear Sir, very truly yours,
M. FARADAY.
Wm. Hosking, Esq., F. S. A., &c.

Opinion of Dr. Lardner upon the Pneumatic System of Railway.

I have read the specification of the patent for the pneumatic railway and the accompanying papers, and have also examined the drawings and models which have been submitted to me by Mr. Hosking.

Two methods have been heretofore employed for rendering steam power available in transport upon railways; one by causing a travelling or locomotive engine to move with the load which it draws, the other by constructing, at intervals of about a mile and a half, stationary steam engines, the power of which is transmitted to the load by a rope carried along the road upon rollers or sheaves placed between the rails. The train being attached to this rope, is drawn by the power of the engines from station to station. The object of the pneumatic railway is to substitute for the rope a partially-exhausted tunnel; to employ the fixed steam engines to work air-pumps, by which a rarefaction of the tunnel shall be maintained; and to cause the trains to be tracked upon the railway by connecting them with a diaphragm or piston placed in the interior of the tunnel, so as to have that part of the tunnel in advance of the piston entered by the engines, while that part behind the piston is open to the atmosphere. An effective impelling power is thus obtain-

ed equivalent to the difference between the pressure of the atmosphere on one side of the diaphragm and of the rarefied air on the other.

Of the practicability of this project I think there can be no doubt. The working of large air-pumps by an adequate moving power, and the rarefaction of air in tubes or tunnels by such means is not a new idea. It was suggested by Papin, in the latter end of the seventeenth century, and was even pointed out by him as a means of transferring power to a distance, without the loss by friction and other causes consequent upon the use of ropes or other ordinary means of transmitting force.* It is, in fact, a well understood principle in physics, that whatever moving force be expended in producing the rarefaction of air in a cylinder or tunnel, must necessarily be followed by a corresponding force on the other side of a diaphragm moving air-tight in that tunnel, and exposed to the free action of the atmospheric pressure. In the present case, supposing the structure of the valvular cord and the pneumatic piston to be perfect, the opposite side of the diaphragm will always be pressed by an effective impelling force, the amount of which may be calculated upon these principles. It will of course be perceived that no original moving power is obtained from the tunnel, or from the rarefied air; the rarefaction gives back the power expended by the stationary engines and nothing more; and the tunnel must therefore be regarded merely as a substitute for the ropes in the common method of working railways by stationary engines. But it is evidently attended with several advantages in comparison with the latter. A very large proportion of the moving power of stationary engines worked by ropes is intercepted by the resistance from the weight and friction of the ropes, sheaves, barrels, drums, &c. All such waste of power is removed by the pneumatic tunnel.

The original expense of ropes and their wear and tear would be likewise saved. Some notion of the extent of this saving may be collected from the following facts: when the Liverpool and Manchester railway was about to be brought into operation, a question arose as to the expediency of working it by stationary engines, and estimates of the expense were made by competent engineers. The total amount of capital to be invested in moving power was estimated at about £120,000; of this above £25,000 was devoted to ropes, sheaves, drums, and other necessary accompaniments. The total annual expense of maintaining the moving power was estimated at £42,000, and of this about £18,000 was appropriated to the wear and tear of ropes, sheaves, &c. Thus it appears that the method of transmitting the power of the stationary engines to the trains by ropes would absorb about 20 per cent. of the invested capital, and their maintenance would consume about 43 per cent. of the annual expenditure.

Another source of comparative economy would obviously be the diminished number of stationary engines. In the estimate already referred to, it was calculated that the distance of 30 miles should be divided into 17 stations, with two 40 horse engines at each station; besides these there would have been two engines at the bottom of each inclined plane, one at the tunnel, two at the top of the planes, and one at the Manches-

* Papin proposed to obtain an active force at one end of an exhausted tube by the application of water power at the other.—W. H.

ter end, making in all 42 stationary engines to work a line of 30 miles. Now, according to the estimate of the patentee of the pneumatic railway, from three to six stations would be sufficient between Manchester and Liverpool, and the whole line would be worked by from six to twelve steam engines. Putting aside therefore the saving of power which would arise from the substitution of suction in the tunnel for ropes, and supposing the amount of stationary power in both cases to be the same, it will be evident that a material saving would arise from the circumstance of that amount of power being derived from so much less a number of engines,—the number of engine-men, assistants, &c., besides the interest on capital, being considerably less.

Some notion of the economy of power likely to arise from superseding the use of ropes may be collected from the result of experiments made by Messrs. Stephenson and Locke on the resistance arising from the friction of ropes. They found that a load of 52 tons drawn by stationary engines worked by ropes through mile and half stages, offered a total resistance amounting to 1156 lbs.; of this 582 lbs. arose from the friction of the load, and 574 lbs. from the friction of the ropes. In the case of the pneumatic railway, the friction of the rope is replaced by the friction of the air-pumps and of the impelling apparatus, and it will be evident that the latter, compared with the former, must be almost insignificant. Hence the power wasted in its transmission from the stationary engines to the load, which in one case amounts to 50 per cent. of the whole moving power of the engine, in the other is of comparatively trifling amount.

Slopes on railways will always be objectionable whatever power be used; for even the most gentle ascent will increase the resistance of the load in an enormous proportion. The difficulties, however, which they present are materially less when the line is worked by stationary than by locomotive engines, and would be still further diminished by superseding the rope; the resistance arising from the rope being always greater on inclined planes than on the level, owing to its increased thickness and consequent weight. A load which requires a 4½ inch rope for the level requires a 5½ inch rope upon a slope of 1 in 100. The weights of equal lengths of these ropes would be in the proportion of about 2 to 3, the slope requiring one-half more weight of rope than the level. Besides this, the moving power on a slope, in addition to the ordinary friction which it has to overcome on the level, has likewise to draw up the weight of the rope,—a resistance which will be increased in proportion to the acclivity of the slope.

The disadvantages produced by slopes when locomotive engines are used are still more formidable. The same engine which is fitted to work upon the level is altogether inadequate for the slopes, the consequence of which is, either that the locomotive is strained beyond its power by working up the slopes, and rapidly destroyed, or that the engines must be more powerful than is requisite for the common level of the road, and thus power and expense wasted; or finally, that an auxiliary engine must be kept constantly ready at the foot of each slope, with its fire lighted and its steam up, ready to help up the trains as they arrive. Unless the trains be almost incessant (which, even on the most frequented railroad, they never can be,) this last expedient, which is the one adopted on the Manchester line, is attended with great waste of power and

expense. Stationary engines worked on the pneumatic principle would effectually remove all these difficulties and objections.

The weight of the trains which could be drawn upon the pneumatic railway, and the speed of the motion imparted to them would entirely depend upon the power of the stationary engines. As the friction or other resistance does not increase with the velocity, the same absolute expenditure of power would draw the same load at whatever speed. The high speed attained by locomotive engines has been attended with great expense, but this has not arisen from the increased expenditure of power. It has been caused by the rear of the engines themselves consequent on their rapid motion on the road, and by the necessity of sustaining a fierce temperature in the fire-place in order to be able within the small compass of these engines to generate steam with sufficient rapidity to attain the necessary rate of motion. As the magnitude of the stationary engines would not be limited, and as they would not be subject to the injurious effects of motion on the road, steam could be produced in sufficient quantity for the attainment of any required speed, without increasing its cost, or in any way impairing the machinery.

One of the obstacles to the attainment of great speed by stationary engines worked by ropes, is the delay produced in transferring the trains from engine to engine, and from station to station. The momentum imparted to them is lost at each change, and these changes occur every mile and a half, so that the train has scarcely attained its requisite speed, when its motion must again be checked in order to hand it over to another engine. This difficulty is removed by the pneumatic system: there being no rope to be detached and attached, the engine passes on by its momentum from station to station, and a contrivance is provided by means of a valve at the stations, by which it is brought under the operation of the next engine without stopping its motion.

Although the danger of accidents to passengers on the present railways worked by locomotive engines is considerably less than that of travelling by horse coaches on turnpike roads, yet serious accidents have occasionally occurred. These have generally arisen either from the locomotive engine running off the rails, from one train running against another, from the locomotive engine breaking, or, finally, from persons standing upon the rails being run down. In the pneumatic system there is almost a perfect security from these causes of danger. From the engines being stationary, and the tunnel rising between the wheels of the trains, it is evidently impossible for the carriages to run off the road; and from the manner in which the system is worked, it is impossible that one train can run against another. It happens also that the nature of the rails themselves, forming, as they do, merely ledges upon the sides of the tunnel, prevent the possibility of persons standing between or upon them.

In railways worked by stationary engines, serious accidents have occasionally occurred by the ropes breaking, while the train has been ascending a slope. In such cases the train has run down by its weight with a frightful rapidity, producing the destruction of the carriages, and the loss of life. It is evident that this source of danger is removed by the pneumatic system.

An advantage possessed by this system above the edge railroad, deserves to be particularly noticed. In the edge railroad, the

engines and carriages are kept upon the road by flanges, or ledges, raised upon the tires of the wheels, which press on the interior of the rails. Every thing which causes the carriages to press on the one side or the other, causes these flanges to rub against the rails. When a curve or bend happens in the road, the carriages are guided by the pressure of one or the other flange on the side of the rail, which of course is accompanied by considerable friction. In the pneumatic railway there are no flanges, either on the wheels or rails; the carriages are guided by wheels, or rollers, placed in a horizontal position, and acting upon the external sides of the channel which receives the valvular cord. By this means all resistance which arises from what is called rubbing friction, is removed, and every surface which moves upon another, moves upon it with a rolling motion.

It is well known, that notwithstanding the prosperous condition of the Manchester Railroad Company, yet their expenditure as a locomotive power has been so enormous as to cause considerable anxiety on the part of the managers, and some of them have even inclined to the opinion, that the question of stationary power deserves to be reconsidered. This opinion would probably be confirmed and strengthened, if the practicability of the pneumatic system were satisfactorily demonstrated by experiment upon a sufficiently large scale.

On the whole, it appears to me that if the mechanical difficulties of maintaining the pneumatic tunnel sufficiently air tight be overcome, the system presents a fair prospect of being practically successful. These difficulties are not so great as they may at first appear. It should be recollected, that nothing approaching to the exhaustion of the tunnel can be necessary; nor even any considerable degree of rarefaction. Supposing the tunnel to have an internal diameter of 40 inches, the impelling diaphragm would have a surface of about 9 square feet. If in such a tunnel a degree of rarefaction were produced, sufficient to cause a barometric gauge to fall two inches, (which would be an extremely slight degree of rarefaction indeed,) an impelling force would be obtained amounting to one pound on every square inch of the surface of the diaphragm, which would give an impelling force of more than half a ton. It is calculated, that on the common railways the amount of load is above 200 times the force of traction, and it would therefore follow, that this force would be sufficient to draw a load of 100 tons. If an additional inch of mercury be made to fall in the barometric gauge to balance friction, &c. still the rarefaction would be extremely inconsiderable, and the contrivances to prevent leakage would appear to be attended with no great mechanical difficulty.

From the various reasons which I have above stated, I am of opinion that the present project would, if carried into execution, be likely to be attended with greater economy and safety than any other method of working railways now practised; and I see no reason against the attainment of as much speed as is obtained by the locomotive engines. At all events, having explained the reasons on which I have grounded this opinion, every one can judge to what weight it may be entitled. The project would appear to be well deserving of trial on some railroad of limited length, such as that between London bridge and Greenwich, where it would be sufficient to have stationary engines at the extremities. In such a case, I see scarcely any limit to

the speed which might be attained with safety; and the economy, as compared with locomotive engines, would probably be very great.

DION. LARDNER.

London, Feb. 19, 1835.

[For the Railroad Journal.]

LOCOMOTIVE STEAM ENGINES.

The friends of the resolution for taking off the duties from locomotive steam engines, which was brought forward during the last session of Congress, urged in support of that measure the incompetency of the workshops of this country to supply the demand, and the inferiority of American locomotive engines.

It may be interesting to some of your readers to learn how little this argument is supported by the facts of the case. In a visit to the workshop of Mr. M. W. Baldwin, of Philadelphia, from which I have just returned, I collected the following information: Mr. B. has delivered from his workshop, within the last twelve months, ten locomotive steam engines, has six now in his shop in a state of great forwardness, some of which are nearly completed, and has contracts on hand for about twenty engines, for the following roads, viz.: the Columbia, Pa., State Road; the Trenton, the Newark, the Jamaica, the Troy and Saratoga, and the Utica and Schenectady roads. Under his present arrangements, he informed me that he gives employment to about 150 persons, and is able to complete an engine about every three weeks; and, to meet the increasing demand, is erecting workshops which will accommodate 300 hands.

As regards the character of these engines, there are seven of them at work on the Pennsylvania State road, upon which they have also two English engines, from the workshop of their most celebrated maker, R. Stephenson.

The engineer who has charge of the locomotive department on this road, informed me that the power of the American engines is about 95 per cent. greater than that of the English, and that the loss of time, and cost for repairs, is altogether in favor of the American engines: five hands, as he stated, having been sufficient to keep all the seven in order.

For the gratification of such of your readers as are interested in railroads, I will refer to the principal points of difference between the English and American engines, and what I conceive to be the peculiar advantages of the American engine.

It is well known, that the crank-shaft, and the wheels, of the locomotive engine, have been by far the most troublesome and expensive part of the machine to be kept in repair. By the improvements in Mr. B.'s engine, these difficulties have been obviated, as has been proved by experiment. Of the 7 engines on the state road, and 2 on the Trenton road, some have been at work since the 1st of July last, and in no instance has a crank broken, or worked loose, or any of his improved wheels failed, or given trouble.

It is here proper to observe, that the Pennsylvania road is almost a continued series of curves, ranging from 500 to 700 feet radius, and so severe is it upon the wheels of an engine, that one of the English engines, (the other having been out of repair most of the time,) has within 2 months used up or destroyed a part of the wheels of both engines, and is now using a set of Mr. Baldwin's wheels.

The other improvements affect the force-pump, eccentrics, and reverse gear, all of

which are so much simplified that the joints and working parts are not more than half as numerous as in the common English engine. The steam pipes have all ground metallic joints, and no cement or soft solder is used in any of the joints of the engine.

Another very important improvement has been added, by which the adhesion of the driving wheels may be increased at will, from 35 to 50 per cent. By this means, one of these engines, with only 6487 lbs. on her driving wheels, as a fixed weight, has carried a gross weight of 80 tons up an inclination nearly two miles in length, of 35 feet per mile ascent, without any perceptible slipping of the wheels.

The great object of the whole of these improvements has been to strengthen the weak points in the machine, and to simplify and reduce the number of its parts; and so fully has this object been accomplished, that this engine may justly be considered the most perfect of its kind now in use.

A FRIEND TO AMERICAN MANUFACTURES.

New-York, June 16, 1835.

The following gentlemen were elected Directors of the Long Island Railroad, on Tuesday last. It is a list of names, we need not say, which will insure the speedy construction of the road:

Knowles Taylor, Samuel Hicks, John Delafield, John L. Graham, Henry Wyckoff, Benjamin Curtis, Morgan L. Smith, George D. Strong, of New-York; William F. Blydenburgh, Joshua Fanning, William Sydney Smith, of Suffolk county; Clarence D. Sackett, of Kings county; and Valentine Hicks, of Queens county.

At a subsequent meeting of the Board of Directors the following officers were unanimously chosen:

Knowles Taylor, President; William F. Blydenburgh, Vice President; John Delafield, Treasurer and Register; Jon L. Graham, Counsel and Attorney; and Clarence D. Sackett, Secretary.

RAILROAD TO QUEBEC.—The Board of Aldermen and the Common Council of the city of Portland, have passed in concurrence an order which provides for the appointment of an Agent to attend the survey of a contemplated route of the Railroad from Quebec to Portland, to procure the assistance of gentlemen of that city and elsewhere, who feel an interest in making the harbor Portland the point at which it shall terminate, to ascertain its practicability, the best route, and all interesting facts appertaining to the subject.

It is stated, upon what we presume to be good authority, that the receipts of the Camden and Amboy Railroad Company, were *ninety thousand dollars* in the month of March last! This month is by no means one of the best in the year for the business of transportation; and it would be safe, therefore, to assume that the receipts of that company will exceed a *million* this year!—[Freedonian.]

Extract of a Letter dated Chicago, June 5, 1835.

DEAR SIR—I arrived here, early in May, in good health—and on the 2d of June received the remainder of the boxes and packages forwarded from New York on the 30th of April—a part of them having arrived on the 25th May. This delay is owing, mainly, to the ice, which so long blockaded the port of Buffalo. Merchants here have not yet received all their goods—although those at Peoria, about one hundred miles from here, have had theirs, by the way of Philadelphia, six weeks. When our canal to Peoria shall be completed, we shall be able to receive all our goods from Philadelphia, through Pittsburgh, the Ohio and Illinois river and canal, earlier than by Lake Erie, unless there is any other channel than the New York canal.

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points.
By J. S. VAN DE GRAAFF. [For the American Railroad Journal.]

[Continued from Number 22.]

26. Let the characters α , n , m , T , and T' , represent the same things as in the preceding article, and suppose the conditions with relation to the curves ADF, and BMR, to remain. Produce the two tangents FA', and RB', until they intersect each other; and take v , and v' , to denote the number of chains in each respective tangent to their common point of intersection, and let z represent the angle of intersection. It is then proposed to investigate the general equations which subsist among those various quantities, in order that, when the circumstances in the field are such as to make any one of the quantities α , m , T' , v' , or z , unknown, that quantity may then be eliminated, and its value obtained.

The first equation which will be required, in the investigation of any case where the intersection of two tangents is concerned, may be immediately deduced from (V.), and is expressed as follows:

$$2nT - 2mT' - z = 0 \quad (\text{XXXI.})$$

And thus any one of the three quantities m , T' , or z , will be made known, when the other two are given, or assumed in such a manner as the situation of the ground may require. If, however, z be a quantity whose value is given, and fixed by particular circumstances in the field, then the value of T' should generally be taken in such a manner as to give m an integer number, when eliminated from the equation $2nT - 2mT' - z = 0$.

The second subject of inquiry will now be an investigation of such equations as express the relations which exist between the quantities α , v , and v' . In the case here under consideration, it is evident from (XXIX.), that $X + \alpha - X' + Y - Y' = 0$; and therefore, agreeably to the principles of algebra, $X + \alpha - X' = 0$, and $Y - Y' = 0$; that is, $\alpha + x + v \cdot \cos. 2nT - x' - v' \cdot \cos. 2mT' = 0$, and, $y + v \cdot \sin. 2nT - y' - v' \cdot \sin. 2mT' = 0$. From the last of these two equations, let the value of v' be obtained, and substituted in the first. The result is, $\alpha \cdot \sin. 2mT' - v \cdot \sin. z + x - x' \cdot \sin. 2mT' - y - y' \cdot \cos. 2mT' = 0$; and in like manner, $\alpha \cdot \sin. 2nT - v \cdot \sin. z + x - x' \cdot \sin. 2nT - y - y' \cdot \cos. 2nT = 0$. But by (VII.), $x - x' = \frac{\sin. 2nT}{2 \sin. T} - \frac{\sin. 2mT'}{2 \sin. T'}$, and, $y - y' = \frac{1 - \cos. 2nT}{2 \sin. T} - \frac{1 - \cos. 2mT'}{2 \sin. T'}$; which values being substituted in the last equations, and the obvious reductions made, the two following equations will result:

$$\alpha \cdot \sin. 2mT' - v \cdot \sin. z + \frac{\cos. z - \cos. 2mT'}{2 \sin. T} - \frac{1 - \cos. 2mT'}{2 \sin. T'} = 0;$$

$$\alpha \cdot \sin. 2nT - v \cdot \sin. z + \frac{\cos. z - \cos. 2nT}{2 \sin. T'} + \frac{1 - \cos. 2nT}{2 \sin. T} = 0. \quad (\text{XXXII.})$$

Such is the second system of equations which will be required in the field.* The

* In order to avoid misapprehension and error, particular attention must be paid to the sign of the angle z , which, in all cases where $2mT'$ exceeds $2nT$, is to be made negative; or, the angle z is to be accounted negative, when the tangent v' is more inclined than v , to the common tangent at the origins.

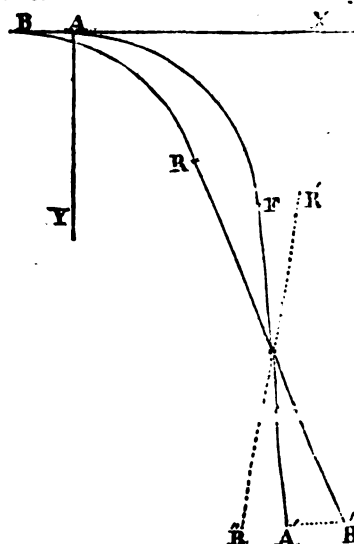
following cases may be given to illustrate their application:

Case I. When v , z , and T' , are given, to find α .

Here, by an evident transposition of the first of the equations (XXXII.), the following formula is obtained:

$$\alpha = \frac{v \cdot \sin. z + \frac{1 - \cos. 2mT'}{2 \sin. T'} - \frac{\cos. z - \cos. 2mT'}{2 \sin. T}}{\sin. 2mT'} \quad (\text{XXXIII.})$$

And the quantity α thus becomes known; for the value of m may be obtained from (XXXI.). In every instance in which this case will occur in practice, such a value may be selected for T' , as will give m an integer number, without doing any injury to the line.



Example 1. Let AX be a given tangent line, and A a given point therein, selected for the origin of a curve. By means of a system of rectangular lines, traced from the origin A, and parallel to the axes AX, AY, let a certain point F be designated, as the situation of the ground may seem to require, and in such manner as to coincide with the extremity of the 25th chain of a curve AF, whose modulus of curvature is $1^\circ 30'$, agreeably to the method explained, art. 17. From the point F, let a tangent FA' be traced 60 chains, agreeably to the principles given in art. 16; and from the point A' trace the rectangular ordinate A'B', 2.5 chains, to a point B', selected in consequence of the particular situation of the ground. Now, suppose S to be a point in the tangent line FA', 30 chains from F, through which the peculiar situation of the ground renders it desirable that a new tangent RSB' should be laid. It is then proposed to determine the position of such a point B, in the primitive tangent AX, as will be the proper origin of a new curve BR, passing into the proposed tangent line RSB'.

It is here supposed, as the figure indicates, that the line RSB' has an inclination, less than the line FSA' to the common tangent AX; and consequently, in this instance, the angle z will be positive, and expressed by the angle A'SB'. By plane trigonometry, $\tan. z = \frac{A'B'}{A'S} = \frac{2.5}{30} = .08333$; or, $z = 4^\circ 46'$. Hence, by (XXXI.), $2mT' = 2nT - z = 75^\circ - 4^\circ 46' = 70^\circ 14'$; or, $mT' = 35^\circ 7'$. Now, the values of the quantities m and T' may be taken in any arbitrary manner, provided the equation $mT' = 35^\circ 7'$ be satisfied. The peculiar situation of the ground, between the points A and F,

must therefore *decide* the values of m , and T' . The object should be to make the new curve BR as long as the limits of expense will allow; for in the same proportion as that curve is made longer, it will also be made of less abrupt curvature; but it will then diverge farther to the right of the first curve AF. Let it be supposed that the new curve BR may have a length of 20 chains;

then, $T' = \frac{35^\circ 7'}{20} = 1^\circ 45'$, which will therefore be the modulus of curvature of the new curve BR. And now, to find the necessary position of the origin B, we have, by (XXXIII.),

$$\alpha = 30 \times \sin. 4^\circ 46' + \frac{1 - \cos. 70^\circ 14'}{2 \sin. 1^\circ 45'} - \frac{\cos. 4^\circ 40' - \cos. 70^\circ 14'}{2 \sin. 1^\circ 30'} = \frac{\sin. 70^\circ 14'}{\sin. 70^\circ 14'}$$

That is, $\alpha =$

$$30 \times .06310 + \frac{.86181}{.06128} - \frac{.99654}{.05236} = \frac{.94108}{.941} = .765.$$

Hence, measure the distance AB = .765 of a chain, back upon the tangent line AX, and the required origin of the new curve BR will be obtained.

Example 2. Suppose the same data to remain as in the preceding instance, with the exception only that the position of the required new tangent R'SB', is reversed; that is, let the line R'SB' have an inclination exceeding that of the line FSA', to the common tangent AX.

Here the angle z becomes *negative*, and therefore, by (XXXI.), $2mT' = 2nT - z = 75^\circ + 4^\circ 46' = 79^\circ 46'$; or, $mT' = 39^\circ 53'$. And hence, if it be supposed that the ground between the points A and F be such as to admit a new curve 40 chains in length,

then $T' = \frac{39^\circ 53'}{40} = 0^\circ 59\frac{1}{2}' =$ modulus of curvature of the new curve. Now, recollecting that $\sin. z$ becomes *negative*, and $\cos. z$ remains *positive*, we have

$$\alpha = -30 \times \sin. 4^\circ 46' + \frac{1 - \cos. 79^\circ 46'}{2 \sin. 59\frac{1}{2}'} - \frac{\cos. 4^\circ 46' - \cos. 79^\circ 46'}{2 \sin. 1^\circ 30'} = \frac{\sin. 79^\circ 46'}{\sin. 79^\circ 46'}$$

$$-2.493 + \frac{.82234}{.03480} - \frac{.99654}{.05236} = \frac{.96409}{.964} = 5.59.$$

Hence, the new origin is 5.59 chains, back upon the tangent line AX; and consequently, in this instance, the new curve will intersect the first curve AF.

Case II. When α , v , and z , are given; to find T' .

Let the quantity $2mT'$ be represented by D ; and the following expression will be immediately derived from (XXXI.):

$$D = 2nT - z \quad (\text{XXXIV.})$$

The value of D will be thus made known; and by an obvious transposition of the first equation (XXXII.), the following formula will then obtain:

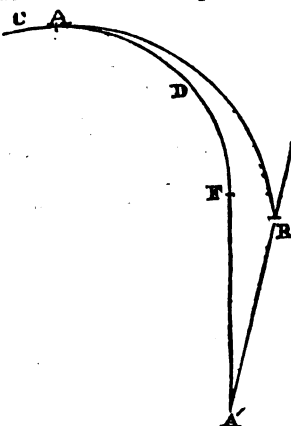
$$\sin. T' = \frac{1 - \cos. D}{2 \alpha \cdot \sin. D - 2v \cdot \sin. z + \frac{\cos. z - \cos. D}{\sin. T'}} \quad (\text{XXXV.})$$

Having computed the value of T' , the quantity m , which denotes the number of

chains contained in the new curve, will be made known by the formula, $m = \frac{D}{2T'}$.

This will, however, be accurately true, only when m is an integer number, for reasons already explained in art. 5; but the formula (XXXV.) is, nevertheless, obviously rigorous. When the formula $\frac{D}{2T'}$ does not express an integer number, it will be, most generally, convenient in practice to take for the value of m the nearest integer number

greater than $\frac{D}{2T'}$; and then, after tracing every chain in the new curve *except the last*, let that last chain be laid from a modulus of curvature expressed by the formula, $\frac{1}{2} D - T' \times m - 1$; which will restore the proper direction to the new tangent, agreeably to principles evident enough from (IV.), and it will not vary, laterally, any material distance from the required position.



Example. Let CADF be a curve whose modulus of curvature is $1^\circ 30'$; and let A be a station in that curve, 25 chains from the extreme station F. From F, suppose a tangent FA' to be laid 30 chains to a point A'. It is then proposed to determine the necessary change of curvature at the station A, in order to trace a new curve AR, such as to pass into a new proposed tangent RA', intersecting the former at the point A', and whose inclination to the common tangent at the station A, exceeds that of the tangent FA, by $4^\circ 46'$.

Here, $T = 1^\circ 30'$, $n = 25$, $v = 30$, $\alpha = 0$, and $z = -4^\circ 46'$; therefore by (XXXIV.), $D = 2nT - z = 75^\circ + 4^\circ 46' = 79^\circ 46'$.

Hence, by (XXXV.), $\sin. T' =$

$$\frac{.82234}{.02618} = \frac{.82234}{.02618} = 31.278$$

$= .02267$; or, $T' = 1^\circ 18' =$ modulus of curvature necessary to trace the required curve AR, agreeably to the principles explained in art. 9. Now, in this instance, $\frac{D}{2T'} = \frac{79^\circ 46'}{2^\circ 36'} = 29.767^\circ = 30.68$; which is not an integer number, and the new curve AR must therefore be made to consist of 31 chains, of which the first 30 will be laid agreeably to the modulus of curvature, $1^\circ 18'$. And then, $\frac{1}{2} D - T' \times m - 1 = 39^\circ 53' - 1^\circ 18' \times 31 - 1 = 39^\circ 53' - 39^\circ 0' = 0^\circ 53' =$ necessary modulus of curvature for the 31st chain.

A laughable incident occurred on the Paterson Railroad on Monday last. While crossing the long causeway, the passengers in the two cars, were startled by loud shouting from the top of the vehi-

cles. Heads were instantly protruded from all the openings, when it was discovered that the passenger cars had been detached from the locomotive and baggage cars, by the breaking of the iron pin with which they had been secured together. The locomotive proceeded nearly three quarters of a mile, before the engineer discovered that he had left his freight in the lurch. So great was the impetus, that the cars did not stop till they had come up with the locomotive.—[Jersey City Gazette.]

[From the Philadelphia Commercial Herald.]

* NEW RAILROADS.—The following Railroads are now in progress, or shortly will be, in this State, viz:

1. Lancaster, Middletown, and Harrisburg railroad.
 2. Marietta Branch railway, forming a connection with the Columbia and Philadelphia railway, at the depot near Columbia.
 3. Strasburg Branch Railroad, extending from Strasburg, in Lancaster county, to the Columbia and Philadelphia railroad.
 4. York and Wrightsville Railroad. When this road is completed, there will be a continuous line connecting the city of Washington, through Baltimore, York, Wrightsville, Columbia and Lancaster, with the city of Philadelphia.
 5. Cumberland Valley Railroad. When this road is completed, there will be a continuous railway from Chambersburg to Philadelphia via Shippenburg, Carlisle, Harrisburg, Middletown and Lancaster.
 6. Wilmington and Susquehanna Railroad.
 7. Williamsport and Elmira Railroad, from Williamsport, Lycoming county, to Elmira, in New York 74 miles, to intersect with the New York and Erie railroad.
 8. Oxford Railroad, from the Philadelphia and Columbia Railroad, near Coatesville, to Port Deposit on the Susquehanna, thirty-one and a quarter miles.
 9. Little Schuylkill and Susquehanna Railroad, from Pottsville and Danville Railroad to the Susquehanna at Catawissa.
 10. Lyken's Valley Railroad, from the Susquehanna, near Millersburg, 26 miles above Harrisburg, to the anthracite coal region, 16 miles east.
 11. The Valley Railroad from Norristown, to intersect with the Philadelphia Columbia Railroad about 28 miles west of Philadelphia.
 12. The Allentown Railroad, from Allentown, Lehigh county, to Norristown.
 13. Philadelphia and Norristown Railroad.
 14. Philadelphia and Reading Railroad.
 15. West Philadelphia Railroad—a branch of the Philadelphia and Columbia Railroad, to enter the city near Market street bridge, 8 or 9 miles in length.
- The Cleveland (Ohio) Daily Herald mentions the arrival at that port of the steamboat Thomas Jefferson, with two hundred passengers, on an excursion to the upper lakes.
- The same paper says—"Last evening, there were about twenty vessels, sloops and schooners, lying in our harbor. The schr. Henry Norton, Capt. Oliver, 150 tons burthen, cleared for Buffalo, on Saturday evening, from the warehouse of Messrs Kelly & Co. having on board besides a quantity of hams, sixteen hundred bushels of wheat, and one thousand barrels of flour."

Liverpool and Manchester Railroad stock sold on the 13th May at 193. per share for the 100.

PRICES OF RAILROAD STOCKS, At the New-York Stock and Exchange Board, JUNE 19, 1835.

	Par.	Ask.	Offer.
Mohawk and Hudson.....	100	1194	1194
Paterson.....	50	108	108
Ithaca and Owego.....	—	—	—
Saratoga.....	—	1214	121
Harlaem.....	—	115	114
New-York and Albany....	—	—	—
Boston and Providence....	100	—	—
New-Jersey Railroad and Transportation Line...	100	1164	1154
Camden and Amboy.....	100	—	—
Providence and Stonington.	100	100	994
Boston and Worcester.....	—	1064	1064
Philadelphia and Trenton..	100	984	97
Utica and Schenectady....	100	1254	125
Jamaica.....	—	—	—
Saratoga and Washington..	100	103	1024
Hudson and Berkshire....	100	1014	1014
Long Island.....	100	109	109
Saratoga and Whitehall....	100	—	—

CANAL TOLLS.—There has been received for tolls on the state canals during the months of April and May, the sum of \$353,734. 67, viz:
For 16 days in April, \$150,075 01
For 31 days in May, 223,659 66

\$353,734 67

This is \$28,985 85 more than was collected for the same months in 1833, when the tolls on merchandize were 25 per cent. higher than at present: And it exceeds the collections for April and May, 1834, by the sum of \$53,048 59.—[Argus.]

[From the Apprentice's Companion.]

MR. BURDEN AGAIN.

Among all the classes of people who constitute the human family, there is no other class who are so useful to the whole, and so poorly paid for it—who are so completely the sport of fortune's unfeeling frolics—so often dieted on hope, to increase the bitterness of disappointment—as the inventors of useful improvements. To a person who is capable of duly appreciating the services of those people, it is therefore peculiarly pleasing to meet with one of them who is proof against the game which fortune would otherwise play upon him, who will not submit, like a silkworm, to spin his cocoon for the benefit of posterity, and die in obscurity, or be scalded to death, but who, when sunk into the yawning gulf of disappointment, will rise triumphant upon the next billow, and laugh at the effects of fate to depress him.

Such were my feelings on being shown a number of horse shoes said to be made by the above named gentleman, by the help of a machine which he had invented. The shoes were very perfect, and I was told his machine would produce forty a minute. I had watched that gentleman's operations with no small interest as an unobserved spectator, while he was rapidly acquiring property by his machinery for making spikes. When, by means of his own mental and bodily exertions, and with his own money, he engaged in his plan of a steamboat, I had strong hopes of his success, but they were not unmingled with fears. But when those fears were nearly dispelled by his prospect of success, when fortune appeared to have acknowledged his demand, and to be actually loosening her purse-strings to reward him,—at that exquisite moment, when his hopes were changing to exultation, but when at one rude crash his labors and his hopes were sunk together, and no visible object intervened to save him from despair and oblivion, I can truly say, that my feelings were more excited than they had ever been by any circumstance in which I had no interest, not even then of a friendly personal acquaintance.

No person will wonder then that when I saw the horse shoes, and learnt their history, I felt a strong desire to see their birth-place, and examine for myself not only the truth of what had been told me, but the *modus operandi* by which the effect was produced.

Accordingly I visited the place a few days since, and though I presented no credentials, I found no want of kind civility, and the result paid me most amply for time and travel. The machine was not yet completed, and consequently not in operation. The shoe in the process goes through three distinct operations, but following in as quick succession as the eye can trace. The first operation requires about twice the time of the others, and is of course to have a duplicate of that part of the apparatus to make it keep pace with the other two parts, and lose no time. It is at present merely set up for trial, and attached to the power of the water-wheel which drives the spike ma-

chinery, and which has no power to spare. A wheel to propel the horse shoe apparatus will be completed in a few days, and in four weeks the establishment will be in full operation. A bar of iron was heated and put in to show me the operation, which whole bar was converted into horse shoes in a little more than one second each. The last shoe came out apparently as hot as the bar went in, and when the part which is to double the first operation is completed, it will make at least 80 shoes per minute. And yet every part of the machine appears to be almost as simple, and quite as little liable to disorder, as a common grindstone; and what appears quite remarkable, it is only a different modification of the machine he has long had in use in making spikes.

If we allow one man to every eight persons in the United States, and one half of these to have a horse apiece, there would be 875,000 horses, which is probably far within the truth. To shoe these horses all round, twice a year, would require 7,000,000 shoes. Allowing his machine to make 80 shoes a minute, and to work ten hours in a day, and 300 days a year, one machine would make 14,400,000 shoes in a year. A small sized shop would be sufficient to contain the machine and necessary workmen, and a small water power would propel it; so that one machine would make the shoes for the above number of horses, and have half the time to make repairs.

The shoes I have examined weigh $1\frac{1}{2}$ lbs. each, and 7,000,000 shoes would weigh 3906 $\frac{1}{2}$ tons, so that he would have to send from his shop on an average rising of 13 tons daily, which shoes, at one cent per pound profit, would amount to 87,500 dollars a year. There are very few horses which are not shod more than twice a year; and no man can live by making horse shoes, and finding his shop, tools, and coal, at two cents a pound. I see nothing to hinder Mr. B. from realizing the amount here calculated, and I should rejoice to see it doubled.

He has still some prospects with respect to his boat, and he is engaged in a series of experiments to decide the point which has so long and so completely baffled all calculation—the quantity of friction produced by smooth surfaces passing through water; and the plan he adopts to effect it is, I should say, infinitely more demonstrative than any other I have seen.

He who would not wish success to such a man, I would not choose for a neighbor.

ARCHIMEDES.

NATURAL SCIENCE IN COMMON SCHOOLS.

Essay on the Introduction of the Natural Sciences into Common Schools. Read at the Meeting of the American Lyceum, in May, 1833. By Professor Dewey, of Pittsfield.

As the subject of the following Essay was expressed in general terms by the Executive Committee of the Lyceum, the writer felt himself authorized to discourse upon it in the various aspects in which it presented itself to his mind. He may have entered more fully into the examination of the subject than the Committee expected; and he may have failed to treat upon some part of the subject which they had contemplated. As it is, the essay is presented before them. The thoughts will be arranged under several distinct heads.

I. Object and General View of the Natural Sciences.

The design of Natural History is the description of all the natural productions to which man has access. Its subjects are as numerous and diversified as are the objects

in the atmosphere, in the waters, and on and within the earth itself. The science carries the student into an examination of this extensive department of the works of the Divine Being.

A general and particular classification of natural objects is indispensable to the description of them. The first great and general division is into the three kingdoms, *mineral*, *vegetable*, and *animal*, which comprehend all the objects belonging to our globe.

The Natural History of the mineral kingdom comprehends the great subject of *Mineralogy* and *Geology*. Mineralogy classifies and describes all the earths, clays, ores, coals, stones, salts, gases, acids, waters, &c., which are natural productions, and which possess one homogeneous nature, or exhibit homogeneous properties. Geology performs the same task with the rocks or masses compounded of the preceding minerals, lying in extensive strata over the globe, and the strata of earth and clay, and examines the general structure and formation of the crust of the earth, and those changes which have taken place in the materials of which the earth is composed.

For the complete description of these objects, the science of *Chemistry* is essential; for no description will approximate completeness, which does not include the knowledge of the *elementary* substances and their properties, of their combinations and actions, and of the qualities of the compounds. Chemistry, extensive as it is in all its applications, is, in truth, only a subordinate part of the science of Natural History.

Geography, also, so far as it is a description of natural objects and exhibits the character of the surface of the earth, its rocks, mountains, volcanoes, petrifications, waters, earths, soils, productions, native or cultivated, is entirely subservient to the great object of Natural History.

Thus far the naturalist contemplates only matter destitute of organization, and operated upon by those unknown and yet well known powers, gravitation, cohesion, and magnetic or electric or chemical agencies. In the other two kingdoms, organized objects are described, exhibiting that well known principle, that mysterious influence, that mode of divine operation, which we familiarly call life.

The vegetable kingdom comprehends every plant, as herb, tree, grass, ferns, seaweed, &c., as well as the lichens and fungi, those often minute and shapeless objects, fastened to rocks and trees, or buried in the earth, or just projecting their heads above its surface. Plants cover the earth and rocks, and through the waters, from the equator to the highest latitude yet attained by suffering industry. To him, who has thought of the vegetable world, chiefly in the 'cedar of Lebanon,' or the lofty pine or oak of the forests, or in the general dress of green that decks the country, or in the blushing carnations that adorn our gardens and pastures, or waste their beauty and fragrance on 'the desert air,' the vegetable kingdom is yet an unknown world; and he is a stranger to the delight with which the naturalist searches out the history of a plant too insignificant perhaps to arrest common attention for an instant. All this world of vegetable life and wonder it is the province of the botanist to explore, and to pour into the treasures of Natural History the descriptions of the riches he has procured from these varied and wonderful works of the great Creator.

Botany describes and arranges the whole

kingdom of plants. The method, whether on what is technically called the *artificial*, or the *natural system*, is admirable. A great general division of plants is first made, comprising, in one body, those whose organs, employed in the production of fruit or seed, are *visible*, and in the other body, those whose like organs are wholly invisible, or seen only by high magnifying power. The latter division of plants, of which there is a vast multitude, but which present few attractions to most minds, may be passed with only this general consideration; while the former division, which contains the common, and most useful, and ornamental plants, is open to the examination of any mind. The division of plants into *Classes, Orders, Genera, and Species*, or into *Natural Families and Orders*, renders the prosecution of any part of Botany a matter of comparative ease. Connected, as this may be, with the facts of their *economical use*, as food for man or beast, as employed in the great variety of arts and manufactures, as medicine, or as mere ornament, and thus supporting rational life, or promoting the convenience and restoring the health of man, or of multiplying the sources of rational enjoyment, and of developing more perfectly the powers and beauty of the human frame, even a partial knowledge of the vegetable kingdom must be deeply interesting to all who can acquire it.

The animal kingdom is the last and highest of the three grand divisions of natural objects. The organization is more complex and wonderful, and the life itself of higher character. Although it has not been thought easy, in every instance, to point out the difference between a vegetable and an animal, it will be sufficient to consider *voluntary motion* as the characteristic of the animal kingdom. Even in the lowest grade of shell-fish, confined to a rock, we see indications of the same *voluntary power*.

Zoology is the arrangement and description of animals. The divisions are very logical, and the system very complete. If we consider it only in relation to beasts, birds, fishes, &c., a selection of objects of knowledge is very easy.

To excite our attention, however, to the multitude of objects in the animal kingdom, I shall merely mention some of the divisions in zoology: *Crustaceology*, the science of shell-fish, as crabs, lobsters, centipedes; *Conchology*, of shells, as the clam, oyster, snail, &c.; *Entomology*, of insects properly so called, bugs, flies, bees, &c.; *Herpetology*, of oviparous quadrupeds, crocodiles, turtles, lizards, frogs, &c.; *Ophiology*, of snakes and serpents; *Ichthyology*, of fishes; *Cetology*, of whales, dolphins, &c., which produce their young alive, and support them by milk; *Ornithology*, of birds; *Mazology*, of quadrupeds producing living young and suckling them.

II. Reasons for the preceding general view.

I have considered the objects of Natural History thus particularly for several reasons.

1. That the magnitude of the subject, in all its parts, may come up before us, and convince us that only a small part of it can be introduced into common schools.

2. That our attention may be directed to those portions of it which are the most accessible, and have most facilities already prepared.

3. To show the Lyceum that it is not without some plausibility, that many a zealous cultivator of some branch of Natur-

al History considers the project of introducing this study into common schools as little less than a satire upon wisdom, and a burlesque upon knowledge. The finest minds have employed the leisure hours of their lives, and others of most splendid talents have consumed all their days upon the study of only a small part of Natural History, and before them rises, not the mere image, but the living reality of the school-boy, who will not be able to learn more than the rudiments of common education, engaged in this vast study. The prospect is sickening to their souls.

I hope, however, to show that the magnitude and difficulty in attaining a knowledge of it is not opposed to the accomplishment of all that is intended in the common schools. The full and scientific study of the subject would be absurd.

4. That he is a public benefactor, who leads the minds of youth to any interesting knowledge of any of the multiplied works of the Creator, or surrounds them with facilities for becoming better acquainted with these works. The honor now resting upon many who have labored in this cause, will continue to reward those who shall labor for the same great object.

III. Selection of Subjects in Natural Science.

These parts of Natural History generally considered most appropriate to common schools are Mineralogy and Geology, Botany, and some portion of Zoology. Only parts of these can be made use of.

In *Mineralogy*, the names and general properties of the minerals about a town or district, so as to be readily recognized, might be easily acquired; and in *Geology*, the knowledge of the rocks and strata of rocks or earth, wherever any were visible; also, the general uses of these substances in the arts. This has already been proved by experiment in several schools in Massachusetts; and minerals have been sent to other schools, by way of exchange.

In *Chemistry*, a large number of experiments of the simpler kind might be performed by means of simple and common articles. A little expense would enable a teacher to exhibit some of the gases, and some of the more striking experiments. I have known boys of ten years of age, in my school, form the illuminating gas by a means of a tobacco pipe and some oily seed, as that of the butternut or sunflower, cemented in the bowl by clay, and have seen them delighted with the bright flame produced by its combustion at the end of the stem.

In *Botany*, the parts of plants employed in the descriptions, as the several parts of the flowers and leaves, and the arrangement of plants, as well as the names of many genera and species, might be learned. I knew a lad of eleven years, who, by collecting plants with a botanist two summers, learned the names of four hundred species, and was able to distinguish many more, whose names were not familiar to him, as well as to analyze flowers to a considerable extent.

In *Zoology*, some of the parts of Entomology would be most easy, as insects are so abundant, and many of their changes are so easily detected; of *Herpetology*, in relation to tortoises, lizards, &c.; of *Conchology*, in respect to land and fresh water shells in the country, and collection of shells along the shores of the ocean. Of birds and quadrupeds, the means of knowledge are increasing continually. The collection of specimens would be a healthy exercise, and exert a favorable influence over body

and mind, while curiosity would be excited and gratified.

IV. Advantages of Natural Science in Education.

Besides the value of the knowledge itself, there are indirect advantages attending the study of Natural History, some of which I shall briefly state.

1. This study calls into efficient action the power of discrimination. The constant tendency of the mind is to consider things in the mass. Particularly requires attention, care, direct effort of the mind. Not a step can be taken in Natural History without discrimination. We must begin with particulars, and we must go on with particulars. And we must often begin with a very small part of one particular thing. The mind is trained to minuteness of examination, and to the improvement of its power of seeing and making distinctions. Thence the mind proceeds to generalization. The inductive philosophy is the glory of modern times. It begins with particulars, and ascends to general conclusions.

2. The relation of one part to another of an object must be observed. The process of examination is fitted to induce the habit of attending to the relations of things, and of creating the power to consider the relations of things in all cases.

3. It leads to the adoption of system, arrangement, method, classification. Consider the multitude of facts in Chemistry, insulated and independent, until they were reduced to systematic order by some of the master spirits of modern times. In Botany, the wonderful genius of Linnae brought into order the heterogeneous mass of its materials. This system, order, arrangement, is now a part of the subject itself, and the study cannot be prosecuted without this part of logic being practically enforced upon the mind.

4. It awakens curiosity and opens the eyes to look with interest upon the works of God. It rouses the faculties from that listlessness, to which there is so strong a tendency in the naturally indolent state of mankind, and yields to the mind that gratification so desirable to be obtained from the very exercise of the powers.

5. It stores the mind with objects of thought and interest, and prepares it to increase their number. These objects, too, can attend us in all our excursions. The naturalist is ever surrounded with those objects which have roused a deep interest in his mind. Oleario's splendid panegyric on Literature is equally applicable to Natural History.

6. Though many of the subjects have less apparent contrivance, and design, and adaptation, than some others, yet these become more evident, as the knowledge is increased, and are finally seen on every side. The mind becomes more familiar with the works of the great Architect, and perceives more of the benevolence and wisdom of our heavenly Parent, if the study is conducted in the proper manner.

Hence these studies exert a peculiar influence on the character of the young. The curiosity excited, and the objects presented continually on every side, offering employment for the mind, and exercise for the body, might naturally lead to important intellectual and moral results. I am aware that this advantage is not the most obvious, and I shall only confirm its truth by a mere allusion to several instances of young men, who have, by an attention to Natural Science, been arrested in their mad career to intellectual and moral ruin. Some of these cases are known also to some members of the Lyceum.

Some part of these *indirect* advantages must attend any considerable attention to this study, and be enjoyed in no small degree by the young.

AGRICULTURE, &c.

[From Transactions of the Essex Agricultural Society.]
ON COLORING.

The art of fixing on cloths beautiful colors, although not one of the most necessary, has been made by the fashions, taste, and pride of men, in all ages and nations, one of the most valued of inventions. It is altogether a chemical art. Its theory is now well understood, and is in a high degree interesting to every studious mind, useful to all engaged in manufacturing, or in buying, selling, or consuming colored fabrics. It is, therefore, worthy the attention of all our readers.

Colors, to be permanent, must be combined with the fibres of the silk, wool, cotton, or linen, of which the cloth is composed. To understand how this can be effected, we must acquaint ourselves with the laws of chemical affinity. Affinity is nothing more than the disposition or tendency which two or more substances have to unite and form a new compound, differing greatly in some of its qualities from the simple substances of which it is composed; one substance is therefore said to have an affinity for another when, on being brought in contact, it unites with and assumes new appearances and qualities. For example, if iron and sulphuric acid (oil of vitriol) be brought together, they gradually unite and form sulphate of iron (green vitriol or copperas), but the sulphuric acid has a stronger affinity for lime than it has for iron; if, therefore, lime be brought into contact with sulphate of iron, the sulphuric acid quits the iron, seizes on the lime, and forms sulphate of lime (plaster of Paris.) Substances used in dyeing possess an affinity for the fibres of the cloth, and when dissolved in water or some other liquid, and brought into contact, they unite, and change either the color of the fibres, or so change their qualities, as to dispose them to unite with other coloring matter for which before they had no affinity.

The art of dyeing, then, consists in combining a certain coloring matter with the fibres of the cloth. This process cannot be well performed unless the dye-stuff be dissolved in some liquid, and the particles so separated that their attraction for each other becomes weaker than the attraction for them exerted by the cloth. When the cloth is dipped into this solution, it attracts the coloring matter, and from its stronger affinity takes it from the solvent and fixes it upon itself. The facility with which cloth imbibes a dye, depends on two circumstances, namely, the affinity between the cloth and the dye-stuff, and the affinity between the dye-stuff and its solvent. It is of importance to preserve a due proportion between these two affinities, as upon that proportion much of the accuracy of dyeing depends. If the affinity between the coloring matter and the cloth be too great, compared with the affinity between the coloring matter and the solvent, the cloth will take the dye too rapidly, and it will be scarcely possible to prevent its color from being unequal. On the other hand, if the affinity between the coloring matter and the solvent be too great, compared with that between the coloring matter and the cloth, it will either not take the color at all, or take it very faintly. Wool has the strongest affinity for most coloring matter, silk the next

strongest, cotton a much weaker affinity, and linen the weakest of all. In order, therefore, to dye cotton or linen, the dye-stuff should, in many cases, be dissolved in a liquid for which it has a weaker affinity than for the solvent employed in dyeing wool or silk. Thus we may use iron dissolved in sulphuric acid to dye wool, but for cotton and linen it is better dissolved in vinegar. Was it possible to obtain a sufficient variety of coloring matters having a strong affinity for cloth, the art of dyeing would be exceedingly simple and easy. But this is by no means the case; if we except indigo, the dyer is scarcely possessed of a dye-stuff which yields of itself a good color, sufficiently permanent to deserve the name of a dye. To obviate this difficulty, some substance must be employed which has a strong affinity both for the cloth and the coloring matter. Substances employed for this purpose are called mordants. Those chiefly used are earth, or metals, in the form of salts or in solution, tan, and oil. One of the most frequently used is *alum*. This salt is composed of pure clay (alumina) dissolved in sulphuric acid. Into a solution of alum the cloth is dipped, the fibre of the cloth having a stronger affinity for the clay than the sulphuric acid has, unites permanently with it. It is then taken out, washed and dried, and will be found a good deal heavier than before, although the color remains the same, the clay, which now forms a part of it, being perfectly white. The cloth may now be dyed by dipping it in a solution of any coloring matter for which the clay has a strong affinity. The clay and coloring matter may be united previous to the immersion of the cloth, and the fibres will still unite themselves with the compound, but not so equally and permanently as when dipped into each of the solutions separately. But the sulphuric acid has rather too strong an affinity for the clay to yield it readily even to wool. Most dyers, therefore, add to the solution of alum a quantity of tartar. Tartar is composed of potash and an acid found in grapes and some other vegetables, called tartaric acid. When solutions of alum and tartar are mixed, the sulphuric acid quits the clay and seizes on the potash, dislodging at the same time the tartaric acid, which seizes in turn on the clay just abandoned by the sulphuric acid. The tartaric acid, having a weaker affinity for the clay than the sulphuric acid possesses, yields it more readily to the cloth. Another purpose is also gained: the sulphuric acid remains combined with the potash, and this corrosive substance is thereby prevented from injuring the texture of the cloth. For cotton and linen, which have a weaker affinity to clay than wool or silk, another process becomes necessary. Lead or lime dissolved in acetic acid (vinegar) is poured into the solution of alum. A solution of sugar of lead is frequently used. The sulphuric acid quits the clay and seizes on the lead or lime, both of which, united with this acid, form insoluble powders, which fall to the bottom, and the acetic acid unites with the clay, for which it possesses only a weak affinity, and readily yields it to the cotton or linen immersed in it.

Metallic salts may also be used as mordants. Those of iron and tin are extensively used in dyeing. Iron is used as a mordant in two states, in that of sulphate of iron, (copperas,) or acetate of iron, that is, iron dissolved in vinegar or in the acid obtained by distilling wood (pyrolygneous acid.)

Tin is used as a mordant in three states—dissolved in nitro-muriatic acid, (a mixture of the acids obtained from saltpetre and

from common salt,) in acetous acid, and in a mixture of sulphuric and muriatic acids. The nitro-muriate of tin is the common mordant employed by dyers. It is prepared in the following manner: Melt block tin and pour it into water briskly agitated with a bundle of small rods, take of this granulated tin 2 oz., nitric acid 1 lb., water $\frac{1}{2}$ lb., common salt or sal ammoniac 2 oz., mix them together in a glass vessel, and the tin will be slowly dissolved.* When nitro-muriate of tin is to be used as a mordant, it is dissolved in a large quantity of water, and the cloth is dipped in the solution until sufficiently saturated. It is then taken out, washed, and dried. Tartar is usually dissolved in the water along with the nitro-muriate of tin. This changes the compound into a solution of the tartrate of tin and nitro-muriate of potash. The tartrate of tin is again decomposed by the cloth. The metal quits the acid and attaches itself to the fibres of the cloth, and in this state possesses a strong affinity for coloring matters, and forms with them the most permanent and brilliant dyes.

Tan is also employed, along with other mordants. It is found in nutgalls, oak and hemlock barks, sumach, and in a great variety of other vegetables. It is that part of barks, &c. which has a strong affinity for glue, of which hides are chiefly composed, unites with it and forms leather. It has a strong affinity also for cloth and for several coloring matters. Silk is capable of absorbing a very great proportion of tan, and thereby acquires a great increase of weight. For this purpose alone it is sometimes employed by silk manufactures. Tan is often employed, also, along with other mordants, in order to produce a compound mordant. Oil is also used for the same purpose, in dyeing cotton and linen.

Besides these mordants there are several other substances frequently used as auxiliaries, either to facilitate the combination of the mordant with the cloth, or to alter the shade of color; the chief of these are tartar, sugar of lead, common salt, sal ammoniac, sulphate of copper, (blue vitriol,) acetate of copper, &c.

Mordants not only render the dye permanent, but have also considerable influence on the color produced. The same coloring matter produces very different dyes, according as the mordant is changed. Cochineal, with salts of iron, produces black,—with the salts of tin, scarlet,—and with alum, crimson. In dyeing, then, it is not only necessary to procure a mordant which has a sufficiently strong affinity for the coloring matter and the cloth, and a coloring matter which possesses the wished-for color in perfection, but we must procure a mordant and a coloring matter which, when combined together, shall produce the wished for color in perfection.

The colors denominated by dyers simple, because they are the foundation of all their other processes, are four, viz. blue, yellow, red, and black. A few simple directions for dyeing wool, silk and cotton of these colors will now be given. We write for prudent and economical housewives, silk culturists, and agricultural manufacturers, and the means within the reach of such must there-

* When common salt, which is composed of muriatic acid and soda, or sal ammoniac, composed of the same acid and ammonia, is mixed with diluted nitric acid, a part of the nitric acid seizes on the soda or ammonia, and sets at liberty a part of the muriatic acid, which mixing with the remaining nitric acid, forms nitro-muriatic acid, (aqua regia,) which readily dissolves tin, gold, &c. It is more economical, however, to add sulphuric acid enough to saturate the base of the salt, which sets all the muriatic acid at liberty, and leaves the nitric acid undiminished.

fore be kept continually in view, in all the operations recommended.

Blue.—Indigo is the only substance that can be economically used in families for coloring blue. The best or purest indigo is light, easily powdered, tasteless, almost destitute of smell, and breaks smoothly, that is, with smooth surfaces. Some will float on water, and this is generally the purest. The color of indigo also varies. There is the blue, the violet, and copper colored. Although these may all contain nearly the same quantity of coloring matter, yet they are differently valued, the blue selling 20 per cent. higher than the violet, and from 40 to 60 per cent. more than the copper colored. The blue is preferred by dyers for combination, or solution in sulphuric acid, and the copper colored for the indigo vat, in which it is dissolved in a potash ley, aided by bran, madder, or other vegetable products, in a state of fermentation. Before indigo can be applied and fixed upon the fibre of cloth, it must be dissolved in water. But it cannot be dissolved in water in its blue state; it must be converted to a green or yellow color, and then it readily dissolves, is attracted by the fibres of the cloth, becomes permanently combined with them, and on being exposed to the air becomes again blue. In the solution of the indigo, therefore, consists the whole art of coloring blue. The following are among the most easy and simple methods of dissolving indigo, or, in other words, forming a blue dye.

First Method.—Take indigo, well powdered, one ounce; quick lime, one ounce; potash, two ounces; copperas, two ounces; molasses, half a pint; warm water, one gallon. Mix, and stir occasionally, keeping the vessel, of copper, iron, or earthen, well covered and in a warm place. The liquor will soon become green, covered with a copper colored or blue scum. In twenty-four hours it will be fit for use. Immerse the stuff to be colored for a longer or shorter time, according to the shade required. The strength of the color may also be varied by using a greater or less quantity of water. A very little practice will enable any one to give wool, silk, or cotton, properly prepared, with this dye, a beautiful and permanent blue, of any shade they may choose.

Second Method — Saxon Blue.—In this method, the indigo is dissolved by the aid of sulphuric acid, without losing its blue color, but it undergoes a change which renders it less permanent, and is therefore not much used, except for articles not very durable, or when a deep, unfading tint is not considered of much importance. This preparation is kept in the shops, under the name of *Liquid Blue*, or *Chemical Blue*, and is much used for blueing white cotton and linen garments, from which it is readily washed out, even in cold water. It is also extensively used in coloring greens, giving, with yellow, a more brilliant color than the blue obtained by the first method. On wool and silk it is much more durable than on cotton, and on articles which do not require frequent washing, may be often used advantageously as a blue dye. It is prepared as follows:

Take indigo, well powdered, one ounce; sulphuric acid, four ounces — mix it in a glass or stone ware vessel, and let it stand twenty-four hours, stirring it occasionally — then add one ounce of dried potash. Let it stand twenty-four hours longer, add half a pint of water, and bottle it up for use.

Mix a wine glass full of this liquid in a pail full of boiling water, and dip the stuff till they acquire the color desired. More

of the liquid must be added when the water becomes nearly clear, before the stuffs have acquired a color sufficiently deep.

Yellow.—There are a great number of imported and native plants, roots and barks, that, by the aid of the mordants alum and tin, dye yellow. But the very best of all these, viz. the yellow oak bark, or quercitron bark, as it has been named in England, being very plenty in this country, it seems altogether unnecessary even to mention any other.

To dye 10 lbs. weight of cloth, or woolen stuffs, of the highest and most beautiful orange yellow, 1 lb. of quercitron bark, and the same weight of murio-sulphate of tin, will be required*; the bark, powdered and tied up in a bag of thin cotton or linen cloth, may be first put into the dyeing vessel, which of course must be brass, copper, glass or earthen, with hot water, for the space of six or eight minutes; then the murio-sulphate of tin may be added, and the mixture well stirred two or three minutes. The cloth, previously wet thoroughly with warm water, may be put in and turned briskly a few minutes; the color applies itself in this way so equally to the cloth, and so quickly, that after the liquor begins to boil, the highest yellow may be produced in less than fifteen minutes, without any danger of its proving uneven.*

* Murio-sulphate of tin. This preparation differs somewhat from the muriate of tin, or nitro-muriate of tin, the method of preparing which is given in a preceding part of this essay. It is prepared as follows: Take six ounces of muriatic acid, and pour it upon about the same weight of tin, granulated as above directed, in a glass vessel. Then pour slowly upon the same four ounces of sulphuric acid, and let it stand in a warm place till the acids saturate themselves with tin, that is, till they will dissolve no more, which will be soon effected, if heat be applied, and gradually without being heated.

* Should a deeper orange tint be desirable, add to the quercitron bark a little madder, perhaps an ounce or less to the pound of bark, according to the color desired. This will greatly increase the beauty of the color, when examined by candle-light.

OF RAISING CEDARS FROM THE SEED, AND TRANSPLANTING THEM FOR HEDGES. —We annex below the extract referred to by our correspondent, and thank him for pointing out what we had forgotten, and still more for adding thereto his own experience on the subject.

Fayetteville N. C., Feb. 16, 1835.

To the Editor of the Farmers' Register.

Mr. S. Hobson will find in page 22, Vol. III. of the American Farmer, the mode of raising cedar hedges from the seed. I have followed the directions given there with the most satisfactory results. More than half the cedar berries prepared and planted agreeably to those instructions vegetated and flourished well.

I have not lost more than one tree in 50 by transplanting, unless the tops were cut off. In that case the trees die or decline, so as to be of little account: they will improve by severe trimming if the top is left perfect. I prefer a wet season in March or April for transplanting ever-greens, but have succeeded by taking proper pains at all seasons, except the extremes of heat and cold.

B. R.

[From the American Farmer.]

Gather the berries in November or December. Rub off the skin and wash the kernels—rubbing them well between the hands, so as to get off as much of the resinous substance as possible, then mix them with unslacked ashes, and let them

remain in the ashes for a fortnight; then plant them in drills as you would peas, and they will vegetate and come up the following spring; and being well nursed, they will in two years be fit to plant out in hedges. About the first of March is the proper time for planting them—throw into the bottom of the trench, light rich earth, such as may be had from the surface of productive ground. When the trees attain three feet high, you should begin to train the hedge—about the middle of summer is a suitable time for this operation, and it ought to be carefully continued until the hedge is as high as you may desire it—about seven feet high, and three and a half feet broad, is sufficient.

N. B. The better you cleanse the kernel, the more certainly the seed will vegetate—by proper care an excellent hedge may be expected in seven years, which for beauty and durability cannot be surpassed, either by thorns or any other growth.

Broom Corn. By H. C. [For the New York Farmer and American Gardener's Magazine.]

The cultivation of Broom Corn is carried on to a very great extent on some of the alluvial lands on the Connecticut river, and in small patches in many of the interior towns. The towns of Hadley and Hatfield raise large quantities, which are manufactured into brooms, and distributed throughout the country. The seed is considered of about two-thirds of the value of oats, and, mixed with corn, makes an excellent provender for the fattening either of swine or neat cattle. The return of seed is somewhat precarious; but often it is abundant, and will more than pay the whole expense of cultivation and preparing the crop for the market. I have known a case in which 150 bushels of good seed have been obtained from an acre; and I have been assured, on good authority, of a still larger yield, though this is not frequently to be expected. One thousand pounds of broom to an acre is a very good crop. It will pay well for manuring and good culture. No crop is more beautiful than the standing corn when in perfection. It frequently attains a height of 12 to 15 feet. The stalks of the plant are very long and hard, and, therefore, rather difficult to load upon a cart. They are considered as of no value but for manure. The usual practice is to table the corn, that is, to cut off the top, or tassel the broom, as it is called, about two feet from the top, and bending the stalks of two rows together, lay it down until it is seasoned and fit to be carried in. The remainder of the stalks are then burnt in the spring in the field, and some little advantage is derived from the ashes. A much better way, it is thought, is, after gathering the crop, to cut the stalks and lay them lengthwise in the rows, and plough them immediately under. They will become entirely decomposed by spring. A still better mode is to carry them into the cattle and sheep yards, where they become incorporated with the manure, and make a valuable addition to the compost heap.

The seed is planted in rows, wide enough apart for the plough to pass conveniently between them, and dropped in hills about

eighteen inches from each other. Four or five stalks are considered sufficient to remain in a hill—there are sometimes allowed. The cultivation and manuring is more than for Indian corn. It may be manured in the hill or by spreading, or in both ways, as you have the means of high cultivation, which this plant will bear. The stalks are not eaten by cattle, nor even browsed by them; but I am not certain that the leaves would not furnish a good feed for young stock, if stripped early, when tender, and well cured, as the Indian corn blades are cured at the south. What would be the effect of such mutilation upon the crop itself, and whether it would compensate for the labor, are inquiries which I am not able to answer, and in respect to which I cannot learn that any experiments have been made. It is an important subject for experiment. As it is at present managed, the plant returns little to the ground compared with Indian corn; and the Hadley and Hatfield farmers are obliged to connect with it the fattening of beef to a considerable extent, to furnish manure for their broom corn.

It is deemed a good crop when the broom commands five cents per lb. The price has heretofore been subject to great fluctuations. At one time it was the custom for every farmer to make up his own brooms, and then to go and sell them where he could. This was bad for all parties. It brought too many competitors into the market; and often unduly depressed the price, and the buyers were often obliged to put up with an inferior article. Now the manufacturing and the growing of the broom are in different hands; and the farmer, as soon as his broom is ready for the market, finds a purchaser at a steady price; and the manufacturer feels that his reputation, and consequently his success, are concerned in the quality of the article which he furnishes.

It is a little remarkable, that notwithstanding the extent and importance of this product, for one manufacturer within a few miles of me makes several hundred thousands of brooms a year, that in no book of agriculture in my possession can I find any account of the cultivation of this plant, not even in that excellent New-England work, "The Complete Farmer." The Shakers for a long time almost monopolized the raising of the plant and the manufacture of brooms; and their brooms, which, like the other manufactures of this industrious community, were always of a superior quality, usually commanded a high price, generally 42 cents or more. Corn brooms are now frequently sold from eight to twenty-five cents; but many of them are like Pindar's razors, "made to sell." The Shakers, however, maintain the quality of their manufacture. The handles, in an unfinished state, are furnished for a cent a piece; the wiring and the tying on are usually done by the hundred. The scraping the seed from the brush is an unpleasant business, and often very injurious to the eyes. The manufacture, where it has been carried on extensively and with ample capital, has yielded encouraging profits.

An intelligent and enterprising farmer in my neighborhood, who last year cultivated three acres and one half of broom corn

in our alluvial meadows, has been kind enough to furnish me a detailed account of the expense of cultivating an acre, which may be relied on for its exactness, but in which the rate of labor is probably over-estimated by the day. His broom was sold in the autumn at eight and one half cents per lb. It readily commands this spring 12½ cents; had he fortunately retained his broom until this time, the profits would have been greatly enhanced, while the expenses would, of course, have remained the same.

Account of the expenses of cultivating an acre of Broom Corn in Deerfield meadows, in the year 1834, by Mr. Alvah Hawkes:

One ploughing, 12th May,	\$1.25
Hoeing out, one third of a day's work,	34
Ten loads of manure, at 75 cents,	7.50
Putting manure in the hill,	2.00
Planting, one day's work,	1.00
Seed, 4 quarts, at 75 cents per bushel,	10
Hoeing, first time 3 1-2 days,	2.50
do 2d do 3 do	3.00
do 3d do 2 1-2 do	2.50
Horse and boy to plough for the season,	1.00
Tabling and cutting, 4 days,	4.00
Gathering, carting, and packing away,	2.50
	\$28.68

The expense of cultivating one acre is \$28.68 cents, the labor being rated at one dollar per day, which is more than the actual cost, as I hired my laborers by the month, at from six to ten dollars per month. The yield was at the rate of 991 pounds to the acre. Had all my ground been fully stocked, it would have exceeded ten hundred pounds per acre.

The expense of scraping the brush for the seed was thirty-three cents per hundred pounds. The brush was sold at 8½ cents per pound. The crop of seed was light and poor; fifty bushels to three acres, worth 16 2-3 cents per bushel, or \$8.33 to an acre.

Summary expense of cultivation of one acre as above,	28.68
Scraping 1000 pounds,	3.30
Board of man 5 days,	1.07
Rent of land, say \$16 per acre,	16.00
	49.05
Sale of brush, 1000 lbs. at 8½c.	85.00
Seed upon one acre,	8.33
	93.33

Nett profit on one acre, **\$44.28**

The sale of the brush at 12½ cents per pound, the present price, would have enhanced the profits forty dollars, and made them \$84.28. This is very remarkable, and certainly affords ample encouragement to labor. That it can be often done is not to be expected; and yet there is nothing extraordinary in the process. The uncertainty of the seasons is something, and the fluctuations in the market prices of broom are great. The amount of crop, though large, was not more than can usually be commanded by good and generous cultivation. Many of our lands, besides the alluvial meadows, are capable of producing good crops; and the great yield of 150 bushels of seed to the acre mentioned above,

with broom, of course, in proportion, was produced in one of the most rough and rocky towns in the commonwealth, and on land which owed every thing to good management. I hope the length of these details may be excused. H. G.

Meadowbanks, 7th May, 1835.

ANTHRACITE ASHES.—The Philadelphia U. S. Gazette says, "A lot of land, clay and sand, was covered over with ashes from anthracite coal, and clover seed sown upon it in abundance. The clover after waiting a little while longer than usual, sprung up like an ill weed, and about two weeks since presented a luxuriance of growth exceeding any thing of the kind we ever saw. The clover had the appearance of tall pea vines, so much had it shot up. If anthracite ashes have such virtues, it would be well for the public generally to understand it."

SHEEP SHEARING AT NANTUCKET.—This annual festival, and the only holiday celebrated upon the island, takes place on Monday and Tuesday next. The steamboat Telegraph leaves New Bedford for Nantucket on Sunday morning and Monday afternoon.

THE GRAIN CROPS.—The subjoined letter is from a respected friend in Jefferson county, Virginia (one of the most productive grain-growing counties in the State.) In publishing so unfavorable an account of the crops in that quarter, it seems to be proper to say that the accounts from the Pennsylvania grain districts, and other parts of the country, are altogether more favorable than the following, and promise indeed an average crop. [National Intelligencer.]

Virginia, June 11, 1835.

To the Editors.—Gentlemen: The crop of wheat is actually indifferent, indeed bad—few can reap half a crop, and others not more than a third as a fourth. The rye is generally tolerable. The corn is backward, and by good cultivation and a favorable season will be considerable, there being more than is commonly planted. The oat crop, if favored with rains, will be great, as much more than usual is sowed, to supply the deficiency or failure of the wheat, destroyed more by the fly than by the winter. The certainty of a great scarcity of wheat and rye, should induce merchants to prepare to import grain, otherwise the population of the large cities will greatly suffer. It will be unwise and very imprudent, to trust altogether to the harvest of this year. If this shall be the indiscretion of merchants, distress among the poor population of large cities will be extreme. This country will have no grain for exportation, and as the probability is, there will be a deficiency of grain for home consumption, resort should be had to foreign countries that may have to spare. Yours, &c.

[From the Troy Whig.]

WHEAT CROPS, in many parts of the country, appear to have been materially injured by the severe winter. In Maryland not more than half a crop will be secured—the wheat being either "frozen out" or "blown out" of the ground, leaving large sections almost entirely bare. In some few instances, the wheat fields had been ploughed up and planted with Indian corn. The latter, it seems, has also suffered greatly from the cut worm; but the Rye is represented as quite promising, and the crops of Clover, Grass, Potatoes, and Fruit, with the exception of peaches, bid fair to be unusually abundant.

The Richmond Enquirer states that the wheat crop in Virginia does not promise one third of the usual harvest. The severe winter has injured it extensively through all the South.

In the western part of the state of New York, Wheat has suffered more from the winter, perhaps than was ever before experienced. The large harvests of Genesee county will be diminished.

In some districts, however, appearances are better. The Pennsylvania papers speak of the prospect of an abundant harvest.

The Cincinnati Post of May 30, says—"The season, which but a few weeks since was very unpromising, now bids fair to be one of the most productive that has been for many years, even the wheat will prove to be at least an average crop."

The Poughkeepsie Eagle of the 8th, says—"The prospect of the approaching wheat crop in this county, is generally good."

NEW-YORK AMERICAN.

JUNE 18-19, 1835

LITERARY NOTICES.

WORKS OF JAMES K. PAULDING, vols. I. and II. Uniform edition. New York, HARPER & BROTHERS.—The two volumes which commence the series carry us back at once to the days of our boyhood—and to the impressions, yet fresh and unaffected, which *Salmagundi*, on its first appearance, made upon young and old of the town:—we have here *Salmagundi* re-published. Mr. Paulding, it is well known, shares with *Washington Irving* in the authorship of these charming papers—which have been revised by both, but most judiciously not altered—"a few of the most glaring errors and flippancies only," as it is modestly said in the preface, having been expunged. To the thousands and tens of thousands of readers of the present day, who only know *Salmagundi* by tradition, the publishers have, in these volumes, rendered an acceptable service. They have, too, given them a very handsome mechanical dress and execution.

THE FAMILY BOOK, OR INSTRUCTIONS CONCERNING THE RELATIONS OF LIFE: 1 vol. New York, D. APPLETON & Co.—Practical religion, as it is called for, and exemplified, in the every day life of those who are truly influenced by its spirit, is the theme of this volume. It is therefore a serious volume, and only to be taken in hand by such as are disposed seriously to inquire into, and abide by, the lessons it inculcates.

The whole story of the Sutton family is well devised, and sustained with skill and consistency.

PENCIL SKETCHES, or Outline of Character and Manners—by MISS LESLIE. Second series. 1 vol.: CAREY, LEA & BLANCHARD.—Keen observation, quick perception of the ridiculous, and a quiet humor in the mode of bringing out the characters, recommend these Pencil Sketches—now gathered into a volume, from the different periodicals in which they originally appeared.

WORKS OF MRS. SHERWOOD; vol 10—uniform edition—New York; HARPER & BROTHERS.—In this volume the *Lady of the Manor* is continued; being the second of four volumes, in which this portion of Mrs. Sherwood's works are to be comprised.

REVISTA MEXICANA. Periodico científico y literario No. 1, vol. I. Mexico—1835, p. 100.—This is the commencement of a periodical work, formed somewhat on the plan of the Quarterly's of England and America, but embracing also matter, which with us is deemed appropriate to the pages of a Monthly Magazine. It is to be published once in every two months; and, as we are informed in a well written introduction, embraces a large circle of topics for discussion, from which politics are excluded.

A brief notice of the subjects of some of the articles will perhaps furnish the most correct idea of the work. The first article is "upon the capacity of the Indians to form abstract and general ideas," and purports to be a "refutation of Robertson."

In the department of History we find "documents pertaining to the reign of Philip IV.," published for the first time from the original Mss., and a notice of "some of the voyages and maritime discoveries made by the Spanish;" commencing in 1593, and brought down to 1792. This is extracted from *Nazarrete's* collection of voyages and discoveries; and it has occurred to us, that in the department of history, the work may be made one of much interest to the American antiquarian. By the way, the successful application of steam as

the propelling power of boats, would seem, from *Nazarrete*, to have been made as far back as the year 1543, by one *Blasco de Garay*, who exhibited his success in the port of Barcelona, with a steam-boat of 200 tons, in the presence of many. He was rewarded by the crown, and a record of the whole transaction, extracted from the royal archives, and duly authenticated, is presented by *Nazarrete*.

There is also a very interesting biographical sketch of Dona Beatris de Bovadilla, the early companion and heroic friend of Queen Isabella. It was so her earnest, and, according to *Pinel*, eloquent entreaties, that the Catholic Queen was prevailed on to extend to "the great admiral" that patronage which resulted in the discovery of America.

We have not room for farther remark on the other articles. We hope that so fruitful a theme as the antiquities of Mexico will not be overlooked in succeeding numbers of the work, and commending, as we most cheerfully do, this first specimen, for much interesting matter, presented on excellent paper and in a beautiful type, we shall look with interest for those which are to follow.

THE REPUBLIC OF LETTERS; No. 53. Edited Mr. H. H. Nicholas: New York; GEO. DEARBORN.—In Wednesday's paper we referred to the new auspices under which this work was henceforth to appear, and we now have to acknowledge the first number of the third volume. The *Essays of Elia*, (Charles Lamb,) lead off, and to give an idea of the cheapness of this production, it may be stated that the two volumes of these *Essays*, will be comprized in three numbers, costing 18-3-4 cents, of the Republic of Letters. Nor is this result produced by employing small type, or common materials. On the contrary the stereotyped pages are open, clear, and distinct, and the paper is white and of excellent quality.

JACOB'S LATIN READER, with notes and illustrations, by JOHN D. OGILBY: 5th New York edition: New-York, W. E. DEAN. In stating the title of this school-book, and the fact that it has already passed to a fifth edition here, we furnish its best and sufficient voucher.

AN ENGLISH GRAMMAR, in which the principles of the language are methodically arranged and practically illustrated, &c. &c., for the use of schools: by CORNELIUS B. EVEREST: Norwich, J. DUNHAM. This is a well printed grammar, which adopts the method of instruction of Murray.

ANNALS OF PHRENOLOGY: vol. II, No. 1: Boston, MARSH, CAPEN & LYON. We have not before seen this periodical which must now be of some age. It is published under the superintendence of a committee, who are the Rev. John Pierpont, Mr. W. B. Fowle, and Doctors F. F. Flagg and John Flint.

THE HISTORY OF IRELAND: by Thomas Moore, Esq., vol. I., Philadelphia; CAREY LEA & BLANCHARD.—We have, before, in speaking of this first volume of a work, that will swell through several we presume, described it, on the faith of some extracts we have seen, as full of antiquarian research, written in a style the opposite of that which Moore has heretofore adopted, and dry enough to be in keeping, with the musty records, which have been ransacked for materials. Its history comes down only to the end of the seventh century. As it advances towards our ages, it will also, we doubt not, increase in interest.

THE AMERICAN MONTHLY MAGAZINE for June. THE KNICKERBOCKER MAGAZINE for June.

THE U. S. NAVAL AND MILITARY MAGAZINE for June. ROMANS—Washington.

THE TURF REGISTER for June. SKINNER—Baltimore.

We have thus clubbed the Magazines for the month, and shall have a word or two to say of each.

THE AMERICAN MONTHLY is very good. Its articles are in good taste, well written, and of abundant variety. The critique on Mrs. Butler's Journal, is generous and just. A most unbecoming quantity of indignation has been heaped upon that production, which in this notice is spoken of with a full perception of the talent and genius of the authoress, and with just reprobation, of its most glaring offences. Take the following extract:

Our objections to the work, then, and they are not few, are not based upon illiberality; for it does not strike us as being illiberal. They are chiefly directed to the want of good taste, as well as a proper sense of good breeding, which characterizes it from first to last, wherever individuals are alluded to. In accepting the hospitalities of any individual, an obligation is contracted, from which no mind having a proper sense of dignity and delicacy can ever relieve itself, not to take advantage of the opportunities thus furnished for observation, through an act of kindness towards the observer, for the purpose of exhibiting those who exercised it in a ridiculous view to the world. It strikes us that even in a familiar letter to a friend, there would be a repugnance to an honorable mind, to dwell with complacency on what might seem to us absurd in the character or manner of those who had treated us with kindness. To publish such absurdities to themselves and to the world, with no better disguise than an occasional asterisk, seems abhorrent, and, were it not for the evidence of the book before us, impossible. Defend us from such teachers of good breeding!

This might square with the creed of a person from some one of the inferior classes of a country where only the great and their associates are well bred, because only the great are natural, but it never would have been practised by an Englishman of the aristocracy or gentry. It is a quality which the possessor carries every where into all kinds of society, and which cannot be shaken off. It cannot be of one description at Devonshire-house, and of another in a brick three-story of Broadway; it must be the same in both places, or it can be nothing anywhere. It must be a courteous, proud, and honorable feeling, governing the character, and regulating the conduct in small things as in great.

The Frenchman's Story is one of thrilling interest, and admirably told. It is of the Revolution and its horrors. One passage will speak for the rest. The scene is the *Place de Greve*, where the guillotine was erected in permanence, with a wagon load of human beings about to be massacred:

Among these, the most remarkable was a venerable old man, whose bent figure, thin white hair, high wrinkled forehead, and withered complexion, bespoke the extremity of age, yet his manner was firm, and he never forgot for a moment the calm propriety of his demeanor. By his side stood a woman, now no longer young, but retaining much of the beauty, and all the diffused elegance of earlier days. She stood erect, and supported without effort the arm of the old man, who leaned heavily on hers. The other hand rested on the neck of a fair young girl—a mere child—not apparently more than ten years old, whose tear-swollen eyes were fixed on her mother's face with the sad and touching melancholy of childish grief. They spoke not much together; once, as the wagon stopped near where I stood, I heard the old man murmur some words of patience and encouragement to his companion; as he spoke, she turned her eye towards the child—she gazed on that fair young face, and all a mother's love beamed in her eye—the trial was almost too great for her—her lip quivered—her face grew more deadly pale—but in a moment, by a strong effort, she banished from her look every appearance of weakness. She raised her eyes to heaven—her lips moved—and then, as if her prayer for fortitude had been instantly answered, she turned a bright and smiling look on the little innocent—smoothed back the curling hair that clustered round that lovely forehead, and the mother imprinted one long fond kiss on the brow of her child. The wagon passed on, and I inquired the name of the victims whose appearance had so

"strongly interested me. It was Mallesherbes—the honest and able minister—the undaunted advocate—the kind and true friend of Louis Capet—accompanied by his daughter, the Marchioness Ro-cambo, and her child—he was about to die on the scaffold. But the child! surely they would not murder the child? And why not? The old man's crime was his innocence and purity of character—how then could the child escape? The wagon was drawn up beside the guillotine, and all was soon ready for the first execution. Mallesherbes stood nearest the steps, and he was about to descend, when a savage voice cried out, "The child first!" The old man would have remonstrated, but his daughter checked him—"Tis but a moment, my father," said she, 'tis but a moment,"—she raised the child in her arms, and herself handed it to the executioner. The little creature, frightened by the savage looks of the man, screamed out, "Don't leave me, mother—come with me—don't leave me." "I will not leave you, my child—I will be with you in a moment." The child was pacified, and the mother turned towards her aged parent, and buried her face in his neck; he, too, bent forward till his white hair flowed over her shoulders. Thus they saw nothing—yet they were so near they must have heard the jerk of the string, that loosed the ponderous axe—its clatter as it fell. A strong shudder shook the frame of the mother: but when the executioner called out, "Now for the woman," she raised her placid face from her father's neck—looked fondly in his face—kissed his cheek—"For a brief moment, farewell, my father." She stepped with a light firm tread from the wagon—mounted the scaffold—and in a moment she was with her child.

Mallesherbes came next; he had summoned all his energies for this last scene in his life's drama, and he played it nobly. Never in the proudest days of his power had the minister looked or moved with a loftier dignity. With a wave of the hand, he repulsed the rude advances of one of the guard, who would have assisted his descent from the wagon. Self-sustained, in body as in mind, he advanced slowly to the scaffold—even the fiends who surrounded it were awed—they shrunk back, and allowed the old man to place himself, almost unassisted, on the platform. They would have bound him, but he gave a forbidding look—it was enough—the executioner retired—the plank was pushed forward—and for a moment the old man must have seen, in the basket below, the heads of his children. This additional pang, if it was one, was short; the executioner jerked the string, and all was over.

We conclude with a short and well-related naval incident—if so a passage on shore may be called:

A few years since, the officers of our frigate, then lying at Mahon, were invited by the Dutch officers to join in the funeral ceremonies of paying the last tribute of respect to one of their departed shipmates. At the appointed hour we assembled on board the Dutch ship, and shortly after took our station in a line of some ten or twelve boats, pulling minute strokes, with colors half-mast. Landing at fort St. Philip, the procession moved in the following order: our band in the van playing a funeral dirge, the Dutch marines, then the coffin, borne by eight men, a division of sixty sailors, followed by the Dutch and American officers and a number of citizens. In this order we commenced our march up to the burying ground with slow and martial tread. It was certainly an imposing scene, and one well calculated to call forth sober and solemn feelings, and reflections of a melancholy cast. When about midway in our passage, a scene took place which the pen, the pencil, or the tongue, is inadequate to describe, changing our gravity to mirth, and upsetting all our gloomy meditations. We came to a sudden halt—the music ceased, and were seen retreating to the rear; the Dutch marines, from the "reverse arms," brought their pieces to the "charge," with fixed bayonets—the swords leaped from the scabbards and glistened in the sun; and with the clattering of instruments, the clashing of arms, and the "war shout" of our party, we received the enemy. He came down upon us, under cover of a cloud of dust, breaking through the troops, capsizing the coffin, trampling some under foot, tossing others in the air, and dispersing the rest of the party; and then halting in his furious charge, turned round, and, with a look of inexpressible amazement, reared aloft his noble head, and died covered with wounds.

The mysterious enemy proved to be as noble a

looking bull as ever nature gave liberty to roam the prairies. He was large, powerfully built, and of perfect symmetry, with a coat of black matted curly hair about his short curved neck and tremendous shoulders—his body smooth and of a glossy black—his horns were short, stout, and well pointed. He was grazing quietly in a field, when his attention was attracted by the music; but the sight of the scarlet uniform of the band soon roused his passion, and he commenced pawing the earth, thrashing his tail, and shaking his head, with evident signs of increasing anger; then he would make one or two fearful bounds, plough up the earth with his horns, and throw himself into a thousand attitudes: at last, as the procession neared him, his rage became ungovernable, and clearing the wall with a graceful leap, he came bounding along the road with his head down, his nostrils distended, his eyes glaring fire, the foam flying from his mouth, bellowing most furiously, with his tail well "peaked up," dashed through our ranks with all the force and gallant bearing of Murat's cavalry—and one might say with equal effect—I never witnessed a more ludicrous scene, or heard such a burst of laughter as came from our ranks! Oh! how I wished for Hogarth to have sketched that inimitable scene! The subject, "a Quixotic bull routing a military funeral!!!" It took some time to get in order again, I mean in regard to position, for our risibles were too highly charged not to render an occasional blow off absolutely necessary: the weight of gravity was too light not to keep the valve close, and when it did start up, there was a bursting forth that convulsed the whole party: how the ceremony was performed, I do not know. I only remember the full vent we gave to our feelings on reaching the ship. OCEANUS.

THE KNICKERBOCKER is, we think, less clever than usual. The papers on American literature, are tedious and querulous. They are, moreover, unjust in the assertion, that public opinion, in this country, as to native writers, waits for the sanction of transatlantic critics. The real complaint is, as we think, that public opinion is sought to be forced into the approval of American writings, merely because they are American. Our authors, and our taste as readers, need much more the repression and improvement of judicious criticism, than the stimulus of the forcing American system.

Of the Furf Register we have left ourselves little room to say more, than that it abundantly sustains its interest for sportsmen.

SKETCHES OF HISTORY, LIFE, AND MANNERS IN THE WEST.—Under this title a new work, in two volumes, by James Hall, is about to appear. It will be published by Harrison Hall, of Philadelphia, and comprise, as we learn from the Prospectus—

1. A Treatise on the intercourse between the American people and the Indian Tribes.
2. A Review of the History of French settlements in Upper Louisiana and the North-Western Territory.
3. A History of the Pioneers of the Western States—containing a brief account of the first settlements on the Ohio river, and Sketches of the Habits, Manners, and Institutions of the first settlers.
4. Statistics of the Western States—containing a Topographical Sketch of the country—an extended description of the region of the Prairies—their agricultural advantages, phenomena, &c., with a theory of their origin. Account of the public lands—the mode of sale and regulations of the office—with a review of the various propositions made in Congress for disposing of the public domain. Steamboat navigation in the West, from its first establishment to the present time—commerce and trade of the Western States—remarks on emigration—with a variety of minor subjects connected with the population, trade, agriculture, and prospects of the Western States.

The skill of Mr. Hall as a writer—his long familiarity with the western country—his accuracy and his research, cannot fail to render this a valuable publication.

SOCIETY is cemented by laws, upheld by religion, endeared by manners, and adorned by arts.

MISCELLANY.

THE ARISTOCRACY OF ENGLAND IN THEIR SOCIAL RELATIONS.—The following are extracts from a pamphlet published under the name of "Isaac Tompkins, gent.," ascribed to Lord Brougham.

"The nobility of England, though it forms the basis and bulk, forms not the whole of our aristocratic body. To all practical purposes we must include under that name all their immediate connexions, and even all who live in the same circles, have the same objects, and from time to time attain the same privileges. The law of the constitution is, that only a peer's eldest son succeeds to his father's honors, and therefore we constantly hear it said that all the rest of the family belong to the body of the people. Nothing can be more true as regards legal rights—nothing more false as regards political and social bias. It is certain that the eldest son alone is deemed by our institutions to be born a lawgiver, a senator, and a judge; that he alone, be he ever so ignorant, stupid, and vicious, is allowed to decide upon the great questions of policy and of jurisprudence, and to sit in appeal upon the decisions of all the legal tribunals of the country, and to judge without review all his fellow-citizens for property, liberty, limb, and life. These high functions are so essentially inherent in him, that no bankruptcy, no idiocy (short of being found lunatic by commission,) no criminality, can deprive him of his judicial and legislative attributes. He may have committed felony, and been transported—or perjury, and been pilloried—or fraud, and been on the tread-mill; yet, the day after his sentence expires, he may take his seat next the Lord Chancellor or the Archbishop of Canterbury, and turn by his vote the fate of a great measure for diffusing universally the justice which he has condemned and outraged; as indeed one voice threw out the Local Courts' Bill: one peer who opposed it had stated his interests to be affected by the measure, being personally possessed of a private jurisdiction.* An act of Parliament is required in such a case to disqualify the hereditary functionary; and, accordingly, a peer in Ireland, having been convicted of taking bribes to decide a cause in the House of Lords there, an act was passed to prevent him from afterwards judging, but he voted on all laws.

* That all these high, precious, grievous, absurd and revolting privileges are confined to the eldest sons of peers is certain; it is equally certain that a more gross mistake never was committed than theirs who for this reason affect to consider all the younger branches of noble families as equal with the rest of the people. Equal they are in law: they can only use and be used like their neighbors; they pay taxes like them; they cannot ride down the peasant or the shopkeepers with impunity: but so neither can the peers themselves. And yet who shall say that, except privilege of arrest from debt, and the power of sitting in Parliament and as judges, there is any real difference existing by law between the eldest son and his brothers, further than there is between a rich man and a poor? All belong to the same estate; all are alike a favored race in the Government and in society; all have advantages unknown to us of the common people; and therefore all constitute the body of aristocracy in fact, be the law ever so plain in the eldest son's favor.

"The same remark applies to all persons who, from their fortune and education, live with noble families habitually. They are admitted to the same familiarities; they receive the same respect from those who foolishly look up to rank, and yet more foolishly gaze at fashion; they find the avenues to power as well as distinction open to them; they are born even to political supremacy which others earn by working for it and deserving it.—What difference in society is there between a lord's second son, or indeed his eldest, and the son of a rich squire, especially if he be of old family, that is, if his father and grandfather have been squires before him? It is certainly a very great advantage of our constitution that nothing prevents men of no birth from gaining this station by their wealth, and talents, and industry; but still they are, in this most important particular, worse off than hereditary patricians—they have to make their way—to win their spurs; the others start on a 'vantage ground—they are born spurred.

"What, then, our honest yeoman's son, our worthy tradesman's daughter, may properly ask,

'what is it that gives the aristocratic circles all this extraordinary influence; and first of all, why is the admission into aristocratic society so very highly prized, that we of the middle classes are ready to leave father and mother, and brother and sister, and cleave unto them, if we can only, at the cost of such sacrifices, obtain admittance within their pale?'

"First, it must be admitted that there is a very great, a very real charm, in those circles of society. The elegance of manners which there prevails is perfect; the taste which reigns over all is complete; the tone of conversation is highly agreeable, infinitely below that of France indeed, but still most fascinating. There is a lightness, an ease, a gaiety, which to those who have no important object in view, and who deem it the highest privilege of existence, and the utmost effort of genius, to pass the hours agreeably, must be all that is most attractive.

"After this ample admission, let us add [that whoever, after passing an evening in this society, shall attempt to recollect the substance of the conversation, will find himself engaged in a hopeless task. It would be easier to record the changes of color in a pigeon's neck, or the series of sounds made by an Æolian harp, or the forms and hues of an Aurora Borealis. All is pleasing, all pretty, all serviceable in passing the time, but all unsubstantial. If man had nothing to do here below but to spend without pain or uneasiness the hours not devoted to sleep, certainly there would be no reason to complain of these coteries. But if he is accountable for his time, then surely he has no right to pass it thus. Compared with this, chess becomes a science, draughts and backgammon are highly respectable. Compared with this, dancing, which is exercise, and even games of romps, are rational modes of passing the hours. Compared with this, it is worthy of a rational being to read the most frivolous romance that was ever penned, or gaze upon the poorest mime that ever strutted on the stage.

"The want of sense and reason which prevails in these circles is wholly inconceivable. An ignorance of all that the more refined of the middle, or even of the lower classes, well know, is accompanied by an insulting contempt for any one who does not know any of the silly and worthless trifles which form the staple of their only knowledge. An entire incapacity of reasoning is twin sister to a ready and flippant authoritative denial of all that reason has taught others. An utter impossibility of understanding what men of learning and experience have become familiar with stalks hand in hand insolent and exulting, with a stupid denial of truths which are all but self-evident, and are of extreme importance. Every female member of this exquisite class is under the exclusive dominion of some waiting maid, or silly young lover, or slander-mongering newspaper; and if not under the sway of one paper, lives in bodily fear of two or three.—Bribes, entreaties, threats, are by turns employed to disarm these tyrants; and however tormented the wretched victim may be, she is forced by some strange fatality, or propensity, to read what most tortures her.

"Indeed, the relations of this aristocratic class with the press form one of the features most illustrative of the aristocratic character, repplete as it is with all the caprice and waywardness, the unreasoning, and often unfeeling propensities, the alternate fits of blindness to all danger, and alarm where all is safe—in short, all that goes to the composition of a child, and a spoiled child.

"That their encouragement is confined to the vilest portion of the press has long ago been affirmed, and is not denied. The respectable journals are no favorite reading of theirs. The newspaper that fearlessly defends the right, that refuses to pander for the headlong passions of the multitude or cater for the vicious appetites of the selecter circles, that does its duty alike regardless of the hustings and the boudoir, has little chance of lying on the satin-wood table; of being blotted with ungrammatical ill-spelt notes, half bad English, half worse French, or of being fondled by fingers that have just broken a gold-wax seal on a grass-green paper. But more especially will it be excluded, possibly extruded, from those sacred haunts of the Corinthian order, if it convey any solid instruction upon a useful or important subject, interesting to the species which the writers adorn, and the patrians do their best to degrade. Even wit the most refined finds no cho in such minds; and if it be used in illustrating

an argument, or in pressing home the demonstration (which it often may be,) the author is charged with treating a serious subject lightly, and of jesting where he should reason. Broad humor, descending to farce, is the utmost reach of their capacity; and that is of no value in their eyes unless it raises a laugh at a friend's expense. Some who have lived at court, and are capable of better things, say they carefully eschew all jests; for princes take such things as a personal affront—as raising the joker to their own level, by calling on them to laugh with him. One kind of jest, indeed, never fails to find favor in those high latitudes—where the author is himself the subject of the merriment. Buffoonery is a denizen in all courts, but most commonly indigenous; and after the court's example, patrician society is fashioned. It is not in the true aristocratic circles that any one will adventure the most harmless jest who would not pass for a Jacobin or a Freethinker. He may make merry with the led-captain or the humble companion, or possibly the chaplain (though that was rather of the olden time, before the French Revolution had taught the upper orders to pay the homage rendered by vice to virtue, without acquiring piety or morals.) Any other kind of wit rather indicates, if tolerated, that the adventurous individual has found his way thither from the lower latitudes of the liberal party.

"From a contemplation of the aristocracy, the result of sorrowful observation, not of irritable displeasure, we naturally turn to its lamentable but inevitable consequence. Can society long remain in this most unnatural state?

"* No charge rested on the noble lord; but it is given as an illustration. A clause in the bill had exempted his court.

"† This perfection of our mixed constitution (the envy of surrounding nations!) is thus described by a zealous Church-and-King-man—the Tory Dean Swift—as far as decency allows an extract from the Rev. author's work:—

"I told his Honor that nobility among us was quite a different thing from the idea he had of it; that our young noblemen are bred from their childhood in idleness and luxury; that as soon as years will permit, they consume their vigor and contract odious diseases among ****; and when their fortunes are almost ruined, they marry some woman of mean birth, disagreeable person, and unsound constitution, merely for money, whom they hate and despise; that the productions of such marriages are generally scrofulous, rickety, and deformed children, by which means the family seldom continues above three generations, unless the wife takes care to provide a healthy father among her neighbors or domestics, in order to improve or continue the breed. * * * The imperfections of his mind run parallel with those of his body, being a composition of spleen, dullness, ignorance, caprice, sensuality, and pride: Without the consent," adds the Dean, "of this illustrious body, no law can be enacted, repealed, or altered; and these nobles have likewise the decision of all our possessions without appeal." No one can deny that this is a most exaggerated and even false as well as disgusting representation. Yet this same very Rev. divine cants you for an hour by the clock, 'on the 30th of January, 1726, being Sunday,' about 'the blessed martyrs,' and 'the blasphemies of the Puritans, who dispensed with a House of Lords.' Verily, he should have served under the present Ministry, and with the supporters of the trustworthy handed interest, which has lately covered itself with such glory!"

A REFLECTION.—Round the idea of one's mother the mind of man clings with a fond affection. It is the first, sweet, deep thought stamped upon our infant hearts, when yet soft and capable of receiving the most profound impressions, and all the after-feelings of the world are more or less light in comparison. I do not know that even in our old age we do not look back to that feeling as the sweetest we have known through life. Our passions and our willfulness may lead us far from the object of our filial love; we learn even to pain her heart, to oppose her wishes, to violate her commands; we may become wild, headstrong, and angry at her counsels or her opposition; but when death has stilled her monitory voice, and nothing but calm memory remains to recapitulate her virtues and good deeds, affection, like a flower beaten to the ground by a past storm, raises up her head and smiles amongst the tears. Round that idea, as we

have said, the mind clings with fond affection; and even when the early period of our loss forces memory to be silent, fancy takes the place of remembrance, and twines the image of our dead parent with a garland of graces and beauties and virtues, which we doubt not that she possessed. Thus had it been with De Vaux: he could just call to mind a face that had appeared to him very beautiful, and a few kind and tender words from the lips of her he had called mother: but he had fancied her all that was good and gentle and virtuous; and now that he was forced to look upon her as a fallen being—as one who had not only forgotten virtue herself, but in sin had brought him into the world, to degradation and shame—what could be his feelings towards her?—[The Gipsy.]

[From the National Gazette]

The fondness of the Orientals for allegory is well known. One of the most curious instances of it is found in an Arabian poet, who narrates a suit which was pleaded on both sides and judged under an allegorical veil, and which seemed an enigma to those who were not in the secret. The following account of it is abridged from the "Mélanges de Littérature Orientale" of M. de Car-donne.

A Sultan, beholding a beautiful woman from his terrace, fell violently in love with her. Wishing to inform her himself of the sentiments with which she had inspired him, he imposed upon her husband Feiroux a commission to be executed immediately. As soon as he was gone, the Sultan found means to penetrate to the apartment of the beautiful Chemsennissa (a name signifying the *Sun of women*).—The lady seeing him enter, and divining his intentions, said to him: 'The lion would deem himself degraded by eating the leavings of the wolf; and this king of animals disdains to alake his thirst in the stream which the dog defiles with his impure mouth.' The Sultan comprehending that he had nothing to hope, retired in such confusion as to forget one of his slippers.

Feiroux had set off with such haste, that he had omitted to take with him the order written by the Sultan; and returning to get it a moment after the letter had departed, perceived his slipper. His jealousy was excited to the highest pitch; but he dissembled it through fear of the Sultan, and resolved to repudiate Chemsennissa. He induced her, accordingly, under a plausible pretext, to go and pass some days with her father, and gave her a hundred pieces of gold. She obeyed; but some time having elapsed without the appearance of Feiroux, she became alarmed, and communicated her fears to her brothers. They repaired together to the Vizier, to learn the reason of his absence. He replied without entering into any explanations, that the dower which had been agreed upon having been paid to Chemsennissa, there were no further questions to be asked. The case was then brought before the tribunal of justice.

The Sultan was in the habit of being present at trials, in order to restrain the Cadis. The brothers of Chemsennissa spoke thus:—"My lord, we leased to Feiroux a delicious garden, a terrestrial paradise; we consigned it to him, surrounded by lofty walls and filled with the finest trees, adorned with flowers and loaded with fruit. He now wishes to give us back this garden, deprived of every thing that rendered it delicious when he received it from us."

The Cadi having commanded Feiroux to assign his reasons, he said—"It is unwillingly that I renounce the enjoyment of this spot, which was dear to me; but one day, whilst walking in one of its paths, I perceived the traces of a lion: fear seized upon my soul, and I preferred abandoning the garden to that terrible animal, to exposing myself to his rage."

The Sultan, who easily understood the enigma, anticipating the Cadi, said to Feiroux—"Return into thy garden, Feiroux; thou hast nothing to fear. It is true that the lion has placed his foot in it, but he has touched none of the fruit; and he left it, overcome with shame and confusion: there never was a more beautiful garden, nor one, at the same time, better guarded and secure from danger."

Feiroux took back Chemsennissa, and loved her still more ardently when he discovered the difficult trial to which her virtue had been exposed without succumbing.

FINE SENTENCES IN HOOKER.—Hooker, in his "Ecclesiastical Polity," says "the time will come

when three words, uttered with charity and meekness, shall receive a far more blessed reward than three thousand volumes written with disdainful sharpness of wit.

NATURE is often hidden, sometimes overcome, seldom extinguished. Force maketh nature more violent in the return, doctrine and discourse maketh nature less importune, but custom only doth alter and subdue nature.

HOPKINS—This passion "predominates in every mind, till it has been suppressed by frequent disappointments."

MEN in great places are three servants—servants of the sovereign or state, servants of fame, and servants of business, so as they have no freedom, neither in their persons, nor in their actions, nor in their times.

LOW COMPANY—He that sinks into a familiarity with persons much below his own level, will be constantly weighed down by his base connections; and though he may easily plunge still lower, he will find it almost impossible ever to rise again.

PEDANTRY proceeds from much reading and little understanding. A pedant among men of learning and sense may be likened to an ignorant person giving an account of polite conversation.

DOMESTIC INTELLIGENCE.

CHURCHES IN THE FAR WEST.—An Episcopal association has recently been entered into in this city, for raising a permanent fund towards aiding in the construction of churches, in the fastly growing States of the West. The aims and the prospects of this association were admirably explained on Sunday evening at St. Thomas's church, to a large auditory, and the information there communicated, cannot fail of adding both to the means, and the zeal of the associates.

It was stated as the uniform result of inquiries in the western and south western states, that the great difficulty in collecting and maintaining congregations there is, the want of suitable houses of worship. Religious impressions, attachment to the church of their fathers, and the desire again to participate in its rites—all these exist abundantly.—But in a new country, thinly settled, and requiring all the means of all the households to provide for the wants of the hour—there is little or no ability to lay aside money for the construction of churches. The proposition then, is to raise a fund here—to be managed by trustees—from which loans shall be made at a very low interest, or without interest, according to the exigency of the case, towards building churches. These are to be really loans, not gifts, to be repaid as the churches grow, and to be re-loaned again, when needed, at still more distant points.

This seems to us so clearly a just and very unquestionable object of interest to all Protestants, and to Episcopalians in particular, that we so far depart from our usual course in such matters, as to make this notice of it.

[From the Courier and Enquirer.]

VERY COMMENDABLE COMPETITION.—Mr. Clark formerly Clerk of the United States House of Representatives, and Mr. Shackford, Sergeant-at-Arms of the Senate, at a late meeting of the Washington Bible Society, entered into a rivalry that resulted very much to the advantage of that institution, and we are glad that the officers of Congress can afford to lay out their money so liberally upon benevolent objects. Mr. Shackford rose in the meeting and moved the following resolution, which was read by Mr. Clark, as President of the Society:

Resolved, (by Divine permission) I will pay to the Secretary of the American Bible Society, for value received, one thousand dollars in four annual instalments of \$250 each, payable on the first day of February, in the years 1836, 1837, 1838, and 1839, without deduction. (Signed)

J. SHACKFORD.

After a few remarks the President handed the resolution to the Secretary, and the following was found to be appended.

"I will pay the like sums on the same terms."

M. ST. C. CLARK.

CHOLERA.—Exaggerated accounts are prevailing of the existence of this disease on the Western waters. St. Louis particularly, was said to be suffering, but the Missouri Republican of 30th ult., asserts that no Cholera exists there at all.

[From the Detroit Journal.]

GREAT SPECULATIONS.—Buying and selling is the order of the day. Our city is filled with speculators who are all on tip toe. Several snug fortunes of from ten to twenty thousand dollars, have already been made. Gov. Cass has disposed of the front part of his farm, as far back as Larned street, for one hundred thousand dollars. Extensive improvements are rapidly making in Detroit:—Our city authorities are authorized to obtain a loan of one hundred thousand dollars, and ourselves think seriously of advertising FOR SALE a number of bad debts.

EXPLOSION AND LOSS OF LIFE.—A part of the powder mills belonging to Mr. Spencer Cooper, near Lexington, Ky., were blown up a few days since, and a black man, the property of Mr. Cooper, was so badly injured that he died in a few hours. —[Courier.]

RAILROAD ACCIDENT.—The Ebenburg Spy states that Conrad M. Strohm, a printer, originally from Lancaster county, Pa. was killed on the Portage railway on Saturday, the 30th ult.

Mr. Johnson, master of a canal boat on the Schuylkill, was instantly killed on Friday last, by the falling of a part of the tow path bridge under which he was passing at Norristown.

CITRUS PONZINUM OR POMELO LEMON.—A very fine citron or lemon of this name, has just been sent to us, by Mr. Thomas Hogg. It weighs 9 1-2 oz. Avoirdupois, and is 8 1-2 inches in length.

It was picked about two weeks since, before it was perfectly ripe, at Dr. D. Hosack's place at Hyde Park. Its perfume is delicious.

COUNCIL WITH THE INDIANS.—We understand, that the Secretary of War has appointed Governor Stokes, Gen. Arbuckle, and Maj. F. W. Armstrong, Commissioners on the part of the United States, to hold a Council with as many of the civilized and uncivilized Indians west of the Arkansas as can be convened at the time which shall be appointed to hold it, for the purpose of effecting a general treaty of amity and friendship between all the various nations and tribes roving on our western frontier, including those in Texas, in the neighborhood of the Rocky Mountains, &c. &c. This council can hardly fail to be a very interesting one, as we understand that several thousands of these untutored sons of the forest and of the prairie are expected to attend. It was not known, when the steamboat Arkansas left Fort Gibson, on Thursday last, where the Council will be held—possibly at that post, but more probably at Fort Arbuckle, or perhaps somewhere in the prairie. Three Comanche Indians had been at Fort Gibson several weeks, and excited considerable curiosity. They were highly delighted with the Arkansas and Compromise, which were the first steamboats they ever saw. They were to leave, in a few days, under escort of a company of Dragoons, for the purpose of inviting the various tribes or bands belonging to their nation, to attend the Council. —[Arkansas Gaz.]

COMMERCE OF NEWARK.—Under this head, the Daily Advertiser of that place, states the following facts:—

The Committee appointed to inquire into the practicability of a line of Southern Packets at this port, made an interesting report on this subject at the adjourned meeting on Friday evening, of which William Wright was chairman, and Peter S. Duray Secretary. We learn from this document, drawn up after the most careful investigation, that the annual exports of this town exceed in value the immense sum of EIGHT MILLIONS OF DOLLARS: and that the chief amount is shipped thro' New York to southern ports in the United States, South America, and the West India Islands, at an expense in freight of upwards of FIFTY ONE THOUSAND DOLLARS annually. The Committee also state, that the present mode of sending goods and produce to the port of New York for shipment, is a direct tax upon the producer and consumers of at least TWENTY TWO THOUSAND DOLLARS per annum,

in cartage, ferrage, &c. From these facts it appears that the annual expense of our shipments exceeds \$73,000, and we believe, from conversation with some of our manufacturers, that this is really less than the actual amount, one third of which, at the least, might be saved by a line of packets freighted at our own wharves.

The Committee concluded with a unanimous declaration, that a line of packets should be established to the Southern States and South America. A Committee was appointed to take the necessary steps to carry the resolution—if possible—into effect.

NEW CHURCH.—A new church has been recently organized in the southern part of Brooklyn. A building, we are told, is to be erected forthwith, which will be the fifth Episcopal church in the city of Brooklyn.

From Charleston, we have by the Steam Ship papers of Saturday afternoon last—

The U. S. Branch Bank had subscribed \$1000, to the fund for the relief of the sufferers by the late fire at Charleston.

The Steam Packet David Brown has been withdrawn from the Norfolk route and put on her old route to Charleston, where she is so well known. She leaves on Wednesday, and will continue to leave here every other Wednesday, so that we shall now have alternately with Charleston two steam packets per week, by which arrangement the facilities for travelling will be greatly increased between the North and the South, and must certainly to our merchants and the travelling community in general be of very great and decided advantage. —[Daily Adv.]

STEAMBOAT ERIC.—The elegant Troy Steamboat Eric, Capt. Benson, arrived in this city last evening about 9 o'clock on her first trip the present season—having left New York yesterday, at 10 A. M. She has been detained thus long from resuming her place in the regular line of Steamboats between this city and New York, in order to undergo some important alterations in her engines, in the position of her boilers and in her decks.—These have now been finished: and she has been, in the mean time, otherwise thoroughly repaired in every part, newly painted and furnished. She is now in complete sailing order, with increased conveniences for the accommodation of the public. —[Troy Wig.]

The report of the Secretary of the Treasury upon the Commerce and navigation of the United States, for the last year, gives the following information:—

The whole tonnage of the U. States amounts to 1,606,150 tons. Of which

Massachusetts	owns	467,659	New York	340,758
			Maine	285,361

The distribution in the various cities, &c. is as follows:—

New York city	owns	323,733	New Orleans	69,993
Boston		189,394	Baltimore	59,108
Philadelphia		79,550	Portland	49,018
New Bedford		76,849	Salem	31,977
Nantucket		64,545	Barnstable	30,540

The whole number of vessels of every description built in the U. S. within the year, was 1,188. The whole number of ships built was 144. Of those, there were built—

In Massachusetts		In New York	26
In Maine	54	In all other States	27

—[Dat. Adv.]

From Matanzas we have, by the brig Th. Gener papers of the 4th inst. They furnish but little intelligence. A list is published on the 4th. of vessels arriving at, and departing from, that port during the month of May, which gives this result:

Arrivals	-	-	73
of which—American	-	-	54
Departures	-	-	47
of which—American	-	-	33

LATEST FROM MEXICO.—By the schz. Glanette, arrived at New Orleans, we have intelligence from Tampico to the 30th ultimo. Gen. Santa Anna entered Zacatecas on the 8th of May, after an obstinate resistance of five hours, by the militia of that city, 800 of whom were killed.

EUROPEAN INTELLIGENCE.

LATER FROM EUROPE.—By the packet ship *ENGLAND* from Liverpool, we have our London papers to and of the 8th ult., and Liverpool papers of the 9th.

The U. S. Frigate *Constitution*, with Mr. Livingston on board, sailed from Havre, it is stated in the London papers, on the 5th May—the *England*, sailed on the 9th from Liverpool. Capt. Maxwell, therefore, has the credit of beating that fine frigate in a passage to the westward.

It is said in some of the French journals, that an attempt was to be made by the Ministry, to add in the House of Peers a proviso to the Indemnity Law, nullifying that of the Chambers. This we deem impossible, seeing that the *Duc de Broglie* adopted, and heartily concurred in M. *Valaze's* proposal.

Mr. Livingston left his Secretary in charge of the legation; but with instructions, as is understood, to leave Paris, if the bill, as it went from the Deputies, should be passed by the Peers.

In England, the chief event is the defeat of Lord John Russell, by the Tories, in North Devonshire. It seems to have been unexpected, and to have been followed on the part of his colleagues in the ministry, with an exercise of the King's prerogative in a very unusual manner, by the revocation of the commission to Lord Hesterburg as Governor-General of India, of Lord Amherst as Commissioner to Canada, and of Sir Howard Douglas as Governor of the Ionian Isles. All these functionaries had been appointed by Sir Robert Peel, had made all their arrangements, and were on the point of embarking.

Mr. Chas. Grant, created Baron Glenelg, is to be the Governor of India.

In Portugal affairs are quiet. The young Queen attended in person to prorogue the Cortes,—and delivered a speech, for which we have no room today.

Both Chambers had addressed her to choose another husband, and she had replied to the Deputies that though she was oppressed by her recent loss, she would take their advice into consideration, and that they might expect from her those sacrifices which the country demands.

In Spain rumors of unconfirmed of battles between Zumalacarraguy and General Valdez, had been circulating. Lord Elliot had effected one good result, that of inducing more humanity in the mode of conducting the war, and in the treatment of prisoners.

PARIS, May 5.—The following are the conditions to which Charles V. is ready to accede, in order to put an end to the civil war:—1. He is ready to abdicate the throne in favor of his son, who should take the name of Charles VI.—2. He is ready to quit Spain as soon as Queen Christina shall leave the kingdom.—3. He renounces the immediate betrothing of his eldest son to the Princess Isabella.—4. He recognizes the debts contracted and consolidated since the death of Ferdinand VII.—5. He promises a full and entire amnesty, for political offences.—6. He promises the immediate convocation of the ancient Cortes to revise and give a legitimate and definitive sanction to all acts since the death of Ferdinand VII., which he will not recognize because they emanated from an illegitimate authority. All the other proposals have been rejected by Don Carlos.—[Election.]

The *Orpheus*, packet ship, from Liverpool, brings us London dates of the 15th, and Liverpool of the 16th ult.

The papers are barren of interest. Parliament re-assembled on the 12th, but nothing of importance had been done.

Lord John Russell is a candidate for Stroud, in the place of Col. Fox, who has accepted the Chiltern hundred in order to make a vacancy for him.

The Yorkshire election of Lord Morpeth was decided in his favor, by a majority of 2800. He goes as Chief Secretary to Ireland.

The Paris dates are to the 14th. The Chamber

of Peers were wholly absorbed in the trials of the Lyons people, and much excitement prevailed in the press and people of Paris. Not a word of our affairs.

Rear Admiral Lewis committed suicide in London, by blowing out his brains. He was 65 years old, and had recently married his maid servant.

Sir G. Grey, in answer to a question from Mr. Hume, stated that Lord Aylmer would be recalled from Canada, and the present Government meant to appoint a commission of two or three persons to proceed to Canada, instead of intrusting the investigation of differences that prevail in the colony to one commissioner, as the late Government had intended to do. Earl Amherst, the commissioner appointed by the late Government, has declined the offer made him by the present Government, to preside over this commission.

NEW PEERS.—Friday evening's *Gazette* contained the elevations to the Peerage of Mr. Littleton as Baron Hatherton, of Hatherton, in the county of Stafford; and Lieut.-General the Right Honorable Sir John Byng as Baron Strafford, of Hamondsworth, in the county of Middlesex.

The following is a *hit*, from the London Morning Chronicle, at the new made Peer, Alex. Baring.

We understand, that in consequence of some inconvenience occasioned by there being at this moment two Lady Ashburtons, the newly created Peer conveyed to the lady who enjoys a priority of title, a humble request that she would assume the name of Dowager, to avoid any confusion in their correspondence, &c. The noble Lady in question very naturally demurred to the propriety of this unprecedented arrangement under such circumstances; when it was agreed upon to refer the dispute to Garter King-at-Arms; who, after the maturest consideration, has decided that the new made Peer himself is more evidently entitled to the distinction; and is henceforth, therefore, to be entitled the *Dowager* Lord Ashburton.

THE REV. JOSEPH WOLFF.—This renowned traveller has signalized his return to England by giving lectures at Falmouth, respecting the countries he has visited and the adventures he has gone through. The provincial journals tell us that they were crowded; and it seems likely that this *Wolff* will supersede Captain Ross as the *Lion* of the day.

PLYMOUTH.—The late Ambassador from the U. States to France (Mr. Livingston) is sojourning for a few days with his family at Whiddon's Hotel, in this borough. His Excellency arrived here yesterday in the Constitution American frigate, 50 guns, 460 men, Captain Elliot, bound to the United States from Havre. The Constitution had been off port in heavy weather and fog for several days before she bore up. The frigate fired a Royal salute this forenoon, which was answered by the San Josef guard-ship, Captain Falcon, C. B., the commander, having previously gone alongside the Constitution. A Royal salute was also fired from the batteries of the citadel, in compliment to the American Ambassador. The ladies of Mr. Livingston's family have suffered much from sea sickness, and the hon. gentleman himself does not appear in good health. The wind continues contrary, and it is to be hoped that ere it prove favorable for the Constitution to proceed, himself and companions will have received the advantage of repose and change of air.—[London Times, 14th.]

FATAL ACCIDENT IN VAUXHALL-ROAD.—About three o'clock on Monday afternoon, the neighborhood of Vauxhall-road was thrown into great consternation by a terrific report, followed by a shock by which all the surrounding houses were shaken to their foundations. It was discovered that the shock proceeded from the bursting of a powerful steam-engine boiler on the premises of Mr. Ring, sugar-boiler, which had exploded with such violence as to tear the walls of the building in which it stood to pieces, to lift the roof up into the air, and to hurl from its foundation, and precipitate on the premises in Maguire street, a lofty chimney belonging to the engine-house. The house upon which the materials fell with the most destructive effect, was one occupied by Mr. Acton, in which were himself and his wife, a friend named Mincur, and a niece who was in an upper room. The shock was so violent as to force in the roof, carrying with it floor, furniture, bedding, &c., and burying all the inmates, with the exception of the female

last mentioned, in the ruins. Mr. Acton and his wife had a most narrow escape, being preserved by the joists and timbers falling over them in such a way as to protect them from the superincumbent materials. Mr. Mincur was taken from the ruins alive, but was so dreadfully crushed that he died almost immediately. A considerable part of the roof and walls of the engine-house fell directly down, crushing both the engineers, John Colley and William Young, to death, and at the same time killing a laborer of the name of Henry Bennett.

From Mr. Ring's evidence, one of the partners, it appeared that about two months ago he got a new boiler,—the one in question, which was placed on the ground floor of the building, in a part of the sugar-house which had been recently built. On Monday morning, about six o'clock, a fire was lighted under the new boiler. The foreman of the manufactory had told him the boiler would bear a pressure of 50 lbs. to the inch. When the steam was up, he fixed the pressure at 35 lbs., and afterwards reduced it to 30 lbs., giving the engineer a caution not to exceed that amount. At two o'clock, having been into the town in the meanwhile, he found the pressure the same. About a quarter before three he had occasion to go to another part of the premises, and about three o'clock, while standing at the gate of the premises, he heard a dreadful explosion, and saw a great escape of steam.

John Kendrick, foreman to Messrs. Houghton and Ashton, deposed to the boiler having been made. It was ordered to be of the best materials, and full-strength. This was done. He particularly attended to the making of it. It was about 20 feet long, and 5 feet by 5 1-2 in breadth and depth. It was proved with cold water before leaving the manufactory, and bore 1000 lbs. to the inch. That was considered as equal to 501 lbs. of steam. That was the uniform method of proof.

John Arriase Burrows, a miller in the employ of Messrs. Ring & Victoria, said the engine was short of power the whole day on Monday. About a quarter before three he informed the engineer (Young) about it. He said he could not raise any more steam. Witness saw him assist the fire while he was there. On returning to the mill he saw no alteration in the speed, and about a quarter of six hour afterwards the explosion took place.

Other evidence was produced, but it merely tended to corroborate the above. The jury immediately brought in a verdict of accidental death.—[Liverpool paper.]

DIFFICULTIES OF COLONIZING AFRICA.—The French have now occupied a part of the country for five years; not only with a much larger army than any modern European state yet employed in the foundation of a colony, but far exceeding in numbers the first inhabitants of any new settlement: and what is the result? No one dares stir beyond the military lines occupied by the invaders: the colony is a heavy drain upon the finances of the mother country; and this drain is likely to continue, as well from the nature of the climate, which afflicts Europeans with sickness, as from the hostility of the natives, whose incursions—difficult to prevent and impossible to punish—would be alike destructive to crops and cattle. To civilize them, if practicable, would require the lapse of several generations; to build a wall along the line of the Sahara, would be effectual, and is possible, though the game would not be worth the candle; and to do what Europeans have mostly done when they came in contact with irreclaimable savages—exterminate them—would not be so easy a matter with the Bedouins as with the Red Indians, the Hottentots, and the Australian.

SERIOUS JOKING.—The French are so lively a people that they jest upon every thing; "murder in jest," as Hamlet has it. Of the two poor American missionaries destroyed by the savages, they say that they fulfilled their mission and supplied the cannibals with Christian nourishment!!

A few days ago the remains of a farmer were interred at Stevenage, in Hertfordshire, who died many years ago, and bequeathed his estate, worth 4000 l. a year, to his two brothers, and if they should die, to his nephew, to be enjoyed by them for thirty years, at the expiration of which time he expected to return to life, when the estate was to return to him. He provided for his re-appearance by ordering his coffin to be fixed on a beam in his barn, locked, and the key inclosed, that he might let himself out. He was allowed four days, grace beyond the time limited, and not presenting himself, was then honored with Christian burial.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price \$2.

MECHANICS' MAGAZINE, AND REGISTER OF INVENTIONS AND IMPROVEMENTS.

This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

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THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

* All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given—Vols. 6 and 7, or 1 and 2, new series, \$3 per volume. QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher, D. K. MINOR, 35 Wall street, New-York.



PATERSON AND NEW YORK RAILROAD LINE.

SUMMER ARRANGEMENT FOR 1835.

Passengers will leave Paterson at New York by Jersey City

at	Ferry at
6 o'clock, A. M. by Steam	5 1/2 o'clock, A. M. by Horses
8 1/2 " " " " " " " "	8 " " " " " " " "
11 " " " " " " " "	11 1/2 " " " " " " " "
2 1/2 " " " " " " " "	2 " " " " " " " "
5 " " " " " " " "	5 " " " " " " " "

ON SUNDAYS.

Paterson at 5 1/2 o'clock, A. M. by Steam,	5 1/2 o'clock, A. M. by Horses,
8 " " " " " " " "	8 " " " " " " " "
11 " " " " " " " "	11 1/2 " " " " " " " "
2 1/2 " " " " " " " "	2 " " " " " " " "
5 " " " " " " " "	5 " " " " " " " "

New York at 8 o'clock, A. M. by Steam,

8 1/2 " " " " " " " "

11 " " " " " " " "

2 1/2 " " " " " " " "

5 " " " " " " " "

Ticket Office in Paterson, corner of Congress and Main streets, opposite "Congress House."

Ticket Office in New York, 75 Courtland st.

Passengers with Tickets will have a preference in seats.

Fare from Jersey City, 50 Cents.

Transportation Cars will also ply three times a day each way.

As the Ferry boats do not leave New York precisely at the above times, it is recommended to passengers to procure their tickets and to be at the Ferry a few minutes before the stated hours of departure.

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

BLOSSBURG AND PAINTED POST RAILROAD, OR TIOGA NAVIGATION COMPANY.

By an Act of the Legislature of the State of Pennsylvania, passed the 14th day of April, 1835, five per cent. interest is guaranteed to the Stockholders of said Company for the term of twenty years.

The books for subscription of the above Stock will be opened at the Exchange in the City of New-York, on Monday, the 22d day of June inst., where one or more of the Commissioners duly authorized will attend.

SAMUEL W. MORRIS,
URIAH SPENCER,
ELIJAH WELSH,
HIRAM BEEBE,
CURTIS PARKHURST,
THOS. DYER,
IRA KILBURN,
THOS. PUTNAM,
WM. WILLARD, Jr.
ASA MANN,
JOHN KNOX,
ROBERT TUBBS,
Commissioners.

June 6, 1835—2t

PHILADELPHIA AND READING RAILROAD.

To Contractors for Excavations and Masonry.

PROPOSALS will be received at Pottsgrove, Montgomery county, between the 7th and 15th of July, for the excavation and embankment, bridge abutments, culverts and drystone drains, of between twenty and thirty miles of the Philadelphia and Reading Railroad, next to Reading.

Persons applying for contracts, will be expected, unless personally known to the Engineer, to present with their proposals, recommendations or certificates, as to qualifications and character.

Plans and profiles of the line, and drawings of the different constructions on it, will be exhibited after the 4th of July, and all other information in relation to the work afforded on application at the Engineer's office at Pottsgrove.

MONCURE ROBINSON, C. E.
Philadelphia, May 30th, 1835. jell:jy10

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfurt street, New-York.

JOHN RUTTER, Contractor.
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—1t

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. K-ly 564a

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J26 1t

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent), are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

Troy, N. Y. July, 1834. HENRY BURDEN, Agent.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrad & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1834 H. BURDEN.

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 18-1y

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
300 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
800 do. 2 do. do.	of 45 degrees, with splitting
800 do. 2 1/2 do. do.	plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rails of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 2 3/4, 3, 3 1/4, 3 1/2, and 3 3/4 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splitting Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. dtimesw

SURVEYOR'S INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

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SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a revolving telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

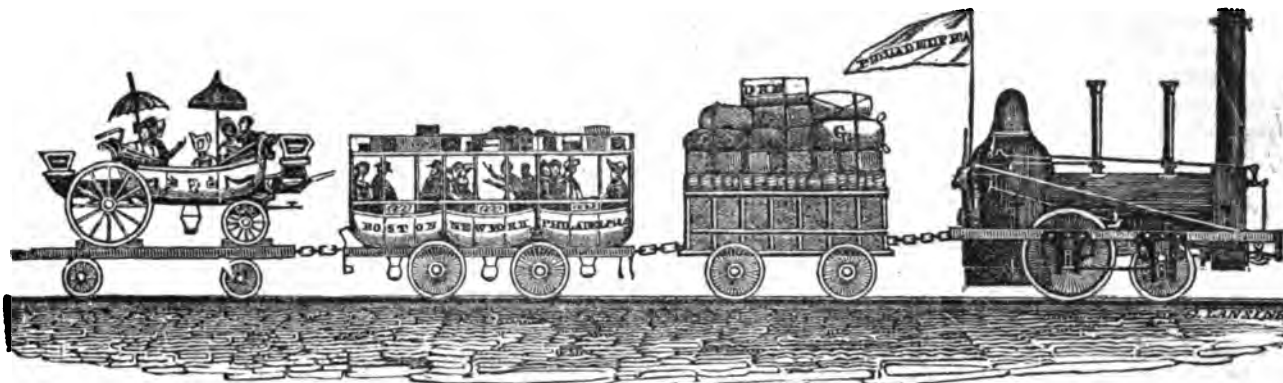
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

Germant. and Norrist. Railroad

ml 1y



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JUNE 27, 1835.

[VOLUME IV.—No. 25.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JUNE 27, 1835.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed. ♪

D. K. MINOR.

New-York, June 27, 1835.

The report of Professor BARLOW, on the transverse strength, and other properties of malleable iron, is unavoidably postponed this week. It will be published in the next number, together with engravings of the instruments with which the experiments were made.

MAD RIVER AND LAKE ERIE RAILROAD.—This important link in the internal communication of Ohio, is now about to be undertaken in earnest.

James H. Bell, of this city, a young and accomplished engineer, has been appointed Chief Engineer, for the construction of the work, with directions to enter at once upon his duty. He will leave here, as we understand, in a few days, to commence the undertaking.

This railroad, as some of our readers may know, is intended to connect Dayton—where the Miami Canal from the Ohio to Cincinnati, terminates—with Lake Erie at Sandusky. The length of the line is about 150 miles—the country through which it passes, a fine and fertile one.

At an election for directors of the *Mohawk and Hudson Railroad Company*, held on the 10th inst. in the city of New York, the following gentlemen were elected for the ensuing year:

Samuel Glover, William C. Redfield, John Laurie, Isaac Newton,* John M. Catlin,* of New York, and James Vanderpool, Aaron Thorp, John Y. L. Pruyn, Watts Sherman,* of Albany.

At a meeting of the directors subsequently, Samuel Glover, was chosen president, James Vanderpool, Vice President, and John M. Catlin, Secretary.—[Argus.]

* To supply the vacancies occasioned by the resignations of Messrs. Ramsay Crooks, M. Monson, and Gideon Hawley.

UTICA AND SCHENECTADY RAILROAD.—We are informed by one of the Directors in this company, that this road will be completed, and the whole line from Utica to Schenectady ready for use by the 1st July, 1836. We shall then be able to go from this city to New York in eighteen hours; the gentlemen who dine here at two o'clock, can breakfast the next morning in New York. This place being the terminating point for the road, a vast accession of travel will take its direction through this city; it will not be extravagant to estimate the increase at four fold the present number of travellers. Utica will become the thoroughfare of the whole west, and likewise of a portion of the south and north in this State. This, however, will not be the only nor principal advantage which will result to us from the accomplishment of this magnificent work. Being brought within so short a distance of N. York, (for the only consideration is time,) our large unoccupied water power in this county will naturally attract the attention of capitalists. We have around us some of the most valuable sites for factories and mills of different kinds, which can be found in the State. These can be obtained at moderate prices, are accessible with little trouble, and situated among a dense, moral, and intelligent population, where supplies are abundant and cheap. No investments have made as good returns within a few years past as manufactures. This interest is getting so large, wealthy and influential, particularly

since the rapid increase of wool growing, that it cannot fail to secure the protection and friendly solicitude of government. This county is already the first manufacturing county in the State, but the investments now made of two millions, bear no proportion to the capacities presented by this county, or to the growing demands of the population.—[Oneida Whig.]

The stock in the Susquehanna Canal apportioned to Philadelphia, was readily taken in Philadelphia on Tuesday last. It is stated that twice the amount could have been obtained in half an hour. This was the case also in Lancaster.

CANAL STOCKS.—The Comptroller of the State has given notice that the *Five and Six Per Cent. Stocks* payable on the 1st of July, 1837, will then be paid; and that, mean time, the stock will be purchased by the Commissioners at 5 per cent. premium for the 6 Per Centa., and 3 per cent. premium for the 5 Per Centa., together with interest to the time of surrendering the certificate.

According to the Mercantile, the amount of the stock thus redeemable, is Six Per Centa, \$1,429,870.65; Five Per Centa, \$1,004,249.83. Total, \$2,434,120.48.

RAILWAYS IN FRANCE.—The French Minister, M. Thiers, presented last week to the Chamber of Deputies a project of law relative to railroads. He announced that the Government engineers had fixed upon three principal lines for railroads—one from Paris to Havre, by St. Denis, Pontoise, and Gisors, with branch lines to Rouen and Dieppe; a second from Paris to Lyons and Marseilles; and a third from Paris to Lille, Bourdeaux, and Strasbourg. Surveys have, it appears, been made, and plans drawn out for these several lines; but one only, that from Paris to Havre is recommended to be at first undertaken. It is proposed to throw open the work to public competition, and to entrust it to any company who will offer the best conditions, and sufficient securities. M. Thiers further proposes, that the government should adopt a system practised in America, by taking shares in the enterprise on the same footing as private shareholders; and that the Government should subscribe to it to the extent of 12 millions of francs (£500,000 English).—[Lond. Mech. Mag.]

We have too long delayed the following Report. It shows the feasibility of a work which, when completed, as we are confident it will be at an early day, will form another important link in the Grand Atlantic Railroad.

To the President and Directors of the Georgia Railroad Company:

GENTLEMEN: Having completed the survey of the routes for the contemplated Union Railroad, extending from Augusta to Athens, Madison and Eatonton, I have the honor to submit to you, with the accompanying maps and profiles, the following Report on the result of my examinations.

The country, on the generally travelled route between Augusta and Athens, a distance of about 95 miles, possesses a very irregular profile; mounting the high land, from the great valley of the Savannah, in the distance of two or three miles, and subsequently crossing, at frequent intervals, the deep beds of various streams, tributary to that river. A railroad in this direction would only be practicable at an enormous expense, and with the intervention of numerous inclined planes, requiring stationary power.

This route, together with the more advantageous connexion by way of the valley of the Savannah and Broad river, is precluded from consideration by the necessity of providing, in the plan of the work, for an advantageous extension of the two important lines, to Madison and Eatonton. An important object, therefore, in the selection of the route, was to pass as far west as possible, having in view a minimum aggregate distance of the main line and branches.

In the route selected by me, in the survey, as will be seen by reference to the map, this desideratum is nearly attained, with every sacrifice, in the location, to favorableness of profile.

The line to Athens, after leaving the valley of the Savannah, is maintained to within a few miles of the Oconee river, uninterruptedly, on a ridge for the whole distance. Leaving Augusta, it is necessary to pass down the valley of the Savannah to Butler's creek, in order to get an easy ascent to the high land, by following up the valley of the creek.

The line, after thus attaining an elevation of 400 feet in 18 miles, maintains the ridge on which the new Milledgeville road is located, to within a few miles of Sweetwater, a distance of 30 miles. Crossing that stream several miles north of the Milledgeville road, where the valley is of diminished extent, the line preserves the ridge, along the Sand Hill road, leading to Crawfordsville, between the waters of various streams, flowing on the right and left into the Savannah, to Mr. Wright's; a distance of 50 miles from Augusta, and 3 miles north of Warrenton. To Warrenton a branch line could be constructed either for horse or locomotive power.

From this point to Crawfordsville, a distance of 16 miles, the ridge is maintained, dividing the waters of the Ogechee on the south, and of Little river on the north.

Passing directly through the village of Crawfordsville, the profile is highly favorable to Carlton's, 78 miles from Augusta, and 7 miles to the right of Greensboro.

Here the main track, or Union road, terminates, and the branch lines from Athens, Madison and Eatonton intersect.

From this point to Athens, is a distance of 36 miles. The line to Shoal creek fol-

lows the ridge, between waters of the Oconee on the one hand, and Little and Broad rivers on the other, passing by Beman's store, Pence's, Mrs. Dick's, Major Bell's, and Mr. Britton's, following round the head of Big creek, by Col. Thomas', and the Hon. William H. Crawford's. At the residence of Col. Thomas the distance to Lexington is between 3 and 4 miles, to which place a branch could be advantageously constructed. Thus, although the necessity of passing round the head of Big creek adds a few miles to the length of the main line, we gain, by the consequent approximation to Lexington, a shortened line and more favorable profile in connexion with that village.

Leaving Judge Crawford's, the line assumes a southerly direction to Gen. Pope's—thence passing westwardly and crossing Shoal creek, (an inconsiderable depression,) at Col. Jackson's. The route thence will be down one of the head branches of Trail creek, along the valley of that stream, to the Oconee river, opposite Athens.

The river may be crossed at any point which may hereafter be decided upon; but as the distance from the Oconee to Athens is less than half a mile, the ascent, which is 175 feet, must be overcome by means of an inclined plane and stationary power, unless some branch or creek be taken, which, by a circuitous route, might afford a sharp ascent for locomotive use. This is a point which, involving important considerations, other than those of economy in the location, may be best determined by the Board of Directors, hereafter.

The entire length of the line from Augusta to Athens, by the route we have described, is 114 miles.

Before the survey was completed and the minutes collated, we had estimated the distance at 105 miles, not then being aware, from the partial and imperfect information obtained, of the necessity of extending the location through the valley of Butler's creek and round the head of Big creek, which has added several miles to the distance.

The course of the line, in following the serpentine and devious direction of the ridge, is sufficiently regular to admit of easy curvatures of not less than 3000 feet radius.

The profile is generally favorable; there being, with the exception of the rise out of Butler's creek, the rate of which is 1 in 117, and the inclined plane at the Oconee, no other ascents necessary exceeding 1 in 150, or 36 feet in a mile.

For particular information regarding the surface of the country, I refer you to the large profile of the line, made out on a scale of 300 feet to the inch, horizontally, and 30 feet to the inch vertically.

By inspection, it will be perceived that at 18 miles from Augusta the height is 400 ft., reckoning from high water mark in the Savannah river, which is the base or zero of the profiles and vertical measurements.

At Crawfordsville, 66 miles from Augusta, the height is 477 55-100 feet. At Carlton's, where the branch lines unite, the elevation is 450 45-100 feet. At Col. Thomas', 66 64-100 feet. At Judge Crawford's, 613 69-100 feet. At Shoal creek, 608 58-100 feet. In the bed of the Oconee river, 551 3-100 feet. On the floor of the College Chapel in Athens, 628 29-100. The maximum height is about 2 miles east of Shoal creek, where the level is 673 96-100 feet.

The most expensive part of the road, as regards cost of graduation, will be that embracing the pine woods region, although there has generally prevailed an opinion to

the contrary. This is owing to the greater depths of the depressions, and more irregular and broken character of the ridge. The tabular statement, accompanying the estimate, will show at one glance the cost of graduating the different sections, as well as the number of curves, rates of inclination, &c.

It will be perceived that the branch line, to Madison and Eatonton, leaves the main line at Carlton's, 78 miles from Augusta, and pursuing a ridge route, not far from the line of the stage road from Washington, passes directly through Greensboro.—Thence the line pursues the valley of the Beaver dam and Richland creeks, ascending out of the latter at Mr. Griffith's, where the ridge is very low, passing by another small valley into the Oconee river swamp, and crossing the river near the mouth of Sugar creek.

The line then passes up the valley of Sugar creek and Clark's fork, ascending out of the latter at Tompkins'. Here the line forks, one end going to Madison and the other to Eatonton, the distance to the former place being 13, and the latter 8 miles.

The distance from Tompkins' to Carlton's is 25 miles. Thus the whole length of the western branch lines is 46 miles, which added to 114 miles, the distance to Athens, gives 150 miles for the entire length of the contemplated Union railroad.

It will be seen, that although the distance to Augusta by this route is greater from either one of the terminating points, Madison, Eatonton, or Athens, than by the stage roads, yet that the aggregate distance of the entire road is the least practically possible. At the same time, the increased distance of each place from Augusta is about the same.

Thus from Athens to Augusta, by the waggon route generally travelled, is 93 miles; by the line of contemplated railroad, 114 miles;—difference, 21 miles. From Eatonton to Augusta, by the generally travelled roads, 90 miles; by contemplated railroad, 110 5-6 miles;—difference, 20 5-6. From Madison to Augusta, by the nearest travelled roads, 92 miles; by contemplated railroad, 115 4-5 miles;—difference, 23 4-5.

As the valuable rights of the charter secure to the company, for a term of 99 years, the exclusive privilege of railroad between Augusta and these points, no apprehension from a rival road on any of the routes need be entertained, even were a reduction in the distance practicable; and, at the same time, as the charges for transportation will be in proportion to the distance passed over, there can scarcely exist a question as regards the expediency of the proposed plan of location.

The greater the amount of Union road, the less the amount of original capital; the greater the distance from each terminating point to Augusta, the larger the revenue. At the same time, as the aggregate distance is lessened, so will the expense of keeping up the road, and maintaining the transportation, be diminished.

Contrary to my expectations, formed from the appearance of the face of the country, the valley of the Oconee may be crossed, and the branch lines to Eatonton and Madison constructed, without the necessity of applying stationary power in a single instance. This result, so highly and unexpectedly satisfactory, cannot be obtained without some heavy and expensive excavation, the amount of which however ought to weigh but little against the important object in view.

There will be three planes necessary, having an inclination of between 1 in 100, and 1 in 120; one in leaving Greensboro, and descending into the valley of Beaver

Dam; one in descending into the valley of the Oconee, and the other in rising out of Clark's fork at Tompkins'. The depth of excavation at each of these planes will be from 35 to 50 feet. This depth of cutting, however, will be necessary but for a short distance, and will afford earth for the high embankment below.

We refer to the estimates and statements for particulars. We shall thus have on the whole Union railroad four planes, including that at the head of Butler's creek, having an inclination of less than 1 in 120. In all these cases a graduation for stationary power could be adopted at less expense, but yet the advantage of preserving uninterruptedly a continuous line of motive power, with the great saving in time, wear and tear of machinery, and expense of maintenance and attendance, makes the original outlay of capital, in the substitution of grades for locomotive power, altogether judiciously and truly economical.

A locomotive of ordinary construction could not ascend a plane of 1 in 120 with more than half the load which she is capable of conveying on a road of short and moderate inclinations, especially where, as in this case, the length of the ascent would prevent any material aid from previous acceleration of velocity.

The rapid improvements which have been, and are daily being introduced into this department of steam machinery, and which promise still greater results than have yet been attained, ought not to be overlooked in cases of this kind, where a decision is to be made between stationary and locomotive power. When Wood, in 1823, declared a rate of speed equal to 12 miles in the hour, as entirely visionary, and out of the question, it was little expected that in a few years afterwards a velocity of 20 miles in the hour would be established as perfectly practicable.

The calculations of the theorist, that the resistance presented to the motion of the carriage on a level railway being equal to the friction, or about 1.249 of the weight, the maximum useful effect of the engine would vary just in proportion to the inclination of the plane from the horizontal against the motion, though correct in principle, is erroneous in practice; inasmuch as where such planes are of short extent, and preceded either by a level or descent, they may offer a resistance of three or four times the amount of friction, without materially impairing the rate of motion preserved in the powerful momentum of the train.

A partial observation of this fact has led to the adoption of the fallacious theory of the undulating railway, which advises a systematic and expensive pre-arrangement of balancing planes, regularly succeeding in alternate ascents and descents, in preference even to horizontal graduations, and with the absurd purpose of thereby establishing and maintaining an additional useful effect in the motive power.

An undulating graduation should be adopted with a view to economy, but certainly not with the expectation of gaining any advantage in power.

On the Liverpool and Manchester railway, at Sutton and Rain Hill, there are two planes having a rise of 1 in 96. The engine, on arriving at the foot of one of these, receives the aid of an assistant locomotive stationed at that point for the purpose. The delay attending this arrangement is of little consequence; the expense is an object of more importance. This plan might be adopted advantageously at Butler's creek, in assisting the passage of the freight engines with their heavy trains up the ascent.

The passenger engines can be made to surmount any of the ascents unaided and without difficulty.

An extra engine, stationed between Augusta and Pepper Hill, could no doubt be profitably employed, when not acting in its capacity of assistant, in the conveyance of pleasure parties to and from the city.

It is not improbable that the healthfulness of the valley of Butler's creek, the broken and refreshing aspect of the scenery, as well as the favorite nature of the conveyance, will create a lively intercourse between Augusta and that section, especially in the summer months.

It is likely that one assistant engine would answer in the valley of the Oconee for the three planes between Greensboro and Tompkins', should it be found good economy to employ one. However, as assistance seldom would be needed, supposing the engines to be of the most powerful construction, unless the train was uncommonly large, in cases where the load was too great, a portion of it would be left at the foot of the plane, on a siding, until the ascent and return of the locomotive.

Powerful freight engines, restricted to a low velocity of 8 or 10 miles in the hour, despatched at frequent and regular intervals, are seldom loaded to the extent of their power; as the amount of freight which they are capable of carrying can seldom be collected in the short intervals of their departure. The Hamburg, a freight engine of the South Carolina railroad, can carry 600 bales of cotton 7 miles an hour, equal to about 95 tons. Yet her portion of freight in the regular course of business will seldom exceed 3 or 400 bales.

The power of the engine exerted at its maximum on the ascents, will often be sufficient to enable her to overcome them with an ordinary load. In cases, however, where the load is a maximum, either the train can be divided at the ascent, or an assistant locomotive used, as we have proposed.

I entertain a strong hope that future examinations, conducted in the most thorough and deliberate manner, may enable us to reduce some of the steep planes of inclination west of Greensboro, at least to a grade of the same rise, with a less amount of deep cutting and heavy embankment. Wherever such reductions may be reasonably expected, I have placed remarks to that effect over the line of graduation on the profile.

The town of Greensboro is 511 82-100 feet above high water at Augusta. Bed of the Oconee, 262 62-100 feet. Ridge at Tompkins', 497 3-100 feet. Madison 564 88-100 feet, and Eatonton 463 84-100 feet.

Having traced the outline of the topography and profile of the country, we have next to consider the general plan of construction which a wise economy would recommend. In grading the surface, the more substantial form of excavation and embankment, instead of piling, as adopted on the Charleston road, will be unquestionably advisable, although in some sections, where the valleys are deep and timber abundant, the truss or bridgework, as shown in plan No. 3, admitting of great substantiability and saving in expense, may be advantageously substituted. Throughout the whole line (with few exceptions) the foundation is of the best character—dry, elevated, and solid, with none of the low and loose sands, treacherous bogs, and extensive swamps of Carolina—peculiarities which, in addition to the inexhaustible abundance of pine timber, made the plan of construction there selected in every respect expedient and judicious. In the pine timbered section of

country through which the route passes, the sand seldom extends to more than 9 inches or a foot in depth, resting on a substratum of a compact clayey material.

If the excavations, which will embrace nearly one half of the whole line of surface, I would recommend in the construction, where the foundation is of undoubted solidity, the adoption of plan No. 1, which consists in the simply putting down of transverse sleepers of pine, locust, post oak, or chesnut, 10 x 10 and 9 feet long at every 5 feet in distance, into which the rails 6 x 9 should be secured in gains 4½ inches deep. The earth excavated, in forming the side drains and trimming the slopes, to be thrown in between the sleepers, until they are entirely covered, and the surface raised to within three inches of the top of the rail.

On the embankments, scantling of a durable material, 4 x 10, in lengths of not less than 20 feet, should be laid in a line under the rails, as a support for the ends of the caps, which will greatly tend to prevent any derangement of the superstructure from slight settlements, or unequal tenacity in the soil of the embankment, (see plan No. 2.)

I am greatly in favor of a large size of caps and rails, in preference to the small dimensions usually adopted. The additional quantity of timber necessary is more than balanced by the greater weight and solidity of the pieces, rendering the road far less liable to derangement and injury, from imperfections in the materials or workmanship. The distance apart of the transverse pieces is less than that of the South Carolina railroad, and greater than that of the northern roads. In the former it is 6½ feet, the size of the rail being 6 x 10, in the latter generally 3½ feet with a rail 6 x 6, and as we recommend 5 feet, with a rail 6 x 9. With the large size of caps in the plan proposed, we shall have an equal degree of stiffness, and a much greater weight of timber. It should be borne in mind that where the rail throughout its whole length rests on earth, as is generally the case on an embanked road, the principal purpose of the sleeper is not so much to afford a support in the foundation, as to confine the rails, and preserve the position of the track.

The comparative amount of timber in the different plans would be as follows:

On the northern roads, for one mile,
1508 sleepers, 7 x 9, 8½ feet long, placed 3½ feet apart, on a foundation of broken stone. 67,294
10560 feet in length of railing, 6 x 6. 31,680
98,974 ft.

On the South Carolina road, the dimensions of timber used, and quantity per mile, were as follows:

812 caps, 9 feet long, 6 x 9, placed on piles
6½ feet apart. 32,886
Railing, 6 x 10. 52,800
85,686 ft.

As we propose,
1056 sleepers, 10 x 10, 9 feet long, 5 feet apart, resting on a solid surface of gravel or clay. 79,200
Railing, 6 x 9. 47,520
126,720 ft.

On the embankments, where longitudinal string pieces will be necessary, the amount used on the northern roads is generally the same with that we recommend.

The following is an estimate of the cost of one mile of road, by the plan proposed:

1056 sleepers, 10 x 10, heart pine or light wood, post oak or chesnut, hewed, at 50 cents. \$528 00
Laying the same. 250 00
Railing 47,520 feet, at \$10 per thousand. . . . 475 20
Laying the same, and preparing the surface for the iron. 375 00
Spiking down the iron. 30 00

Preparing side drains, and filling in between
the sleepers and rails,..... 150 00

*\$1808 20

On embankments the additional cost* will
be as follows:

45,164 feet of lightwood foundation pieces
at \$10..... \$451 60
Laying the same, and securing down the caps
with trenails,..... 250 00

701 60

Estimate as before,..... 1808 20

Amount,..... \$2509 80

The route for the first 50 miles from
Augusta is more or less abundantly sup-
plied with pine timber, suitable for caps
and railing. In the balance of the line,
although the country in many sections is
extensively cleared, we do not apprehend
difficulty from the want of timber.

The post oak and chesnut, which enter
largely into the growth of this part of the
country, are of well known durability, and
will make the best of caps and sleepers.
There is no doubt that the same descrip-
tion of timber, carefully selected, may be
made available for railing.

The many mills situated on each side of the ridge,
upon streams contiguous to the line, may be pro-
fitably employed for the road, and will no doubt
prove adequate to the supplying of the sawed ma-
terial.

The road itself, in the course of its construction,
will, of course, in many instances, offer a cheap
and expeditious means in the transportation of
timber from well provided to badly supplied sec-
tions.

There is one point which claims our particular
attention: the use of stone as a material in the con-
struction.

Stone is used at the north in several modes of
construction:—

1st. In blocks, generally about one foot square
and two feet long, set into the ground, three feet
apart, longitudinally, in parallel rows, the width of
the track. These blocks, in some cases, as on the
Liverpool and Manchester, Camden and Amboy
railroads, &c., afford immediate support to the iron
edge rails; in other cases to string pieces of yellow
or pitch pine, 6 x 6, on which the iron plates are
fastened. In both cases, the space between the
rails, or string pieces, is filled up with earth or
broken stone, which is almost necessary to the sta-
bility of the track. Here, it will be seen, that the
string piece, being in contact with the earth, is as
liable to decay as if it rested upon a wooden sleeper,
and the only advantage gained, in point of dura-
bility, is the absence of so much of the perishable
material as is embraced in the sleeper.

A second plan of using stone, is in long blocks,
placed longitudinally, in continuous parallel lines,
in a prepared foundation; giving immediate sup-
port to the iron plates, and dispensing entirely with
wood in the formation. This plan of road is seri-
ously objectionable in practice, owing to the want
of elasticity in the materials, and the necessity of
placing the iron plates near the edge of the stone,
which frequently splits off beneath.

A third plan is an improvement on the above,
which obviates its difficulties—the placing of a lo-
cated or pitch pine lath, 2 1-2 inches thick, over the
centre of each line of stone rail, and on this lath se-
curing the iron plates.

A fourth plan, as adopted on the Quincy road, is
the simply laying of transverse stone sleepers, on
which the wooden rails, supporting the iron plates,
are fastened.

Either of these plans could be adopted on the
Georgia road, at a great saving in expense; owing
to the mildness of the climate rendering unneces-
sary the great expenditures incurred at the north,
in preparing a foundation to resist the effects of
frosts.

* The extra cost at the north, using the same di-
mensions of materials, in preparing a foundation of
broken stone or gravel for the sleepers to rest upon,
with the cross culverts and drains necessary to carry
off the water, would amount, in the lowest estimate,
to \$1000, and generally to 1500 or 2000 per mile. In
this country, where frosts will not injuriously affect
the work, this expense is rendered entirely unneces-
sary.

The main advantage of stone, is less in affording
stability of foundation, than a permanency of struc-
ture.

In the plans we have considered, where wooden
string pieces are used, this object is not fully at-
tained; because, the perishable material being in
contact with the earth, increases the tendency to
decay. On the other hand, if the superstructure
be elevated above the surface, an adequate support
is left, to preserve the stability and parallelism of
the tracks.

To avoid this evil, wood is again resorted to—
transverse tie pieces being placed at frequent inter-
vals between the rails. Thus we incur an amount
of perishable material almost equal to that in the
ordinary wood construction, with the additional
expense of the stone supports.

It is known, that timber, elevated above and
near to the surface, will not last longer than that
entirely covered in the earth.

Taking all these views into consideration, we
think it will seldom be found, in this climate, good
economy to adopt the stone blocks in road making.
Where rock is abundant, however, and can be
quarried advantageously, and timber is difficult to
be obtained, a plan as shown in No. 4, may be
adopted on solid surfaces. In this plan the stone
should be got out in as long masses as possible—
never less than one foot in depth, by 12 or 15 in-
ches in breadth. These stones should be roughly
dressed on the upper surface, and laid, as a sup-
port for the string pieces, in continuous parallel
lines interrupted at every 30 feet by the introduc-
tion of transverse sleepers of wood, 12 x 12.—
The string pieces, 5 x 5, should be laid on the cen-
tre of the stone surface, and secured at every 3 feet
by iron spikes, 6 inches by 1-2 inch, driven, through
the string piece, into a seasoned oak plug, previous-
ly introduced into a hole drilled in the stone. The
ends of the string pieces should meet on the wood-
en sleeper. In order to give the spike a better hold
in the plug, a cavity should be made to receive it
of 2 1-2 inches deep in the top of the scantling, by
means of a 3-4 in. auger. To prevent the settling
of water in these cavities, they should be plugged
with wood, after the driving of the spike, and
covered with pitch or turpentine. The whole
work should be filled up to the base of the scant-
ling.

In this plan, the size of the string piece, 5 x 5,
will be sufficient to preserve uniformity in the top
bearing, in case of inequalities in the supporting
surface, whether from defective dressing of the
stone, partial settling, or otherwise. The expense
of this plan may be estimated as follows, viz:—

9000 cubic feet of stone sills or slabs 12x12 at 15 cents.....	\$1350 00
264 cross sleepers of wood at every 30 feet 12x12 at 50 cents per piece.....	132 00
Pitch pine, chestnut, or white oak string pieces 5x5, 21,375 feet at \$10.....	213 75
1483 lbs. spikes, 6 inches x 1/2 inch at 7 cts..	103 81
Workmanship including putting on the iron plates, filling in, &c.....	1225 00

Amount for 1 mile exclusive of the iron plates.....	\$3024 56
Cost when wood alone is used by plan No. 1 in excavations.....	1808 20

Difference..... \$1216 36

This shows a large balance in favor of the wood
construction, even with this, which we consider as
cheap a plan of using stone as can be safely adopt-
ed.

In regard to the plan of setting in stone blocks,
at three or four feet apart, and supporting the wood-
en rails or string pieces thereon, I have already
mentioned that it is very liable to derangement, and
will not answer well unless great expense is taken
in preparing the foundation, and wooden cross or
tie pieces used.*

* A young gentleman, assistant civil engineer, thus
writes me, regarding the stone construction of a road gen-
erally considered one of the best in this country. "The
stone blocks on this road are 18 inches by 12 x 14, and
cost from 25 to 40 cents each. They are placed 3 feet apart
from centre to centre in the line of road, the rails 6 x 6, sup-
ported by cast iron knees. If you were aware of the diffi-
culties which attend this mode of construction, I think you
would not hesitate to dispense with it. A railway laid upon
stone blocks, besides costing nearly double that of a wooden
road, is much more liable to derangement, more difficult of
adjustment, and costs much more to keep it in repair. I
speak this from experience, and the facts cannot be doubt-
ed. The Directors are at this time having cross ties or
transverse sills inserted at every 6 feet where the stone
blocks are used, and they talked seriously last winter of
taking them up entirely, and laying wooden sills laid in
their stead."

I am convinced, from all I have observed, and all
I can learn on the subject, that you will not find it
advantageous to make use of stone extensively in
your road, unless as a foundation for truss or
bridge work.

I am confident, that a great expense in embank-
ment may be saved, by adopting this trust or
bridge work, as shown in plan No. 3, for the cen-
tral or lowest parts of deep depressions. Support-
ed on a solid foundation of masonry, the timber
will be preserved from decay, for a long period.—
At the same time, ample space is provided for the
passage of water through the valley, and sufficient
altitude frequently attained to allow, where occa-
sion requires, the conducting of a farm road be-
neath the work.

The next important point to be considered, is the
size and shape of iron plates best adapted to our
purposes.

I would respectfully recommend the use of bars,
having the dimensions shown in the accompanying
drawings.

This iron is 2 1-2 inches wide, by 6-8 inch thick,
with a flange, or rectangular projection, 1-2 inch by
3-8 inch, the bars tongued at the extremities. The
spikes 5 inches long by 1-2 in., sunk at every 18
inches in length a full 1-16 in. below the face of the
iron. Iron plates of this description will weigh
about 29 tons, costing \$1450 per mile—adding the
spikes, 2500 wt. at 7 cts.—\$1625 total, for the iron
and spikes in a mile.

A small quantity of flanged iron was ordered
from Liverpool, for the curves of the South Car-
olina said road. The iron was placed on a portion of
the work, and answers an admirable purpose. Its
great advantage is, in preventing lateral friction,
between the flange of the wheel and the wooden
string piece, and also in greatly stiffening the plate;
thereby preserving a uniformity of surface not
subject to derangement from slight imperfections in
the material below. Also, when iron is used of the
ordinary kind, 1-2 in. or 5-8 in thickness, the great
weight of the cars, rolling over them at high veloci-
ties, tends to depress them in the centre, and raise
the ends, working the spikes loose, and making a
rigid and expensive system of police, and frequent
repairs, necessary.

Accidents will be less frequent, friction greatly
diminished, and the expenses lessened, on a road
having iron plates such as we recommend. This
iron may be obtained at Liverpool, at the price per
ton of the ordinary iron.

Supposing this style of iron to be adopted, the expense, with the wood construction, in excava- tions would be.....	\$3,433 20
On embankments.....	4,134 80
Where stone is used in the foundation.....	4,649 66

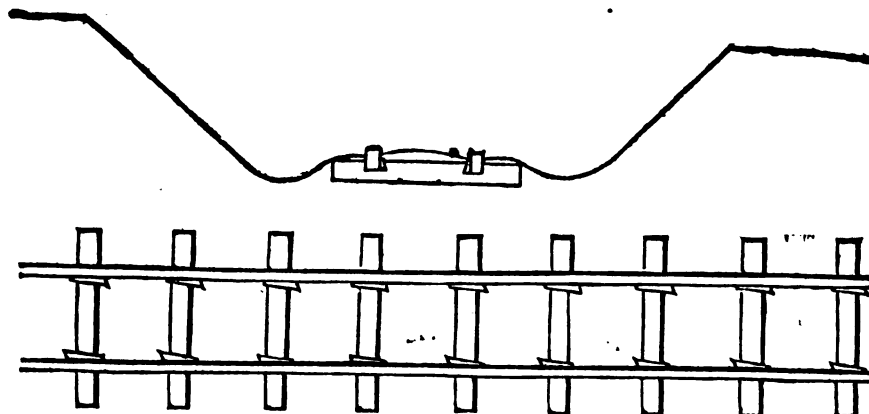
(To be continued.)

Sec. of the Iron Plate.

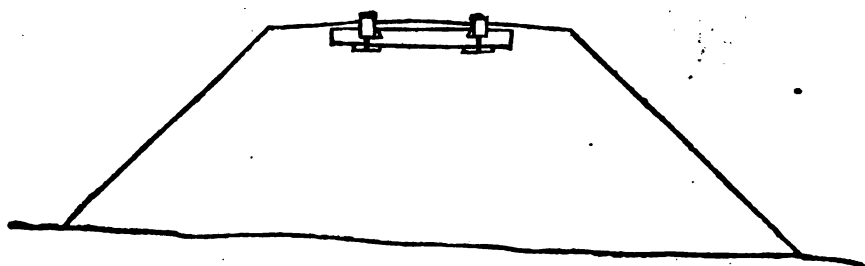


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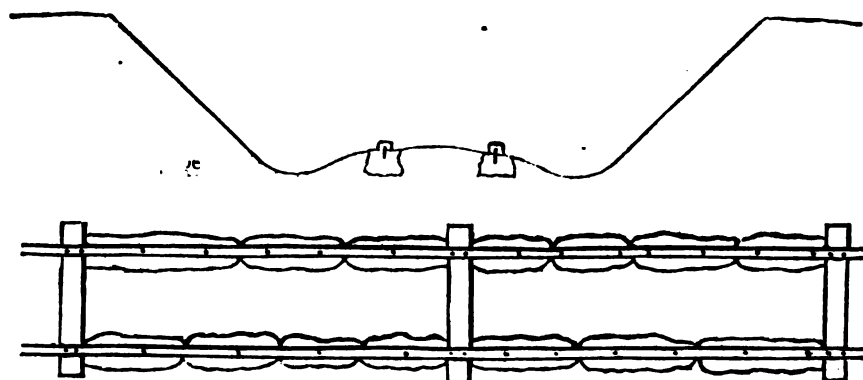
Plan No. 1, for Excavations.



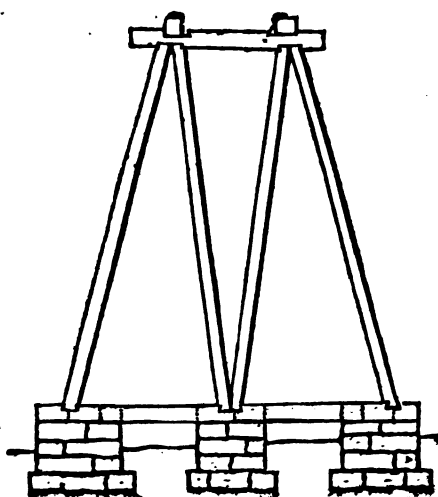
Plan No. 2.—Embankment.



Plan No. 4, on Stone.



Plan No. 3, of Bridge Work.



DUBLIN AND KINGSTOWN RAILWAY.—
The following is a statement of the number of passengers, of different classes, conveyed along this railway during the first quarter of a year since it was opened, namely, from the 17th of December, 1834, to the 17th of March, 1835 :

1st class, fare 1s. each,	10,008
2d do. 8d. do.	72,148
3d do. 6d. do.	94,961

Total number of passengers, 177,117

The whole of this immense number of passengers has been conveyed without the slightest accident of any sort. The receipts during the same period have amounted to £5,283 16s. 8d.—[London Mechanics' Magazine.]

[From the London Mechanics' Magazine.]

Substitute for Canal Locks.

SIR,—A short time since I read an extract from the Taunton Courier, (the date and particulars of which have escaped my memory) which announced the opening of some branch canal in that part of the country, of about four miles in length ; on which canal machines called "*lifts*," said to have been invented by Mr. Green, the engineer, have been introduced in lieu of the present mode of lockage. Now, if I mistake not, a similar machine was invented as many as twenty years ago, and actually brought into action by a person of the name of Woodhouse. But whether Green borrowed the idea, from Woodhouse, or Woodhouse from Green, it is impossible for me to say. I know it was considered at the time quite a new thing. However, it was found not to answer the intended purpose being too complex, and too expensive for universal adoption. I should be highly gratified if some of your numerous correspondents would produce a drawing and description of one of these "*lifts*," for insertion in your journal ; and I am sure there are hundreds besides myself who would be equally gratified.

If I might be allowed to state an opinion, I should say this mode is *inferior* to the old mode of *lockage*. Twenty or thirty tons is a weight which must require machinery of an immense strength and power to transport from one level to another, often differing from six to eight feet ; and, as a natural consequence, the time lost must be considerable—much more, I should imagine, than by the present mode *lockage*. To be sure, in short water seasons, like the last, they would be found highly valuable, as at such seasons loss of time is nothing compared with a saving of water. The past has been a trying season for canals, and the expense incurred by many of the companies has necessarily been very great. I have been told it has cost some of them as much as £3 for every lock of water ! and that, too, for a considerable length of time !

I am, &c. J. L. J

Bulbourne, March 23, 1835.

In consequence of the extension of the Ohio and Chesapeake canal to Cumberland, the sales of land in that coal region have already advanced 100 per cent.—[Buffalo Adv.]

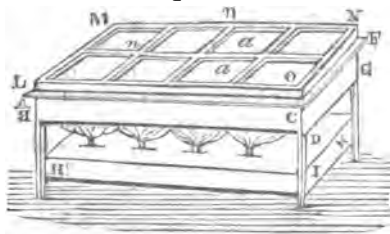
[From the Journal of the Franklin Institute.]

Experimental Illustrations of the Radiating and Absorbing Powers of Surfaces for Heat, of the Effects of Transparent Screens, of the Conducting Power of Solids, &c. By A. D. BACHE, Professor of Natural Philosophy and Chemistry, University of Pennsylvania.

Among the very interesting phenomena of heat, there are many which are with difficulty brought under the eyes of a class, so as to render them satisfactory to each one by the test of sight. The thermometer, even when constructed on a large scale, affords but an inadequate means of rendering evident the temperature of bodies, to those who are distant from the lecture table, and the illustrations made by its use are, at best, rather tame. When the temperatures to be indicated admit of it, lecturers have, in preference to using the thermometer, resorted to the freezing of water, to the melting of wax, to the inflaming of phosphorus, the boiling of water, &c., as more adequate means of rendering evident the temperatures in question.

The instruments about to be described, I have found very convenient for class illustration, and always to afford satisfactory evidence of the positions to be proved. The first instrument is intended to show the powers of different surfaces in radiating and absorbing heat, with other phenomena, which will be referred to in the sequel.

Fig. 1.



To produce a sensibly uniform temperature, a prismatic vessel, A B C D F G, fig. 1, of sheet iron, of a convenient size, is filled with melted tin, and covered at top by a plate of sheet iron, A F, or, in preference, by a plate of cast iron, of moderate thickness. The temperature of the tin is kept up by an alcohol lamp, H I K, with several wicks, fitting below the box, and between the legs which support it; by this means, the top radiates heat of considerable intensity. I prefer the use of tin, in the box, to that of oil, on account of the greater cleanliness resulting from its use, and because the oil gives off an offensive smell at high temperatures. Boiling water does not give a sufficiently high temperature to produce rapid action in the apparatus, and the greater exactness with which it would yield a constant temperature is not necessary in such an illustration.

A rectangular frame, L M N O, made of dry wood, to prevent its warping, of a small height, L A, and of a length and breadth such as to adapt it to its place upon the cover of the box, A G, is divided by cross pieces of wood into small squares, or rectangular compartments, as *n n*, the upper surface of the frame being perfectly plain, and parallel to the cover, A F, of the box containing the melted tin; this frame is intended to support, without the necessity of contact with each other, small plates of thin metal, or other appropriate material, the surfaces of which are variously coated.

To show the radiating powers of different surfaces, any convenient number of thin plates of sheet lead, or sheet tin, or

mica, are cut to suit the size of the squares, *n n*, of the frame, overlapping the inner edges, but not extending to the middle of the small dividing bars of wood; each one of the plates has one of its surfaces differently coated; supposing them to be of lead, one is coated with lampblack, another brightened by sand paper, or coated with tin leaf, another left tarnished, a fourth coated with gold leaf. Being placed upon the frame, as at *a, a*, with the coated sides uppermost, small bits of phosphorus are placed upon the middle of the plates, and the frame put in its place upon the cover, A F. The surfaces which absorb the heat radiated by the cover, A F, being the same, the material and thickness of the plates being the same, the circumstances are alike in each plate, except so far as the upper surface is concerned; the plate which is coated with the worst radiator, will become warm first, and the phosphorus will melt first upon it, and, generally, the order of melting of the phosphorus will indicate the inverse order of the radiating powers of the surfaces. As the heat radiated from the cover is high, the melting of the phosphorus will be soon followed by its inflaming, and the order thus given will hardly deviate from the first; the interference from the film of oxide, which is so annoying in the modification of the apparatus of Ingenhousz, for illustrating the relative conducting powers of bodies, is almost entirely obtained by the high temperature of the source of heat. To avoid injuring the coated surfaces, a thin film of mica may be placed below the phosphorus, the film being large enough to prevent the effect of the spreading of the phosphorus, as it burns.

The plates should be made thin, in order that the results may be mainly dependent upon differences in the radiating power of the surfaces. I have used plates of thin sheet tin, (iron coated with tin,) of sheet zinc, and of glass, with good effect. The effects may be accelerated by coating the under surfaces with lamp black, to promote the absorption of heat; but in that case, care should be taken that the thickness is at least equal to that which produces the greatest amount of absorption.

Instead of the pieces of phosphorus, wax, or other readily fusible material, may be used, as in the apparatus of Ingenhousz; or cones of wood, weighted at the base, and kept upon the plate, with the vertex downward, by a fusible material, may be substituted.

It may happen that the lecture table is so arranged as to render it advantageous to incline the cover, A F, of the box, A G; this will be readily accomplished by making the cover part of the box itself, in which case the melted metal may be introduced through a hole in the higher side; as, for example, in A D.

To illustrate the fact that *absorption and radiation are proportional*, the same square plates, *a a*, &c., may be used; the variously coated surfaces are placed downwards, phosphorus is put, as before, on the upper surfaces, and the frame deposited in its place upon the cover of the box. The phosphorus will now melt in the inverse of the order shown in the first experiment, the plate having the best absorbent surface heating first. If plates of metal be used, their upper surfaces should be bright, for this illustration; but glass, or mica, which will allow the coating to be seen through, is best adapted to the purpose.

The fact that the *radiation, or absorption*, of heat, *does not take place merely at the surface*, but at a definite thickness, which

becomes very appreciable in good radiators, may be satisfactorily shown by coating the surface of one of the plates with a thin layer of lampblack, and another one with a considerable thickness of the same material. If the coatings be upwards, as in the first illustration, the phosphorus will melt soonest upon the thinly coated plate; if the coatings be downwards, as in the second illustration, the reverse will be the case.

The effect of transparent screens in preventing the passage through them of heat not accompanied by light, may be shown by using, in the same instrument, plates of glass, mica, &c., of equal thickness; theoretically, the differential results are not as free from objections as the former ones; but the fact is illustrated almost unexceptionably, since the phosphorus melts first at the surface of the plate, which it would not do if the plate were cool, and the fusion resulted from the absorption, by the phosphorus, of the heat which had passed through the screen of glass, or mica.

These illustrations I have tried repeatedly, and successfully; there are others of a more refined character, which I have not yet had an opportunity to attempt, but which, I doubt not, might be carried out very easily. The first of these is the curious property discovered in rock salt, by M. Melloni, of permitting the passage of heat of low intensity, as freely as that of high; a piece of phosphorus placed upon the salt, and another upon a thin film of mica, the under surface of which should be coated with lampblack, just above the plate of rock salt, would serve to show this property. That transparent plates of mica are only partially diathermous, would be shown in a similar way, and, in fact, by the relative periods of fusion of the phosphorus just above the plate, and of that upon it, a notion of the relative quantities of heat stopped and transmitted might be furnished.

Another illustration which I have tried with success, is that of the want of specific effect of color on the absorption of non-luminous heat: a fact which some researchers, undertaken by Professor Courtenay and me, and not yet published, indicate. On coating the plates on one side with lampblack, plumbago, white lead, chalk, prussian blue, vermilion, &c., it will be found that the phosphorus melts upon them without regard to the order of color. Care should be taken that the thickness of the coatings is such as to give to them each the maximum radiating or absorbing power; a thickness which will differ for each material, but which may, for all, be very easily exceeded.

By a change in the character of the plates, this instrument may be used to advantage in showing the experiment devised by Franklin, and executed first by Ingenhousz, for indicating the relative conducting powers of solids for heat.

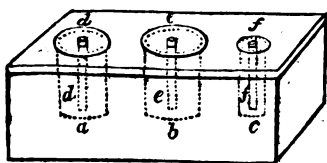
That the experiment just referred to does not truly give the relative conducting powers of bodies, can, I think, be clearly demonstrated, notwithstanding that it is found, in all the books, in juxtaposition with the very elegant and accurate method proposed by Fourier; with the explanation of its intrinsic defects, it may be, however, still admitted as a general illustration. To apply the instrument, plates of the same thickness of the substances to be tested, as, for example, of tin, iron, lead, copper, pottery, wood, glass, &c., which can be easily obtained in the requisite form, are to be coated on both sides with a thick coating

of lampblack, or other good absorbent and radiator, leaving a small strip of the upper surface bare, to exhibit the nature of the material; the plates having phosphorus placed, on mica, upon them, are put upon the frame, and this is placed on the cover of the box: the order in which the phosphorus fires, gives the same indication as in the apparatus of Ingenhousz. This effect is more rapid than when cones, or rods, are used, especially from the lower temperature of the substance which is commonly used as a source of heat. These remarks do not apply, of course, to the forms of that apparatus in which hot sand is used.

The second instrument to be described is intended to show the common illustration of the fact that bodies have different specific heats.

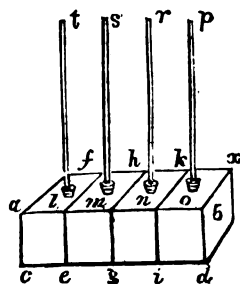
Theoretically, this illustration is, I think, inaccurate, but is *admissible*, like the last; upon this subject, I hope to be able, at a future time, to be more explicit; at present, my remarks are confined to general illustrations. That different bodies require unequal quantities of heat to raise their temperatures through the same number of degrees, is illustrated upon equal weights, or bulks, by subjecting them, when at the same temperatures, to the same source of heat, and proving that they require different times to arrive at the same temperature. This idea is a fundamental one, and cannot too early be inculcated upon a learner. As an illustration, I have three vessels of sheet iron, to contain equal weights of mercury, alcohol, and water; these are fastened to a frame, by which they can be dipped into the same vessel containing hot water. An alcohol thermometer, with a column of fluid large enough to be visible at a moderate distance, dips into each vessel. As the heat enters, the thermometer in the mercury rises with great rapidity, that in the alcohol more slowly, and that in the water lags behind both the others. Instead of those thermometers, if a cylinder of any metal which is a good conductor, and has a low specific heat, such as copper, for example, should, after being coated with a varnish of thickened linseed oil to protect the surface, be introduced into each vessel, phosphorus placed on the top would melt and inflame first on the metal which dipped into the liquid having the least capacity for heat. In the annexed cut, fig. 2, *a*, *b*, and *c*, are the vessels; *d*, *e*, *f*, metallic cylinders resting in wooden, or metallic, or mica, disks, and the whole dipping into a vessel, *m n*, of boiling water. The mercury is so small in bulk, that the influence of this strikes the student immediately; but the idea which he thus catches at, is refuted by the more tardy heating of the water, which is less in bulk than the alcohol.

Fig. 2.



Before the forms of illustration, of the radiation and absorption of heat, already described, had suggested themselves, I had contrived another apparatus, which gave very good results, and may be, by some, preferred to the one already described. A long box, *a b c d x*, of tin, was divided into compartments by partitions, *e f, g h, i k*, &c., and a top soldered upon each, having

Fig. 3.

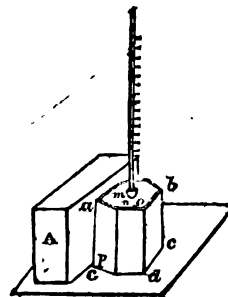


a conical opening, *l, m, n*, &c., to receive a cork, through which a tube, *o p, n r, m s, l t*, &c., passed; these compartments were made as nearly equal as possible, and the tubes entering them were selected of as nearly equal bore as possible; equal measures of colored water were poured through the conical openings into the several compartments, so as to cover the bottom to a depth regulated as will be presently stated. The tubes and corks were now inserted, and cemented; and each cell thus formed an air thermometer, the expansion of the air within driving the colored liquid up the tube entering the cell. That there might be no error from a want of equality in these thermometers, after bringing the liquid to a convenient height in each of the stems, by forcing air into each, or by dropping liquid from a dropping tube into the tube, the whole was plunged into a vessel of water, of a temperature sufficiently above the original temperature of the air within, to give distances on the tubes, readily divisible into equal parts of sufficient magnitude. These degrees were marked by a rude scale, formed by colored threads, tied around the tubes. One surface of the box was kept uniformly bright, or regularly tarnished, or coated; the other, *a d*, was coated with substances of different radiating powers.

The box being placed with the uncoated side towards a vessel of warm water, the heat enters uniformly that side of the compartments, but is radiated differently from the opposite side, and the liquid from the air thermometers is urged more rapidly up those tubes which enter into the compartments radiating worst, and ultimately arrives at a greater height, showing a greater stationary temperature, or temperature of equilibrium, between the heat absorbed and that which is radiated. If the vessel be now turned, so that the variously coated surfaces are towards the source of heat, the liquid in those coated with the best absorbents will immediately begin to rise in the tubes, and that in those coated with the worst absorbents, to fall. That the two lateral compartments are exposed to a greater cooling action than the others, may be an objection to this apparatus; but it is easily obviated, and with it the communication of heat from one compartment to another, by terminating the box at each end by a small compartment, and separating each of the other compartments of a similar space; in fact, convenience alone was the reason for uniting these air thermometers in one vessel.

Another form of apparatus, which is more simple, I have found convenient; but it occupies more time than that last described, in obtaining the same result. A prism of any convenient number of sides, is made into an air thermometer, in the manner described in speaking of the last apparatus; the sides are variously coated; it fits loosely into a prism of the same form,

Fig. 4.



but wanting one side; in the figure, *a b c e*, represents the enveloping surface, and *m n o p*, the air thermometer. To show the different absorbing powers of the different substances, the vessels described are placed as in the figure, before another, *A*, containing hot water, hot sand, or any other convenient source of heat. Supposing the side of the air thermometer, which is the worst absorbent of heat, to be exposed to the source of heat, the air within is expanded, and the position of the liquid in the tube is marked by an index; a better absorbent is exposed, and the liquid rises higher; a worse, and it falls below its original level; the experiment can thus be varied at pleasure. The outer sheath, or covering prism, serves to render the surface, not exposed to the source of heat, uniform in its radiating powers, and to protect those sides which are not intended to be exposed to the source of heat, from the radiation of the vessel, *A*, which, otherwise, would affect them sensibly. If the air thermometer were a rectangular prism, of course the objection just stated would not apply; but the sheath would still be necessary to equalize the radiation from the surfaces not exposed to the source of heat.

To show the radiating powers of the different surfaces, the sheath is turned so that the open side is exposed to the air; the absorption of heat now becomes sensibly constant, and the greater or less height of the liquid in the tube is determined by the less or greater radiating power of the exposed surface.

The order in which the surfaces are exposed may, of course, be so arranged, as not to require the temperature of the source of heat to be kept constant.

Such an apparatus, placed before a stove, would make an admirable illustration in a school, or a vessel of water, colder or warmer than the room, may be used as the radiating or absorbing body. For the tin vessel here described, a common square glass bottle may be substituted, without disadvantage. Even a common glass phial, made into an air thermometer by inserting a tube through a tight cork, into some liquid occupying the lower part of the phial, and provided with a moveable coating of tin foil, gilt paper, writing paper, and paper covered with lampblack, when placed before a fire, or in a room of which the air is warm, when the external air is cold, brought near a window, will afford an interesting and instructive illustration.

Philadelphia, February, 1835.

TELESCOPES.—In the county of Worcester, Mass., a self-taught optician resides, who has manufactured some of the best telescopic instruments ever exhibited in this country, so far as it regards distinct vision, under a very high magnifying power. Yet no one patronizes him, to the extent which his merit certainly demands. Every thing within the calibre of his telescopes is com-

plete; and, indeed, all that the astronomer values most, is attained; but the exterior workmanship is rough, inelegant, and clumsy. This circumstance probably operates against them. People are so prone to be influenced by external appearances, that philosophers in rags are never made the companions of kings. A little more attention to this part of the business would certainly have a tendency to call the attention of the learned. At present, the tubes and stands are too abominably ugly.—[Scientific Tracts.]

[From the Albany Argus.]

THE CANALS.—PROGRESSIVE INCREASE OF BUSINESS AT ALBANY.—The following table exhibits the amount and the comparative increase of the several articles brought to this city on the Erie and Champlain canals for five consecutive years. By it, the reader will be enabled to judge not only of the progressive increase of the business of the canals, but of the increasing trade of Albany. The great staple of flour, it will be perceived, has doubled within the five years; and coarse grain, lumber and timber nearly trebled.

The additional and complete table for 1834, contains many articles not included in the returns for previous years.

No. of tons,	Domestic Spirits,	Boards and scantling,	Stimulants,	Flour,	Provisions,	Salt,	Wheat,	Coarse grain,	No. of tons, and cleared,
1830.	26,907	18,681	21,985	19,908	20,839	62,103,000	18,534	18,534	18,534
1831.	26,832	18,681	21,985	19,908	20,839	62,103,000	18,534	18,534	18,534
1832.	26,832	18,681	21,985	19,908	20,839	62,103,000	18,534	18,534	18,534
1833.	26,832	18,681	21,985	19,908	20,839	62,103,000	18,534	18,534	18,534
1834.	26,832	18,681	21,985	19,908	20,839	62,103,000	18,534	18,534	18,534

[From the Albany Argus.]

CANAL TOLLS.—In publishing a statement of the amount of tolls collected upon the several state canals, for April and May, there was an omission of the sum collected on the Champlain canal for May, making the total appear about \$14,500 less than it really was.

The amount of toll received upon all the canals for April and May, is \$368,204 10.

The following is a comparative statement of the collections of tolls for April and May, for the last six years, viz:

	April.	May.	Total.
1830,	77,327 12	154,973 95	\$232,300 07
1831,	112,136 84	202,873 25	315,010 09
1832,	87,375 83	212,054 17	299,430 00
1833,	86,606 89	213,593 31	300,199 70

1834,	91,877 58	177,662 26	269,539 84
1835,	122,784 42	214,738 54	337,522 96

CHAMPLAIN CANAL.

1830,	133 16	11,165 96	11,299 12
1831,	4,163 15	16,448 14	14,611 29
1832,	464 76	3,517 89	3,982 65
1833,	3,352 90	11,393 98	14,746 88
1834,	5,077 53	16,454 26	21,531 79
1835,	3,137 75	14,569 53	17,707 18

OSWEGO CANAL.

1830,	7,50 13	2,058 95	2,808 08
1831,	1,180 29	2,829 06	4,009 35
1832,	464 76	3,517 89	3,982 65
1833,	1,026 84	3,828 33	4,855 17
1834,	1,949 94	2,705 34	4,655 28
1835,	1,378 94	3,870 19	5,249 13

CATUGA AND SENECA CANAL.

1830,	956 60	1,905 79	2,862 39
1831,	1,214 19	2,663 42	3,877 61
1832,	392 37	2,101 71	2,494 08
1833,	830 67	2,771 62	3,602 28
1834,	1,094 38	2,887 08	3,981 46
1835,	2,084 71	3,863 76	5,948 47

CHEMUNG CANAL.

1834,	100 90	407 17	508 07
1835,	233 59	726 04	959 63

CROOKED LAKE CANAL.

1834,	191 10	245 45	436 55
1835,	455 60	461 13	916 73

The tolls collected in April and May, 1835, exceed the collections for the corresponding months of 1833, by the sum of \$42,870 06; and exceed the collections of 1834, during the same time, by the sum of \$67,551 11.

Since 1832, the tolls have been reduced a fraction more than 35 per cent.

BRUSSELS, May 6.—Railroad in Belgium.—The iron railroad was inaugurated yesterday. This new sight had attracted an immense concourse of spectators along the whole line of the road. At a quarter past twelve the King being at the station near the Boulevard to witness the ceremony, the departure of the steam carriage was announced by five cannon shot. Immediately three long files of wagons, carrying nearly 1,000 persons, began to move, drawn by the Flèche, the Stephenson, and the Elephant. This extraordinary conveyance was hailed all along the road with the loudest testimonies of surprise and astonishment. The passage from Brussels to Malines took fifty-three minutes.

On arriving before Malines the travellers assembled round the Military Column, the base of which was prepared to receive the medal commemorative of the ceremony, various coins, and the account of the proceedings. The Minister of the Interior, standing in the middle of the assembly, delivered the following speech:

"The presence of an assembly so distinguished and so numerous, attending to witness the ceremony which the King has appointed me to perform, is a solemn testimony of the importance which Belgium, and friendly nations, attach to the establishment of the system of iron railroads decreed by the law.

"This vast enterprise commenced in the fourth year of our political regeneration, will forever attest, what may be expected of a people who love order and liberty, who, notwithstanding the long protracted crisis which accompanied the establishment of its independence, has continued to preserve with the same zeal, agriculture, manufactures, and commerce, which gives splendor and strength to civilized nations; it equally testifies the solicitude of the Government which conceived the idea of it, at the very commencement of its existence.

"I shall not attempt to describe here, all the advantages of iron railroads, they may be summed up in two principal points—saving of time and money.

"By giving prodigious facility to the communications and commercial intercourse, they increase the means of civilization and the sources of prosperity and pleasure. We may already expect, at no very distant period, the connection of our railroads, with those projected in Germany and France. It will be then that Belgium, being able to favor the commercial relation between several nations, will itself obtain great advantages, and acquire new claims to their sympathy.

"Commerce and manufactures, which received a shock from the political commotions, have recovered their activity. The past no longer inspires any regret; the future appears under the happiest aus-

pices, our iron railroad inspires to them a constantly increasing prosperity. Agriculture, the true interest of Manufactures and commerce, will likewise share in these advantages. May the column which we are going to erect in commemoration of the opening of the iron railroad, be at the same time the symbol of a constantly increasing moral union between all the Belgians."

This speech was followed by cries of "Long live the King."

The Minister of the Interior, assisted by his colleagues, then proceeded to erect the first military column (or mile-stone) in the base of which the medals, &c., were deposited and sealed up.

On their return the Elephant took in tow all the 30 carriages that had been drawn by three machines, and would probably have reached Brussels in half an hour had it not been obliged to stop at Vilvorde for a fresh supply of water, the stock having been too much exhausted by the long delay at Malines.

At seven o'clock there was a dinner at Vauxhall, given in the name of the Minister of the Interior, to 200 of the principal persons both natives and foreigners, who had been present at the ceremony.

The *Moniteur* of this morning, published two Royal Ordinances relative to the Railroad, and the tolls to be paid, which are for the account of the Government, in whose hands the Railroad is to remain at present.

[FOR THE NEW YORK AMERICAN.]

Statistics showing the Progressive Increase of this State, and of the Cities of New York and Albany.

	1820.	1830.	1835.
Population of the State...	1,372,813	1,616,466	1,713,000
" N. York City,	122,706	166,086	202,000
" Albany,.....	12,630	15,374	24,300
Rate of increase from 1820 to 1830.	18 per cent.	18 per cent.	18 per cent.
State.....	18	18	18
City of New York.....	24	21	27
City of Albany.....	28	60	22

Tolls of the Erie and Champlain Canals.

	1825.	1830.	1835.
The whole route.....	\$21,343	\$1,069,922	\$1,432,085
Tolls collected at Albany..	126,653	212,045	338,000

THE EUPHRATES EXPEDITION.—The *Gazette de Smyrne* of the 14th May announces as follows, under date of Constantinople, 9th February:—"The Government has just delivered to the British Ambassador the firmans which he had solicited for the navigation of the Euphrates. The facility with which these firmans have been granted evidently proves that the Divan does not listen to the insinuations of foreigners; for it is well known that representations have been made with a view to decline it to accede to this request. In this realization of so vast a project the Porte only thinks of the means of civilization which it will afford to the population of the interior, and every private consideration has given way to this object." There is every reason to believe that the Pacha of Egypt, the promoter of science and commerce, whose influence is no less desirable, will act in a similar spirit. The following passage from "Thornton's India" does not hold out very flattering hopes of the ultimate complete success of the passage to India either by the Euphrates or the Red Sea:—"For several months in the year we could not expect to navigate the former, (the Euphrates,) and the latter (the Red Sea) would be unapproachable during the prevalence of the south-west monsoon. If it be not physically impossible for a steamer to make way against the monsoon, her progress must be very slow, and the wear and tear of the vessel and machinery ruinous. If effected at all, therefore, the voyage could not be performed with certainty as to time, and the principal advantage proposed would consequently be lost. There is yet one more serious objection which applies to the two routes; they both traverse countries frequently visited by the plague."

ICE AND ICE HOUSES.—It is quite warm enough at this present writing to discourse of ice, but whether it will be when the types are giving publicity to the labors of the pen, depends entirely upon the future, which may be noted as a very wise remark. We intend, however, to say a few words of ice and ice houses, that may interest the reader. There are persons younger than ourself who can remember when the only ice sold in Boston, was brought to the city in parcels of ten or fifteen

pounds in the box of a market gardener's cart, and sold as a very great luxury at a corresponding price. There were then no ice houses in the vicinity, except a few, at gentlemen's country seats, and they were built under ground, and were of small capacity. Within the last twenty years the consumption has become so general and the cost is so small, that ice is no longer deemed a luxury, but one of the necessities of life. The amount exported also from Boston to southern climates is incredible. The art of preserving the ice, is very simple, and in well constructed houses, there is scarcely any loss from dissolution, and it may be preserved for years. We rode out last winter, with Col. Metcalf, of Cambridge, to witness the process of filling one of his ice houses, on the borders of Mystic Pond in Medford, about six miles from the city. The ice house is built entirely above the ground, as is now the well approved custom, even in tropical climates. It is 85 feet long, 50 feet wide, and 25 feet posts, and holds nearly 3000 tons of ice. The house is built of pine boards, and the ice is protected from external heat by filling in the walls, which are a foot and a half thick, with the exhausted bark of tan pits—a non-conductor of caloric that has been found perfectly efficacious. The Mystic Pond Ice House is very happily located, being so situated that the ice may be discharged directly from the house into the boats of the Middlesex Canal, or the cars of the Lowell Railroad, and can therefore be brought to the city at much less expense and loss by waste, than from any other establishment. The pond itself is supplied with water from another pond just above it, which upper pond is fed by such abundant springs, that we are told it never freezes in the coldest season. The water, therefore, is of the purest and most limpid quality. Col. Metcalf has lately loaded with this ice a vessel for Rio Janeiro, and another for Bombay. He has also sent freights to Norfolk, Savannah, and other southern ports. It is transported on the canal, and hoisted on board the vessel by machinery, made for the purpose, with great facility.

The process of cutting the ice, getting it from the water, and storing it in the ice house, is ingenious, but simple. The ice house is built on the border of the pond, and one end projects over the water. At this end there are two openings or doors, which extend from the floor to the roof. When the ice has made to a sufficient thickness, say 15 inches, a spot is selected where it is of the purest, most transparent, and solid quality. It is then marked out into oblong squares, 21 inches wide by 31-2 feet long. At every 21 inches of width, a groove is ploughed, half an inch wide, and 4 or 5 inches deep, by a plough made for the purpose, and drawn by a horse; the ice is then sawed across, at a distance of 21 inches, and one series of blocks being removed, the rest is easily set loose by a staff with a broad, chisel-formed end, driven into the groove, and used as a lever. A canal of a corresponding width to the blocks, is then made from the place where the ice is selected, to the house, and the blocks are pushed along with a staff to one of the doors, where it is received into an iron cradle and hoisted up to the requisite height, when a spring, which has prevented the block from falling off, strikes a projection, and being forced down, the ice slides into the house, and is there received by persons who push it into its place with a staff. From the commencement of the process to the end, the ice is never touched with the hands. The average weight of each block is about 400 pounds, and being all cut of the same form and proportions, they are packed much more closely in the ice-house, or in the hold of a vessel, than when cut out as formerly, with an axe, in a negligent manner.—[Boston Transcript.]

CULTURE OF PEPPER.—M. Reynolds, in his voyage round the world, gives the following account of the Culture of Pepper, at Sumatra:

"The pear grows on a vine, or creeping plant, with a ligneous stalk. The blossom is small and white, and the fruit hangs in bunches, or clusters, resembling those of the currant tree, but larger. It is from four to five months coming to maturity.—The berries are at first green and gradually become a bright red when ripe, and soon fall off if not gathered;

"The natives frequently go through their little farms with small baskets, plucking off each bunch as they become ripe. When gathered, it is spread on mats to dry. That which has been gathered at a proper age will shrink least; while those skilled

in the trade will readily distinguish that which has been plucked prematurely, by rubbing it in the hand, when it will impart much dust, and even crumble to pieces.

"The pepper vine runs on poles, like our bean poles; it is planted as our farmers plant corn, about six feet apart. The culture of one thousand plants is occupation sufficient for a man and his wife; 500 plants to a person.

"In ordinary seasons the pepper vine produces two crops in the year. The first is a large one about the month of September, when the sun is crossing the equator, in his declination towards the south; the other in the month of March, when he is returning towards the north. These different crops are generally brought from the interior to the sea shore by rafts of bamboo or other timber, floated on the current of rapid streams."

Old Maids; their Varieties, Characters, and Conditions.

Many years have passed since Hayley wrote an "Essay upon Old Maids," in, if our memory be not treacherous, six volumes. An "Essay" in six volumes! Ah! those were the days of hard reading, and of heavy reading—days when the appetites of readers were not more voracious than their digestive organs were powerful—days when we could take two or three duodecimos at breakfast, devour a quarto at dinner, and sleep soundly on a massive folio swallowed at supper. But we have now changed all that, as the French say; and now a puff, a trifle, a cracknel, is found a delightful succedaneum for solid beef and pudding. *Et bien!* And so, in one light and very amusing volume of little more than two hundred pages, we have here ten chapters inscribed to the female votaries—or victims—of a state of "single blessedness;"—Introductory and Dedictory, Classification of Old Maids in General, Voluntary Old Maids, Involuntary Old Maids, Accidental Old Maids, Inexplicable Old Maids, Literary Old Maids, Honorary Old Maids, Conclusion, and L'Envoy.

Dear amiabilities! can we wonder that you are kind nurses—or that you are fond of cats, dogs, parrots, and Chinese monsters? Is it not thus that you are forced to display your pent up sensibilities? Something you must love—your hearts are overflowing with milk and honey; but mankind, blind to your amiable qualities, meet your advances, as if their most deadly enemies were making covert approaches to destroy their sanctuaries.

The following are the five great "families" into which our lively, pleasant, good-natured author arranges the "class" of Old Maids; each and every one of those families including several species, and those species occasional varieties:—

GENUS I.—Ladies whose extreme delicacy, or caution, or coldness, have determined them to live a life of celibacy; every opportunity having been afforded them for marriage.

GENUS II.—Ladies possessing every requisite for the connubial state, and who have been anxiously striving to attain it, but, notwithstanding, still remain in single blessedness.

GENUS III.—Ladies eminently qualified for matrimonial duties, and who have been repeatedly engaged, but by some accident still remain Old Maids.

GENUS IV.—Ladies who remain in a state of virginity, but for which no earthly reason can be assigned.

GENUS V.—Literary Old Maids.

A placid stream of kindly feeling meanders delightfully through this volume. Here, for instance, is a sweet and beautiful picture, and true as it is sweet and beautiful. Contrasting the quietude and benevolence of female celibacy with the stormy scenes of a different state, the writer observes:—

"But her life is the oasis of the desert—her heart is a swelling fountain of the purest sympathies—her home is sheltered by the palm-trees of content—and she treads her little round of existence on a verdant carpet, chequered with light and shade, and 'damask'd with crocus, hyacinth and violet in rich inlay.'—For her—

"No blasts e'er decompose the peaceful sky,
The springs but murmur, and the winds but sigh."

If she does not taste those delights which flow from happy marriage (and there are many such,) when two individuals with moderate desires, and virtuous and well-tempered wishes, combine to produce 'one harmony of bliss,' she invariably shows how correctly she estimates so delightful a consummation,—for where household harmony does reign, there may the old maid be found in all her glory, mingling sweet with sweet, and her heart and af-

fections expanding beneath its genial influence.—Domestic strife is a Tartarus from which she flies, it is a plague spot warning her to depart—but if a father or mother has reached the extreme verge of senility, there she may be seen hovering like a guardian angel, developing in this trying emergency all her treasured affections, and lavishing them on insensible or querulous old age, with all the vigor, the tenderness, and devotedness of a young bride, watching over the shattered health of an adored husband."

But now for the other side of the question, "Involuntary Old Maids;" and with this we believe we must close:—

"The pensive and expectant nymphs have ridden hour after hour, sea-side Jennets, alias donkeys, in hope that their own graces, so admirably set off by the pages of the sagacious and sure-footed quadrupeds, might strike some wandering Lothario; assemblies have been visited—pic-nic parties made up, with especial reference to a 'chance'—fashionable churches regularly attended—balls and quadrille parties sedulously sought after—theatres and all places of public amusement diligently beaten for game—the streets paraded—shady lanes and murmuring streams haunted—dress and undress have been tried—the drawing-room and the boudoir—the dining-room and the library—the sitting-room—and the front window.

Music has been cultivated to fascinate the reluctant ear—painting to captivate the eye—and dancing to enrapture the touch; botany has been studied as an excuse for solitary walks and maiden musing—geology for a rocky nook or a secluded pass—astronomy, that the 'silent hour of night, and the star of love,' might produce their wished for influence—poetry has been read for select tender and touching passages—and history to quote examples of woman's undying affection;—attitudes have been studied—sighs practised—fainting simulated—and a fountain of tears, sacred to dear sensibility, has been most conveniently arranged to pour out on all fitting occasions—

"A shower of glittering pearls."

No chance, however remote, has been neglected, when some fondly supposed admirer—might unfold the passion of his love, scheme upon scheme has been contrived to aim aright—the rich golden shaft,—songs have been warbled with soft expectation that they would—

"Give a very echo to the seat

Where love sits throned."

The cunning of their passion has betrayed them into 'dew looks,' surely all sufficient to melt a heart of 'triple brass;' and the vow of eternal truth has been quivering upon their lips, waiting for a signal, however slight, 'to be registered in Heaven.'—Alas—

"Vain—vain have been their wiles—all—vain their tears."

They have 'never told their love,' for nobody has been found,—they have never sworn—

"By the roses of the Spring,
By maidhood—honour—truth and every thing
I love thee!"

for none would receive their vow."

We promise the reader—bachelor or married man—maid—wife or widow—a fund of amusement in these pages.—[London Court Journal.]

The curious phenomenon of the Water Spout was witnessed on Sunday evening, about 6 o'clock, by hundreds of our fellow-citizens. It was formed near the lower extremity of the Ohio Falls. According to those, who saw the formation, a cone, in the shape of a trumpet, descended towards the river from a thick dark thunder-cloud, and at the same time, the agitated waters beneath whirled round and ascended with a spiral motion in the form of vapor, till they united with the cone of the cloud, when the whole column moved rapidly and majestically about a mile and a half up the river, where it struck the woods in Indiana, nearly opposite to this city, and disappeared. The whirlwind then passed over a part of Jeffersonville, unroofing houses and doing other damage, but soon struck the river a second time, forming another water spout, which crossed the river to the Kentucky side and disappeared a short distance above Geiger's Mills. On both sides of the river, the whirlwind's path is marked with desolation.—[Louisville Journal.]

The printing establishment of the *Herkimer County Whig*, is offered for sale. The proprietor relinquishes business in consequence of an impaired constitution.

NEW-YORK AMERICAN.

JUNE 26—28, 1835

LITERARY NOTICES.

CONSTANTINOPLE AND ITS ENVIRONS, in a series of letters, &c. &c., by an AMERICAN, long resident at Constantinople. 2 vols. N. Y., HARPER AND BROTHERS.—Though printed without a name, these very entertaining letters are said to be from the pen of COM. PORTER, now and for some years past, the *Chargé d'Affaires* of the U. S. at Constantinople. The opportunities which that station affords, of seeing the Turks to advantage, the habits of observation of the Commodore, and the no less valuable habit of forming his own opinion on what he hears and sees, impart to these letters a degree of authenticity and originality, as well as anecdote and amusing narrative, that will give to them a wide circulation. They bear, we think, manifest traces of being written as they purport to be, without any view to making a book, and the chief fault we have to find with the publication, is one that lies at the door of the Editor, for not having used occasionally, the liberty of a friend, to correct the negligences of style, which letters written currently so naturally fall into.

THE ITALIAN SKETCH BOOK, by an AMERICAN: Philadelphia, Kess & Biddle. We have read this volume with pleasure. It is agreeably written, with scholar like taste, and an eye for all that is beautiful. It is of beaten ground that it, for the most part, treats; and therefore nothing very new or original is to be looked for—beyond that degree of variety and freshness, which the same scene, described and commented upon, by different minds, will naturally produce.

PELFHAM, a Novel, in one volume, by E. L. BULWER. New York, HARPER & BROTHERS.—This, we presume, to be the first volume of a new and uniform edition of Bulwer's works, and we have no scruple to say, we are glad of it. We do not think Bulwer's style, sentiments, or stories, mischievous, considering the class of works to which they belong, and we do admire his genius, talents, and acquirements. He shews that he has been, and is, a student—but his knowledge of men, and of the human heart, is not less extensive than of books—and by the combined power of the two, he fascinates attention. Whether or not, novels of any sort, are profitable for reading, is not here the question—though on that head too, we have very distinct opinions—but whether—novels of character and real life being now much sought—those of Bulwer are not marked by higher character, and not more objectionable morals, than those of other contemporaries. Of Pelfham, for instance, now so handsomely republished by the Harpers—though the author cannot say that it contains

"No line, which dying, he would wish to blot," yet he may say, that it contains much, which read in a wise spirit, may conduce to improvement.

We close our Review to-day—necessarily omitting a notice of several works on hand, including *Moree Shes Robinson*, and the last *American Quarterly*—with the annunciation, by the Harpers, which follows.

While acquiescing, as we do most entirely, in the value and expediency of publishing a "series of books," of the character proposed, we would prefer that the selection and preparation of these books, were committed to gentlemen experienced in the condition and wants of our Common Schools, and having the time, the talent, and the disposition to find, or make works, suited to their meridian. It is a most important enterprise which the Harpers are

about to undertake, and—as it may be conducted—capable of great good or evil.

Designedly—it will not be, we are quite sure, for evil—but the task of providing for the youthful mind, is as delicate, as it is important; and to be well discharged, requires not only knowledge of books, but of the process of education, as applied in our schools.

There are in Harpers' Boys and Girls Library, for instance, some capital books, (those by Uncle Philip, especially,) for a "School Library;" but many of the most essential books for such a publication are—so far as we know—yet to be written.

COMMON SCHOOL LIBRARY.—The undersigned have read with much interest and pleasure the act recently passed by the legislature in relation to the establishment of a library in each school district throughout the State, for the dissemination of useful and practical knowledge among those who enjoy the benefits of the Institutions provided by law for general education.

To further this most laudable object, they propose to publish a series of books, in small convenient and comprehensive volumes, to be denominated, "The Common School Library of useful and entertaining knowledge," which shall embrace all the most important and interesting subjects, treated in an attractive and perspicuous manner, calculated to arrest the attention of all classes of readers.

The first series, for juvenile or junior classes, and the second for adults and scholars of more advanced age and capacity.

The people of the state of New York, rich in resources, foremost in the arts and commerce, may, by an energetic and judicious application of the salutary law above referred to, add much to their high character for intelligence and public spirit, and greatly benefit the rising generation.

The first volume of both series will be published in the course of two weeks; they will be printed and bound uniformly, in a convenient and suitable manner; and offered to the Trustees, Superintendents, and School Committees at a reasonable price. HARPER & BROTHERS.
New York, June 12th, 1835.

DOMESTIC INTELLIGENCE.

ARRIVAL OF THE CONSTITUTION.—The United States frigate *Constitution*, Commodore Elliott, having Mr. LIVINGSTON, our Minister to France, and his family, on board, arrived below last evening, and anchored outside of the Bar. She left Plymouth, May 17.

This morning early she got under way, and was beat in over the bar, by the pilot Norris, at about three quarters flood.

She came gallantly up to the city, saluted, and anchored in the North River, off the battery.

Mr. LIVINGSTON and family landed, under a salute from the ship, about 11 o'clock, and proceeded to the house of a relative in Greenwich street.

A considerable number of persons followed Mr. L., whom on reaching his residence, he addressed as follows:

"Fellow Citizens, I feel much happiness at your cordial welcome of my return, and beg to assure you, that during my mission, I have studied all that was due to the dignity of my country, its general interest and welfare."

Three hearty cheers were given and the people dispersed.

Annexed is a list of the officers:

Officers—Jesse D. Elliott, Esq. Commander.
J. B. Montgomery, 1st Lieutenant, Frank Ellet, 2d do, W. C. Nicholson, 3d do, E. C. Rutledge, 4th do, G. F. Pearson, 5th do, L. M. Powell, 6th do, F. A. Neville, 7th do.
James Ferguson, master, J. M. Berrian, 2d do.
James Boyd, Surgeon.
Henry Ewing, Purser.
James Everett, Chaplain.
J. L. C. Hardy, 1st Lieut. Marines, J. T. Sloan, 2d do.
Passed Assistant Surgeon—Isaac Brinckerhoff.
Assistant do, R. Woodworth.

J. E. Dow, Professor of Mathematics.

J. H. Prince, Commodore's Clerk.

Geo. A. Thomas, Purser's Clerk.

Passed Midshipmen—J. F. Duncan, James Henderson, W. T. Muse, Charles Steadman, J. W. Revere, M. Lewis, J. W. Cooke, J. F. Mercer, C. C. Barton.

Midshipmen—R. L. Tilghman, G. W. Randolph, J. B. Lewis, G. T. Sinclair, F. P. Hoban, B. F. Shattuck, W. Ronkendorf, F. S. Haggerty, F. P. Maffit, P. Oakes, W. E. Newton, S. D. Frenchard, E. E. Rogers, A. H. Jenkins.

Boatswain—Robert Whittaker.

Gunner—T. Ryley.

Carpenter—J. A. Dickinson.

Sailmaker—N. C. L'Honnmedieu.

Passengers—Francis J. Lippitt, Esq. of New York; passed Midshipman Wm. Radford.

CHANGES IN THE ROSTER OF THE MARINE CORPS SINCE FEBRUARY, 1835.—Lieut. Col. R. D. Wainwright. Detached from Gosport, Va., 29d May, 1835, and on leave of absence, since.

Capt. Geo. W. Walker, New York.

First Lieut. Andrew Ross, sloop *Vandalia*.

First Lieut. Geo. F. Lindsay, Philadelphia.

First Lieut. John G. Reynolds, New York.

First Lieut. Henry W. Fowler, Albany, New York, recruiting service.

First Lieut. Francis C. Hall, Philadelphia.

Second Lieut. Geo. W. McDean, flag ship *Hudson*, New York.

Second Lieut. John P. Dieterich, appointment ceased 4th of March, 1835, not having been confirmed by the Senate.

Second Lieut. Louis F. Whitney, New York.

Second Lieut. Fredrick B. McNeill, Boston, Massachusetts.

Second Lieut. William L. Young, Head Quarters. Date of commission, 23d February, 1835.

Second Lieut. William McAdie, Boston, Massachusetts. Date of commission, 3d March, 1835. 1st June, 1835.

The Philadelphia United States Gazette states, that Captain ALEXANDER G. DALLAS has been appointed to the command of the United States naval forces on the West India station.

GREAT SHIP.—The following particulars in relation to the "big ship" *Pennsylvania*, now on the stocks at the Philadelphia Navy Yard, are copied from the Philadelphia Inquirer of yesterday.—They were communicated for publication by a sailmaker in the Navy.

220 feet lower deck,
217 " length aloft,
190 " length of keel for tonnage,
56 ft. 9 in. moulded breadth of beam for tonnage,
59 feet do do outside of wales,
23 " depth of hold,
51 " extreme depth amidships,
3,306 23-95 tonnage; guns, 140,
18,341 yards duck, one set of sails,
14,624 " bags, hammocks, boat sails, awnings, &c.; total 32,965 yards.
11 inches shrouds,
19 " main stay,
278 feet mainmast—93 yds. 1 foot,
110 " main yard,
82 " topsail yard,
52 " topgallant yard,
36 " royal yard,
10,000 lbs. sheet anchor,
25 inches do.
1,531 yards main topsail.

THE CHEROKEES.—Gen. Jackson has announced to the Cherokees, that the treaty offering them five millions of dollars for their possessions, is the best he will ever propose to them.—[Journal of Commerce.]

The Newburyport Herald has the following fair hit, at the Monomania, now prevailing alike at the East, the West, the North and the South. The story may not be true—indeed, we dare not quite say we believe it literally ourselves, but it has some truth as an illustration, at least:—[Courier & Enquirer.]

"It is rumored that one evening last week, two paupers escaped from the Bangor Almshouse, and though they were caught early the next morning, yet in the meantime, before they were secured, they had made \$1800 each, by speculating in timber lands."

THE CHICAGO AMERICAN.—Under this title we have received to-day the first number of a weekly paper, published in the new city of Chicago, by *Thomas O. Davis*.

It is a very handsome well printed sheet—full of good matter, and showing, moreover, a very goodly array of business advertisements—whereupon we congratulate the Editor. It would, as it seems to us, be a very good medium of advertising for our Pearl-street merchants.

TORNADO.—We understand that a most destructive tornado passed up the river, opposite Louisville, on Sunday last, diverged on the Indian side to the town of Jefferson, and again crossed the river to Kentucky. We are not advised of the loss of life, or injury to property sustained.—[Cincinnati Gazette.]

We are indebted to the editors of the Gazette, one of whom obtained the information personally, for the following account of the Tornado, which passed over a part of New Jersey, on Friday last:—

DESTRUCTIVE TORNADO.—The city of New-Brunswick was the scene, on Friday afternoon last, of a most desolating tornado, which swept over its western section, causing much destruction of property, and, we regret to add, depriving several individuals of life.

As far as we are able to learn, the whirlwind or tornado first made its appearance with a falling of ice in the township of Amwell, near a place called Ringgold's and taking an erratic zig-zag course, spent its fury over Staten Island, in the neighborhood of Rossville, and on the bay, by another fall of large irregular shaped pieces of ice. Its first approach to New Brunswick was from the north-west, passing over Middlebush, about three miles from that place, where the dwelling and barn of John French were laid prostrate with the earth. It thence passed over the farm of David Dunn, about two miles and a half from New Brunswick, whose dwelling was unroofed, and the barn and other out-buildings were razed to the ground. The out-houses attached to the premises of J. G. Wyckoff, in the same vicinity, were also destroyed. The next building which felt its effects was the dwelling of Theophilus Holkham, about one mile from New-Brunswick; the roof of which was blown off. The barns of James Fisher and Abraham Blauvelt, in the outskirts of the city were next blown down, and a small dwelling belonging to Mr. Prevost was nearly destroyed, and the wife of Tunis Sillocks badly injured. The tornado had now reached the hill, "where," according to the New Brunswick Times, "it remained apparently fixed for a minute or two, presenting the appearance of a pillar of fire,—its base resting on the earth, and its top reaching a mass of black clouds. It then took an eastern course, threatening Albany and Church streets, but suddenly changing its direction, swept across the town lot towards the dwelling of Mr. B. Myer, Mrs. Deare, Prof. McClelland, Rev. John Croes, L. Kirkpatrick, Esq. Mrs. Kirkpatrick, and Rev. Dr. Janeway, tearing the roofs off some, making literal wrecks of the barns and out-houses, and either uprooting or twisting off the largest trees—in some instances carrying the latter 20 or 30 paces. It then crossed to the buildings at the head of Paterson, Liberty, Bayard, and Schureman streets, unroofing the house of Mrs. Harrison, levelling the store of Mr. Little, and burying beneath the falling timbers, Nicholas Booraem, Esq. and his eldest son Henry. Both were extricated a short time after—the son in a dying state, in which he lingered until 9 o'clock, when death relieved him from his sufferings—the father is not dangerously hurt. A young lad about 8 years of age, son of Capt. Baird, was also killed near this spot, a rafter from the blacksmith's shop having struck him immediately above the eyes, and almost severed his head. The tornado now swept with increased force across George street, down Liberty, Schureman, and New streets, crossing Nelson to Burnet street, a quarter of a mile in distance, down to the river, unroofing or tearing off the tops of the houses, and sweeping the lower doors and windows from their fastenings. Schureman and Liberty streets, from top to bottom, may be said to be a complete mass of ruins, as is likewise part of Burnet street. The Methodist Church, a brick edifice, is damaged beyond repair, having

been unroofed, and the eastern and southern walls blown down; and the rear wall of the Catholic Church, also of brick, is drove into the body of the building."

The large dwelling of Dr. Janeway, at the junction of George street and the Trenton and New-Brunswick turnpike, was completely unroofed; all the outbuildings razed to the ground, and the beautiful trees surrounding the house twisted off or torn up by the roots. His loss will not fall much short of \$3000.

The dwelling of Littleton Kirkpatrick was also unroofed, and all the out-houses demolished. Estimated loss \$1000. His mother's house was partly unroofed, and other damages.

The large pottery establishment occupied by Mr. Newell, and belonging to the estate of E. G. Mackay, at the corner of George and Liberty-sts. was entirely destroyed, loss \$2500.

The dwelling of James Bishop, corner of Schureman and Burnet streets, was unroofed, and several store-houses, containing a large quantity of corn, was totally destroyed. Probable loss between 3 and 4 thousand dollars.

The buildings of Richard Voorhees, coachmaker, in Schureman street, were entirely demolished, with nearly the whole of their contents, consisting of finished and unfinished work, tools, &c. Loss about \$4000. Under the ruins of this building were found the lifeless remains of widow Catharine Van Arsdale. Mr. Staats Van Dusen was also found under the same ruins, very much bruised; his life was providentially saved by a carriage wheel falling across his body, and thus shielding it from the pressure of the ruins.

Three dwelling-houses also in Schureman street, the property of Nicholas Wyckoff, were very much injured. Loss \$2000. Two dwellings at the corner of Neilson street, belonging to widow Mary Furman, were unroofed and walls much damaged. Loss \$1500. The dwelling of Isaac C. Stelle, in Schureman street, was completely unroofed, and garden fence and shrubbery destroyed. Loss \$1000.

On Burnet street.—Dr. Van Duzen's dwelling unroofed; store-house and stable raised. Loss \$1000. Three or four dwellings, the property of Staats Van Duzen, unroofed, and store-house demolished. Loss about \$2000. Charles Dunham's dwelling unroofed and otherwise injured; several store-houses and out-buildings on the wharf, blown down. Loss from 3 to \$4000. The dwelling and out-buildings, including a store-house, belonging to Brush and Probasco, all destroyed. Loss \$2000.—Two dwellings, the property of Dr. Thomas Fitch, unroofed and other injury. Loss \$1000. The dwelling and cabinet workshop of Matthew Egerton, unroofed, &c. and a ware-house in the rear demolished. Loss from 1 to \$2000.

The Lancasterian School in Schureman street, belonging to the Corporation, was damaged to the amount of \$500.

Schureman street.—F. F. Randolph's workshop completely demolished. Loss \$500 to \$1000. Two dwellings belonging to Matthew L. Egerton, were unroofed and otherwise injured. Loss \$700. Widow Corning's dwelling unroofed and workshop destroyed. Loss \$500. Two dwellings, the property of widow Vreedenburg, damaged to the amount of \$600.

Property belonging to the following named individuals was also more or less injured:

Schureman street.—Miss Rachel Randolph, Walter McHenry, J. W. Stout, Widow Stotoff, Mr. Rolph, Mr. Eldridge, Widow Mary Dunham, A. Agnew, Widow Van Doren, Asa Applegate, E. L. Hardenberg, (Mayor,) Adam Huyler, Borden M. Voorhees.

Burnet street.—Evert Egerton, Widow James Richmond, John Hatfield, Henry Frazer, John Hicks, James B. Cox, John Quick, Michael McCurlogus, Joseph C. Griggs.

New Street.—Dr. F. Richmond, Ambrose F. Randolph, Peter Wyckoff, Judge Hance, Widow Davies, Estate of Robert Boggs, John Taylor, Mrs. John Clark, Mrs. Hagerman, Aaron Hayden.

Neilson street.—Henry Sanderson, H. H. Chittenden, Clara Rogers, Jacob Wyckoff, John Bray, Jr. Dr. Laury.

Prince street.—Rev. Mr. Jones, D. W. Vail, Jonathan Ackerman.

George Street.—Mr. Ackerman, Ralph Voorhees, Solomon Freeman, Wm. G. Dunham.

Liberty street.—Benjamin Clark, Mrs. Van Liew, Garret Nevius.

Henry and James Richmond on Richmond st.,

and Mr. Mersereau, on the Trenton and New Brunswick Turnpike.

From the above details, we feel safe in stating that the number of buildings destroyed and injured cannot fall short of one hundred and fifty, and that the loss of property may be estimated at one hundred thousand dollars.

Besides those who lost their lives, as above recorded, several persons were seriously injured, and many others slightly.

Among the extraordinary occurrences which took place on this melancholy occasion, the fate of the son of Wm. G. Dunham (a small lad) was the most singular. He was taken off the piazza of the house, corner of New and George streets, carried in the air a distance of 300 yards, and landed on the wharf in Burnet street, having only sustained a slight injury in one of his arms. On being questioned as to his feelings, he stated that he recollected passing through the top of a willow tree, and that the sensation produced by being carried up in the whirlwind was like that of being pulled in contrary directions.

A bedstead was taken from the third story of a house in Schureman street, carried a distance of 200 yards, and landed in Burnet street, without having sustained the slightest injury. A carpet bag and some bedding were carried from the garret of Dr. Janeway's house to the river, a distance of nearly half a mile.

After leaving New Brunswick, the tornado passed down the river a short distance, then took a course across the river, and passing over the farm of James T. Dunn, tore up several trees by the roots, laid all his out-buildings in ruins, without doing the slightest damage to his dwelling. It then passed down to the farm of Joel Randal, and carried away part of the roof and gable end of his dwelling. Thence its course was over Piscataway, a small town, containing about a dozen houses, situated two miles from New Brunswick. Here, every building except two in the place, including the Episcopal Church was demolished. We regret to add, that Mr. Thomas W. Harper, of New York was killed by being struck on the head by a beam.—We understand that Mr. H. had just received the deed of some property which he had been purchasing, and that his visit to Piscataway was for the purpose of making some arrangements respecting it. He was a silver-smith, residing at 31 Rose street, and has left a large family.

The tornado then passed on towards Perth Amboy, where one building was destroyed, and spent its fury on Staten Island as above stated.

Having gone through with the details of this melancholy affair, we now present our readers with the remarks of a friend who was an eye witness of the whole scene, and which will enable them to form a correct idea of this awfully sublime spectacle. He says,—The first intimation I had of the tornado's approach, was the wind blowing in from both sides of the house in which I was sitting. Immediately the cry of fire was raised—I ran to the corner of the street and perceived in a westerly direction at about half a mile's distance a black column moving onward, not very rapidly, which had something of the appearance of a smothered fire, and was mistaken for it. I saw what it was and ran into the house and closed all the windows before it reached us. The whole atmosphere was filled with fragments of timber, &c.—in a moment the house opposite was unroofed, as if it had been covered with paper. The house in which I was, being at the edge of the current, escaped uninjured, save that a rafter from the roof of a house about half a mile distant, thirty feet long, struck the edge of the window, tearing away the brick work and demolishing the sash, and passed into the wall of the room. The track of the tornado was from northwest to southeast, and from a minute investigation of its effects, does not appear to have been of the nature of a whirlwind ordinarily so called. The violence appears to have been produced not from a whirling motion, but from two currents rushing towards each other—at the same time having an onward motion. In the centre of the track the force appears to have been upwards with something of a whirling movement. The facts which substantiate this opinion are these. In the town wherever a building has been moved, if it was at the edge of the current, its direction was inwards; if at the centre, onwards. But these effects are more strongly marked in the woods, where the direction of almost every tree accords with this statement—at the extreme edge the trees are nearly at right angles with the course, sloping more as you

proceed toward the centre, where there is some confusion, but the direction is almost invariably with the current.

THE TORNADO IN NEW BRUNSWICK.—In the New Brunswick *Fredonian*, of yesterday, is a list occupying two columns, of the buildings destroyed or injured by the tornado of Friday last—which any one interested may see at this office. That paper adds the following reflections and suggestions, to which we give additional publicity, in the hope of thereby giving to the latter, additional effect.

Recovered, in some degree, from the stunning effects of the late storm, our citizens bear up under their calamity with manly fortitude, and are applying themselves with most commendable zeal and industry, to the relief and accommodation of the families that have been driven from their homes—the removal of the frightful piles of ruins that obstructed the streets—the repairs of such dwellings as can be made tenable—the transfer of merchandise to places of security and sale—and generally, to such other measures as the exigencies of the occasion demand. Mechanics are wanted, and laborers of every description. Lumber and building materials generally, would find a ready sale. Our sister towns would perform a grateful service, in sparing a part of their carpenters and masons; and if they can find it in their hearts to spare also of their abundance in other respects, they will undoubtedly have their reward. Willing as those among us who have been passed over by the destroying angel, are to do, there will still be room enough for the kindness and liberality of others, not of our immediate circle.

One, at least, of the extraordinary statements connected with this tornado, is thus disposed of:—

We have also the story of a lad 10 or 12 years old, the son of Wm. G. Dunham, being taken up from his father's door at the corner of George and New streets, and carried over the tops of trees and houses at least a quarter of a mile, and landed, with only a slight bruise, on the edge of the river! We believe this marvellous story has no other foundation, than that the boy was impelled by the wind to run down the street towards the river, and was finally thrown down on the wharf. It is beyond our faith to suppose that he could be whirled through the air that distance, and come down not only alive, but almost unhurt! Parts of houses and other articles known to have been thrown that distance, were shivered to atoms.

TORNADO AT NEW BRUNSWICK.—We have received by mail the following circular, and cannot more effectually answer the purpose with which it was sent, than by giving to it, as we do, immediate publicity, with the expression of our confident belief, that the appeal it makes, will not be made in vain to this liberal city.

(CIRCULAR.)

New-Brunswick has been visited by a frightful tornado. One of the fairest portions of our city is a scene of desolation and ruin. Charged with that mournful duty by their fellow citizens, the undersigned have made a survey of the devastation, and ascertained, as nearly as practicable, the amount of the positive and direct damage sustained. This they have estimated at SIXTY-ONE THOUSAND DOLLARS, although many judicious persons believe the amount to be considerably more. They will not attempt to swell it, or in any way to exaggerate. Sufficiently painful is the simple truth, in the plain language of the sincere heart.—They feel how vain would be the attempt to give a faithful picture of what they have witnessed, that others might discern the extent of our sufferings.—Nearly or quite one half of the town felt the influence of the tornado, and about one-third of it with disastrous effect. 130 dwellings are in ruins, or have sustained various degrees of injury; and much more than that number of workshops, store houses, barns, and out houses, have been crushed to the earth, or scattered to the winds of heaven.—Lives, too, have been lost—three deaths were the immediate consequence—and many others have been bruised, and maimed, and disfigured, and some so seriously injured as to be of doubtful recovery. For the dead, they are in the hands of a merciful God; it is for the living that our concerns are directed.

A large numerical proportion of the sufferers,

are left in destitute or needy circumstances. They embrace every variety of claim which should call into exercise the sympathies and benevolence of the public. The widow and the orphan—the aged infirm—the common laborer—the hard working mechanic—these are among the number who have felt the severity of the visitation. For these the committee would send forth their plea—for these they would awaken that humane and generous and ennobling spirit, which has so often signalized their fellow countrymen in times of suffering and calamity. They will not plead in vain. They know to whom they appeal, and that the grateful task will soon be theirs of acknowledging the liberal aid which shall yield to the sufferers the "oil of joy for mourning, and the garment of praise for the spirit of heaviness."

J. J. JANEWAY,
G. S. WEBB,
F. RICHMOND,
D. FITZ RANDOLPH,
MILES C. SMITH.

NEW BRUNSWICK, June 24, 1835.

[From the Gazette of yesterday.]

THE TORNADO.—We regret the necessity of being compelled to record more disasters caused by the Tornado which produced such dreadful havoc at New Brunswick. A gentleman arrived yesterday from Gravel Hill, Warren Co., N. J., informs us that it passed within a mile and a half of that place on Friday afternoon, about half-past 5 o'clock prostrating every thing in its course. He says, that when first seen there appeared to be two currents of air, one of which came from a little south of west, and the other from about north, and after meeting they passed off a little east of north. The extent of the tornado was about half a mile in width, and about five miles long. After passing through a thick wood, prostrating every tree within its limits, it reached the farm of Jacob Harris, unroofing his house, and injuring his wife very severely. The next farm in its course was that of John T. Snover, whose barn was unroofed and three barracks blown down. It then passed through his orchard, and out of three hundred fruit trees, only 4 or 5 were left standing. Thence it went through the woods, prostrating every thing, until it arrived at the farm of Andrew Dennis, about three quarters of a mile from Snover's. His house and barn were unroofed and barracks blown down, and in his orchard of two hundred trees, only four were left standing. It then passed through another piece of woods, levelling every thing till it came to the farm of William Shuster (three quarters of a mile). His house was unroofed, and barn blown down; four or five large rock maple trees were twisted off or taken up by the roots, some of which were carried a distance of 60 yards, and fell upon a cow, which was killed. Thence it passed through another piece of woods to the farm of Adam Warner, (half a mile,) whose dwelling was unroofed, and his barn, barracks, and out-houses were blown down. It passed on about half a mile further, destroying some out-houses and one dwelling, and then terminated abruptly.

Our informant adds, that all the grain and fences in its course were destroyed, as were also all the large trees. Mr. Shuster found a large apple tree on his premises, which had come from the orchard of Mr. Dennis, a distance of three quarters of a mile.

[From the Newark Daily Advertiser.]

TORNADO AT LITTLE FALLS.—We hear this morning, that a violent thunder storm and whirlwind, with heavy rain, occurred at Little Falls, about five miles west of Paterson, on the Passaic, in this county, on Friday evening, about 8 o'clock—three hours after the one at New Brunswick. The whirlwind appears to have risen about a mile south west of the Little Falls, near the Bloomfield and Pompton Turnpike, as here an old uninhabited house has been subsequently discovered to be quite demolished. Proceeding in a north easterly direction, it next prostrated an orchard of 25 apple trees, belonging to a Mr. Roberts, about 100 yards from the old house, with the fences in its course. A number of his sheds, and other out houses, a few rods further on, were also totally destroyed. A wagon house, containing a gig and wagon, was also prostrated. The dwelling house, a new, substantial building, escaped, but a large walnut tree before the door was considerably shivered, one of its largest limbs being torn off and carried 200 yards, to a meadow, from which a dozen men could not remove it. Mr. Roberts's loss is about \$500.

About 150 yards from Mr. Roberts's house, a small two story dwelling on the Morris Canal, which here follows the course of the river, was entirely demolished, and thrown into ruins. It is a most remarkable fact, that there were twelve persons in the house at the time it was crushed, all of whom were subsequently taken out of the ruins uninjured. Across the river, in Bergen county, a dwelling house was struck by the lightning, which killed a dog lying on the hearth, and stunned a number of the family. We do not learn that any other material damage was done. The lightning is said to have been fearfully vivid and frequent.

TORNADO IN WARREN COUNTY.—The elements appear to be strangely out of point. We learn by a friend from Warren, that a violent whirlwind swept through the upper part of that county on the same afternoon in which so much damage was done at New Brunswick, but probably a few minutes later, say from 5 to 6 o'clock. It appears to have risen somewhere near the Delaware, on the Pennsylvania side, as the first of its ravages that we hear of was in Knowlton township, 15 or 20 miles north of Belvidere, about 50 northwest of New Brunswick. We cannot hear that there was any connection between this tempest and the one which proved so calamitous to the latter place.

It appears to have swept over a space of half a dozen miles, less than a mile in breadth, prostrating whole fields of grain, fences, out-houses, and buildings of every sort, and tearing up, our informant estimates, not less than two thousand forest and fruit trees.

[From the Journal of Commerce.]

THE NEW BRUNSWICK TORNADO.—A scientific friend who took the trouble to visit the ground, has favored us with the following notes:—There were two Tornadoes which appeared simultaneously in New Jersey on the afternoon of the 19th instant. That which may be designated by the above name originated at least as far west as the Delaware river. It is known to have struck the earth near the Baptist Meetinghouse in Columbia, Hunterdon county, and was seen several miles west of that place. It here swept through three farms in its destructive course, exhibiting in its appearance, a tunnel shaped form. A gentleman who was within four miles of its track, about twenty miles beyond New Brunswick, supposed he saw the formation of the spout; and he says that he heard for twenty minutes a continuous roll or roar of thunder.

It is worthy of remark, that many observers on and near the line of the Tornado, think they saw its first formation. They witnessed the movements of the clouds in two opposite directions, and then a cone or pillar appeared to descend from the clouds and meet another of similar appearance, ascending from the earth. Such were the appearances; but the real action and organization of the whirlwind doubtless continued much the same, from its first origin to its final disappearance at sea. The effects are certainly much the same in all parts of its track wherever it touched the earth. The motions of the air itself are of course invisible, and of the visible matter, such as clouds and other more ponderous objects affected by the whirlwind, only the lateral or vertical movements can be perceived, according to the laws of perspective, and it may well be doubted whether the violent motion of the real whirlwind around its central cone or vortex is ever seen at all,—but only its effects upon the exterior and surrounding clouds and floating matter. As these clouds in front and in the rear of the tornado, move in exactly opposite directions they of course present the appearance of two currents meeting each other, and when it approaches sufficiently near, the central cloudy pipe or pillar often becomes visible.

The Rev. Dr. Milledollar, who from the College in New Brunswick viewed the tornado with great attention during its progress, says, that it appeared at times to contract very much in its lateral dimensions, assuming a very dark and dense appearance; again it would expand itself and exhibit a more smoky and fiery aspect. This accords well with the appearance of the track, which about a mile east of New Brunswick is narrowed in passing through a field of grain to a width not exceeding one hundred feet, but on striking a wood immediately contiguous, the trees are affected on a width of two hundred feet, showing an expansion in the body of the real whirlwind as it ascends from the earth, while the cloudy or dusty cone which appears in its centre, near the earth, assumes a contrary form.

The general course of the tornado, till within two miles of New Brunswick, appears to have been a little north of east, and from thence till it entered the waters of Rariton Bay, its track seems to have averaged nearly east. The hail, rain, and other ponderous matter discharged from the upper end of the vortex appears to have fallen farther north, at Bridgetown, Staten Island, &c. Two hats taken from New Brunswick fell near Bridgetown. The track affords indubitable evidence that the rotative motion of the whirlwind was from right to left.

The Tornado which passed through Warren county at the same time, and which has been mistakenly noticed in the papers as being the same whirlwind, exhibited for five miles a track of half a mile wide, and would seem to have been in itself a far more formidable phenomenon. The width of the New Brunswick Tornado seems nowhere to have exceeded a few hundred feet, and notwithstanding the great havoc made in New Brunswick and the villages which fell in its way, seems to have been by no means of such magnitude and violence as many of its predecessors, which have spent their fury on more distant and obscure localities.

The tornado which appeared near Paterson, on the evening of the same day, was probably the same which passed through Warren county, if we may judge from its course, and the time of its appearance, which was something more than two hours later than at Knolton, near the Delaware, and we are perhaps indebted to it for the vivid phenomena observed in the city on the same evening.

DESTRUCTION OF MILLS, BRIDGES, &c.—An unusually heavy rain fell on Friday last, about twenty miles east of this city, in Lebanon, &c., and in the following night a dam, containing a pond covering about 300 acres, was swept away. The water in its progress, swept away every dam and mill upon the stream, and swept over the shores so as to destroy gardens and fields of grain. The stage could not pass; but by the perseverance of the driver, the mail for the east, by way of Chatham, was conveyed by him on foot, he having passed the stream in a small boat. The stream passed through Chatham and Kinderhook. —[Albany Eve. Jour.]

The Albany Argus, of yesterday, has this paragraph.

THE WEATHER—has been cold for several days; and since the heavy showers of Friday, fires have been found necessary for comfort. Yesterday morning, we are informed, frost was discovered in most exposures in this vicinity, and in some instances severe enough to leave its traces behind on vegetables. This, for the summer solstice, or the longest day of summer, is certainly worthy of record.

We learn also, that in the river counties and even on the banks of the river, there was frost on Saturday night, by which the corn was injured.

[From the National Intelligencer.]

Whilst the fields and gardens in this neighborhood are withering under the influence of a protracted drought (to which for two days past has been joined a degree of cold hardly ever before experienced in this meridian, say at sunrise, 50 degrees of Fahrenheit,) our friends in the Western country have been deluged with rain. They seem to have our share of it as well as their own. Witness the following:

PITTSBURGH, June 17, 1835.

During the last week there has been an unusual fall of rain. The rivers are higher now at this city than we have ever known them to be at this season. While we are writing this paragraph, the rain is falling in torrents.

TERRÉ HAUTE, (Ind.) June 11.

THE SEASON.—So far, the season has been one of the most extraordinary within our recollection. During the last twenty days we have had drenching rains—torrents of it—affecting the Wabash and smaller streams to such an extent as to threaten the worst consequences to the farms on the low lands. Already, we fear, much damage is done—and the river still rising! (Tuesday evening, June 9.) On Sunday night, the rain fell in torrents, and continued, with but slight intermission, for eight hours. On many farms the sprouting corn is entirely washed away, even where the influence of the river is not at all felt. Indeed every thing betokens a disastrous season to the grain grower. In addition to these misfortunes, we may add, as a matter local to those interested in the progress of

the National Road, that the operations on that great work are nearly suspended owing to its condition along the whole line. The streams adjacent are out of their banks, and the road, in many places, completely under water. This is a serious public loss, and no less serious private one to the industrious individuals employed as workmen thereon. Some estimate may be formed of the quantity of rain, from the fact, that a steamboat, of 80 tons burden, actually made two trips as far up as Peru, several miles above Logansport. This has been heretofore deemed impracticable.—[Courier.]

THE FOREFATHER'S ROCK ENCLOSED.—The Plymouth Memorial states, that the forefather's rock, the landing place of the pilgrims has been handsomely enclosed: "The fabric is a perfect ellipse 41 feet in circumference, consisting of wrought iron bars 5 feet high resting on a base of hammered granite. The heads of the perpendicular bars are harpoons and boat hooks alternately; the whole is embellished with emblematic figures of cast iron. The base of the railing is studded with emblems of marine shells, placed alternately reversed, having a striking effect. The upper part of the railing is encircled with a wreath of iron castings in imitation of heraldry curtains, with festoons; of these there are 41, bearing the names in bass relief of the 41 puritan fathers, who signed the memorable compact while in the cabin of the Mayflower, at Cape Cod, in 1620."

The Bunker Hill Monument, at Boston, is in a state of progression. According to a recent Report of the Monument Association, it is estimated that by November, sixty-six feet will be added to the height of the Monument, making the whole elevation then, more than one hundred feet. With equal progress, next year, the monument can be completed.

The work is said to be done in the most efficient manner—the material is granite.

SUDDEN DEATH.—On Monday evening, as Samuel Whitmore, Esq., President of the Greenwich Bank, was walking home to his residence with a lady, he suddenly stopped, and said, "I am very unwell." These were the last words he spoke. He almost instantly fell and expired.

TO CAPITALISTS.—A Vermont paper has an advertisement, the substance of which we hasten to lay before the capitalists of the country, as offering a rare chance for a cool investment in real estate. Mr. H. W. Jones, the advertiser, says he has one hundred and ten acres of the first quality of land in Stratton, near the turnpike leading to Troy, which he "will sell to any person who will pay the transfer of the deed, and in addition will warrant most of the season good sleighing from the 15th of October to the first of June, and the climate so pure that it will keep fresh meat perfectly sweet the year round." We do not see how a man could well say more touching the advantages of the premises, or make the terms more eligible. As to the expense of the transfer deed, the owner will probably come down a little in the terms, and pay for that himself.—[Courier & Enquirer.]

MIRACULOUS ESCAPE.—Yesterday afternoon, as the granite corner piece for the south west front cornice of the Astor Hotel, weighing three tons, was raised to its height, the derrick broke off near the top, and it fell to the ground. The cornice was broken in two. In its fall it struck, and broke off three or four feet of the projecting piece, in the side wall on Vesey street. It was fortunate that no person was injured by the fall, as many were passing at the time, some of whom very narrowly escaped.—[Sun.]

We received yesterday from Disturnell, 156 Broadway, one of the neatest little articles imaginable. It is a miniature plan of the city of New York, so small that when folded in its neat little case, it occupies no more room than a common visiting card. The lettering though small, is clear and distinct. It is a little bijou, a diamond edition, in which the engraver has proved the perfection of his art.

So say the Times, and we say *ditto* thereto.

An accident occurred on the Worcester Railroad on Thursday. A couple of oxen came suddenly upon the track from behind a barn, and before they

could get out of the way the engine was upon them, knocked them down, and killed them on the spot. The cars were thrown off the road and three hours were lost in replacing them.

RAILROAD ACCIDENT.—An accident of a singular character, such as never occurred anywhere before, and such as will never probably occur anywhere again, happened on the Boston and Providence Railroad as the cars were approaching this city, last Saturday, within about four miles of the depot. The nut which confines the bolt by which the break to one of the cars was suspended, became unscrewed by the jarring of the carriage, and the break falling upon the rails under the wheels, the car was thrown from the rails, and being stopped at a speed of about 15 miles an hour, stood up endwise. The car immediately following, mounted this. One of the hands connected with the cars was so badly injured, that his life was at first despaired of, but we understand from one of the agents of the road, that there is now a favorable prospect of his recovery, and that he was yesterday walking about his room. Several of the passengers were somewhat bruised, but no one materially hurt. There were six passenger cars in the train, only two of which were at all deranged.

We understand that the nuts which secure the belts of the breaks, are now all made fast with keys, so that the cars on this road will never be liable to a like accident again, and we presume that this disaster will be a sufficient caution to the directors of other Railroads, to have their breaks secured in the same way.—[Providence Journal.]

LIABILITY OF POSTMASTERS.—The Philadelphia Times has the following:—

"The proprietor of this paper last week recovered judgment against a Postmaster for a paper not taken from his office, of which he neglected to inform him. All Postmasters who do so, render themselves liable, and ought to be held accountable."

Every Editor ought to publish this conspicuously, as well for the benefit of Postmasters as themselves.

EMIGRATION.—The Venus steamboat left the Steam Packet Wharf, St. Katharine's Dock, at about half-past eight o'clock yesterday morning, with from 230 to 240 female emigrants to take their passage on board the ship Canton for Sydney. The emigrants were, for the most part, fine healthy looking girls, some of them of exceedingly interesting appearance, and almost all of a class much above that in which the distress which prompts to emigration would be supposed to exist.—[English paper.]

FROM CHILI.—The ship Nile, Capt. Townsend, arrived at New Bedford on Tuesday, 75 days from the island of Mocha*—left Talcahuana on the 31st March, one month after the earthquake. The shock of the 20th of February was felt a great distance at sea. Captain Cotton of the ship Leper, informed that he felt the shock very severely six hundred miles from land. The Nile was cruising at the time in lat. 39 15 south, within 8 or 10 miles of the land. The agitation of the ship at the moment the shock was first felt was great, and it was thought the ship had struck—the lead was thrown without finding bottom and Capt. T. wore ship—on the 23d of February another severe shock was felt at the island of Mocha—Capt. Bumpus of the ship Maryland, in lat. 37 35 states that the shaking of the boats and spars over head was so alarming that it was dangerous to stand under them.

A brig arrived at Talcahuana, before the Nile sailed with provisions for the relief of the people who had been deprived of support. The distress was not so great there as was at first anticipated,

* Mocha is an uninhabited island about 60 miles in circumference situated in lat 38, 40 S. The vicinity of this island is a great resort of ships cruising for right whale.

provisions having come in from the country in abundance. Many of the inhabitants of Concepcion and Talcahuana were employed in rebuilding their houses—some small huts for a temporary shelter.

Capt. Townsend informs that he has been on the coast of Chili a number of times, during the same months, and thinks he never experienced such a scarcity of whales, fish and fowl as there is the present year (1835.) It is the general opinion that the earthquake had driven them from the coast.

OLDEN TIMES.—The following extracts from the Journal of an Englishman who visited Boston in the year 1638, show the vast change which two hundred years has produced. The scattered dwellings along the coast have swelled into cities, and the solitary settlers multiplied into nations. But what fancy can paint, or what mind can grasp the probable results of two more centuries, or set bounds to the wealth and power which the Union may have then attained?—[Wheeling Gaz.]

Extract from the Journal of an Englishman, who visited Boston in 1638, and landed on the island now called East Boston.

"Soon after we anchored in the harbor, I went on shore at Noddle's Island to Mr. Maverick's, the only hospitable man in all the country; giving entertainment to all new comers gratis.

"Having refreshed myself for a day or two on Noddle's Island, I crossed the Bay in a small boat to Boston, which is rather a village than a town, with twenty or thirty houses, when I presented my respects to Mr. Winthrop the Governor, and Mr. Cotton, the teacher of Boston Church. To Mr. Cotton I delivered the translation of some psalms by Mr. Quarles, the poet. I was civilly treated, and returned to the island in the evening."

The traveller then went to Blockpoint, in the province of Maine, 150 miles from Boston; and he says, "he was visited by some of the people of these parts, who told him that a *Sea Serpent* had been seen near Cape Ann. They who passed near it was about to shoot him, when an Indian, who was with them, dissuaded them, saying if he were not killed outright, they would all be in danger.

"One Mr. Milten told me he saw a Triton, or Merman, in Casco Bay. These, and some other strange stories I heard, the credit whereof I will neither impeach nor enforce, but I may say with a learned knight, that there are many stranger things in the world than are to be seen between London and Stanes!

"When I was coming away from Blockpoint to return to Boston, several of my acquaintance came to bid me farewell, one of whom was Capt. Thomas Wannerton, who drank to me a pint of *kill devil*, alias rum, at a draft!

"When I returned to Boston, I went to Charlestown with Capt. Jackson; and as we walked out on the back side, we spied a rattlesnake four and a half feet long, and thick as the small part of a man's leg. We saw it seize and swallow a small chicken, such as they would give four pence for in England. In the afternoon, I returned to our ship in the harbor, when I had sight of an Indian pinnace of spruce, with a deck, and trimmed with sails.

"Our master, Capt. Luxon, who had been ashore at Governor's Island, gave me half a score of very fair pippins, which he brought thence; there being not one apple tree or pear tree yet planted in any part of the country, except on that island."

He speaks of an ordinary, at the west end of Boston, where he was provided with a liberal cup of burnt Madeira wine and store plump cake, for his breakfast.

In some places, he says, "the sea rises eighteen feet perpendicular. I had two reasons given for it—one in a sermon—that the spirit of God moving on the water causeth it; and that the spirit of the waters gathered the waters together, as the spirit of Christ gathereth souls."

Fossil Fishes.—Previous to 1600, there are perhaps few records of fossil fishes. Fabius Columna and Worm wrote 'De Glossopetris'; in the following century, we had Scheuchzer and Fischer; and, towards its conclusion, the 'Ittiolitologia Vernosa of Volta,' a large folio containing seventy-six plates, which, if not very faithful in execution, showed the interest which was at this time excited; but it was not until so late as 1818 that an enumeration of the fossil species previously known was first attempted by De Blainville in 'Le Nouveau Dictionnaire d'Histoire Naturelle.' Since then, the science has gradually advanced, from its intense interest, and its connexion with the studies of the geologist; and at the commencement of the last year, it assumed a most important station from the researches of a naturalist of Switzerland, and the appearance of the first numbers of this work devoted to this department. The 'Recherches sur les Poissons Fossiles' of Louis Agassiz will undoubtedly mark the commencement of a new era in this science; for, independent of the perspicuity and clearness with which the department itself is

illustrated, the study of existing species, being necessary for a knowledge of those which are extinct, has induced the author to give his views of the science generally, and to propose an arrangement entirely different from those of his predecessors, the characters of which are principally taken from the form and structure of the scales. His orders are as follows:—I. *Placoidians*—so named from the irregularity presented by the solid parts of their covering, composed of masses of enamel. It includes many fossil forms, the sharks and rays.

II. *Oanoidians*—containing varied forms, the saurid fishes, siluri, sturgeons, &c. characterised by scales of an angular form, composed of two substances, plates of horn or bone, placed one upon another, and covered by a thick layer of enamel.

III. *Ctenoidians*—the common character is in the thin plates forming the scales, being pectinated or toothed on their posterior edge, which makes them feel rough to the touch. It contains the chetodons, pleuronectes, the percoid fishes, &c.—IV. *Cyclodontians*—they have the scales formed of simple plates, those of the lateral line with a tube for the transmission of the lubricating mucus. It includes the mullets, calmon, cyprin, &c.

The situation in our systems which has been allotted to fishes, has generally been the fourth place, or the lowest rank, in the scale of the vertebrata. They seem to have been more particularly connected with the class which immediately precedes them, by those most extraordinary creatures, long since extinct, but which now occupy so much of the attention of the geologist, the *Ichthyosaurs* or fish-lizards, and which the discovery of new forms leads us to believe were a numerous race, perhaps possessing intermediate ability to exist either in air or water. Fishes are entirely inhabitants of the waters, peopling this immense portion of our globe with their shoals, and serving to keep in check the varied creatures of still lower structure, while they themselves are held in check, and afford sustenance to millions which have been placed in our systems above them. In form they are perhaps the most varied beings in creation, and the most fertile fancy could scarcely depict a shape or appearance to which a resemblance would not be found. They are of "hideous and loathsome bulk," or of the most graceful forms, and gorgeous and resplendent colors; but still among all these we may trace the characteristic shape of a fish, in the head being placed at once upon the shoulders without any length of neck, followed by the body, and finished by the tail; and the parts will be all adapted to the different modes of gaining sustenance, whether it is to be procured by stealth and deceit, or by strength and swiftness."

NATURAL HISTORY.—It may be considered as a law, that those fish that swim near the surface of the water have a high standard of respiration, a low degree of muscular irritability, great necessity for oxygen, die soon—almost immediately, when taken out of water, and have flesh prone to rapid decomposition. On the contrary, those fish that live near the bottom of the water have a low standard of respiration, a high degree of muscular irritability, and less necessity for oxygen; they sustain life long after they are taken out of the water, and their flesh remains good for several days. The carp, the tench, the various flat fish, and the eel, are seen gaping and writhing on the stalls of the fishmonger for hours in succession; but no one sees any symptom of motion in the mackerel, the salmon, the trout, or the herring, unless present at the capture. These four last-named, and many others of the same habits, to be eaten in the greatest perfection, should be prepared for table the same day they are caught; but the turbot, delicate as it is, may be kept till the second day with advantage, and even longer without injury; and fishmongers generally are well aware of the circumstance, that fish from deep water have the muscle more dense in structure—in their language, more firm to the touch—that they are of finer flavor, and will keep longer, than fish drawn from shallow water. The law referred to has its origin in the principles of organization; and though it would be difficult for the anatomist to demonstrate those deviations in structure between the trout and tench which give rise to these distinctions and their effects, it is only necessary to make the points of comparison wider to be assured of the fact. Between a fish with a true bony skeleton, the highest in organization among fishes, and the lamprey, the lowest, the differences are most obvious. If we for a moment consider the lamprey, which is the low-

est in organization of the vertebrated animals, with only a rudimentary vertebral column, as the supposed centre of zoological structure, and look from thence up and down the scale of organization, we at the extreme on one side arrive at man, to whom division of his substance would be destruction; but on the other, we come to the polype, the division of which gives rise to new animals, each possessing attributes, not only equal to each other, but equal also to the animal of which they previously formed but a small part."

THE ORNITHORHYNCHUS PARADOXUS.—The habits of this extraordinary creature (partaking of the character of a quadruped and a bird) have lately had some new light thrown upon them, by the researches of a British traveller and naturalist.—At a late meeting of the London Zoological Society, a very satisfactory paper was read upon the subject. Mr. G. Bennett, the author of the paper, made the inquiries in the colony of New South Wales, and in the interior of New Holland, at the end of 1832 and commencement of 1833. From one of the burrows inhabited by these creatures, a living female was taken, and placed in a cask, with grass, mud, water, &c.; and in this situation it soon became tranquil, and apparently reconciled to its confinement. Hoping that he had now obtained the means, should his captive prove to have been impregnated, of determining the character of the excluded product, Mr. Bennett set out on his return for Sydney, on the 13th of October, carrying the living *ornithorhynchus* with him in a small box covered with battens, between which only very narrow intervals were left. The next morning, tying a long cord to its leg, he roused it, and placed it on the bank of the river, in order to indulge it with a bathe; and a similar indulgence was granted to it on the second day of its journey. On these occasions it soon found its way into the water, and travelled up the stream, apparently delighting in those places which abounded most in aquatic weeds. When diving in deep and clear water, its motions were distinctly seen: it sank speedily to the bottom, swam there for a short distance, and then rose again to the surface. It appeared, however, to prefer keeping close to the bank, occasionally thrusting its beak into the mud, from whence it evidently procured food; as, on raising the head, after withdrawing the beak, the mandibles were seen in lateral motion, as is usual when the animal masticates. The motions of the mandibles were similar to those of a duck under the same circumstance. After feeding, it would lie sometimes on the grassy bank, and at others partly in and partly out of the water, combing and cleaning its coat with the claws of the hind feet.—This process continued for some time, and greatly improved its sleek and glossy appearance. After its second excursion it was replaced in the box, which was not opened again until the following morning, when it was found to have made its escape. In the examination of another burrow, Mr. Bennett found three young *ornithorhynchus*, which appeared to have, not long previously, been brought forth: they were thinly covered with hair, and measured in length about 1.7-8 inch. No fragments of shells were observable in the burrow, nor any thing that could lead to the supposition of the young having been excluded while yet in the egg. Mr. Bennett then describes their habits in captivity, having succeeded in capturing an old female, and three young ones.

The old woman was in a ragged and wretched condition; little milk could be pressed from her abdominal glands, as might have been expected in the parent of such well-grown young ones. The young were allowed to run about the room; but the old one was so restless, and damaged the walls of the room so much by her attempts at burrowing, that it was found necessary to confine her to the box. During the day she would remain quiet, huddled up with her young ones; but at night she became very restless, and eager to escape. The little ones were frolicsome as puppies and, apparently, as fond of play; and many of their actions were not a little ludicrous. During the day they seemed to prefer a dark corner for repose, and generally resorted to the spot, to which they had been accustomed, although they would change it on a sudden, apparently from mere caprice. They did not appear to like deep, but enjoyed exceedingly a bathe in shallow water, with a turf of grass placed in one corner of the pan; they seldom remained longer than ten or fifteen minutes in the water at one time. Though apparently nocturnal

or, at least, preferring the cool and dusky evening to the glare and heat of noon, their movements in this respect were so irregular, as to furnish no grounds for a definite conclusion. They slept much; and it frequently happened that one slept while the other was running about, and this occurred at almost all periods of the day. They climbed with great readiness to the summit of a book-case, and thus by means of their strong cutaneous muscles, and of their claws, mounting with much expedition to the top. Their food consisted of bread soaked in water, chopped egg, and meat minced very small, and they did not seem to prefer milk to water. One of the young ones died on the 29th of January, 1833, and the other on the 2d of February, having been kept alive in captivity for nearly five weeks. The old one died before.

THE SUB-MARINE!!—T. Campbell, in his poetical language, might tell us of a ship, that "She walks the water like a thing of life,"

but in plain prose it can be more distinctly stated of Mr. Dean, that he walks (in) the waters like a thing of life. Our readers are aware that this extraordinary submarine peripatetic, whose piscatorial incubations we formerly noticed when it pleased him to take a promenade at the bottom of the Thames, has since that period been engaged in paying a few visits to the Royal George, where she lies "fifty fathoms deep." One of the guns which he has had raised from the wreck, has, we observe from the newspapers, been sent, like a traitor, to the Tower; but several others have, also, as they say of young ladies at boarding-schools, been well brought up. Two of them are on the pier at Ramsgate. They are of brass, ten feet six inches long, six inches diameter in the bore. Round the breech is the inscription—"Schalch fecit 1742," and an account of the weight, viz 50 cwt. 3 qrs. 24 lb. the one; and 50 cwt. 2 qrs. 17 lb. the other—thus differing in 35 lb. A little above the breech are the royal arms, without supporters; and near the muzzle is a coat of arms, perhaps of the master of the ordnance at the period, or it may be of the founder. Two beautifully modelled dolphins are placed above the trunnions; and the whole workmanship is equal to the finest of the present day. The edges of the ornamental parts are quite sharp; and the only signs of long immersion are that they are green, and have a few pieces of oyster-shells sticking about them. Mr. Powell, of Queen Park, near Margate, has, according to the report, purchased two of the guns to place in his grounds, and given as much as 300*l.* a-piece for them. Assuredly, the enterprising Mr. Dean deserves every encouragement, both private and public.—[London paper.]

WAR.—What a picture of horror does the following paragraph present! What blood spilt! What money expended, to enable man to butcher his fellow man! Surely, any price but liberty and honor, should be paid by nations for peace.—[Nat. Intelligencer.]

"Since the year 1,000 there have been 24 different wars between England France, 12 between England and Scotland, 8 between England and Spain, and 7 with other countries—in all 51 wars! There have been six wars within 100 years, viz:—

"1st war, ending 1897, cost 21,500,000*l.* 100,000 slain, 80,000 died of famine.

"2d war, began 1702, cost 43,000,000*l.* Slain not ascertained.

"3d war, began 1739, cost 48,000,000*l.* Slain not ascertained.

"4th war, began 1756, cost 111,000,000*l.* Slain 250,000.

"5th. American war, began 1755, cost 139,000,000*l.* Slain 200,000.

"6th. Last war, began 1793, cost 750,000,000*l.* Slain 2,000,000 amongst all the belligerents.

At the conclusion of the war which ended in 1897, the national debt was 21,500,000*l.* At the conclusion of the last war, in 1815, the national debt amounted to no less than 1,050,000,000*l.*—[Lond. Times.]

CARTHAGE.—So literally true is "Delenda est Carthage," that according to the most recent visitor to the site of that once great city, not a vestige of its former greatness remains, while its very name is unknown to the present race of inhabitants.

Plutarch gives a pretty reason for residing in his native place:—"I live in a little city, and I choose to live there, lest it should become still less."—[Langhorne's Plutarch.]

ORIGINAL LETTER FROM THE EARL OF SURREY TO KING HENRY VIII.—From the British State papers just published under the King's commission.

"Pleas it Your most noble Grace to understand, that where as I, and others of Your Graces Counsaill here, have divers tymes aduertysed Your Grace, how the Iryshman bee confetred to gyddres to destroy your poore subgies; they contynue daily in theyr yll determyned purpose, and aboutes 23 daies past assembled a right great power, after the manner of this land; whereof I, being aduertysed, assembled the best power I might gather, and the 9th day of this month departed towards OConors cuntry, where they were all to gydders. And notwithstanding that I contynued in his said cuntry, unto Tuysday last past, brengnyng all his townes and houses, and destruyng a marvelous dele of corne, and also leved siege to his castell, the strongest of all this land, and wanne the same; yit, of all the tyme I contynued there, they wold never fall to no conclusyon of peas, but answerd pleyntly to suche, as moovyd to have peas betweene theyme and me, that they wold never fall to peas with Englyssmen, tyll they had utterly destroyed theyme. Whoose wilfulness hath been right chargeable unto the said OConore; for he hath not onely lost his castell, and all his cuntry burned, but also so moche of his corne is destroyed, that his people shall be enforced eyther to forsake the cuntry, or dye for hunger this wynter comyng. Undoubtedly, these Iryshmen bee soo soore confetrid to gyddres, that I see no lyklyhod but contynuel warre, which shall be right herde to withstand, without that the Englyshery, and moost especially the countie of Kyldare, shall take summe hurtes, principally for lak of oon good capeteyne to defende the same, when I am besy in other cuntreys. Besechyng Your Grace to aduertys me of your gracious pleasure, whether I shall kepe styll OConors castell forsaide, called Monesteroverys, or jelyver the same to hym agayne. As long as I shall kepe it, he wold be at warre. And if Your Grace entend to conquere this land, it is as necessary for the entre upon Iryshmen cuntreys, as Berwyk is in Scotland. I have soo manned and vctayled the said castell, that, with Goddis grace, it shall be out of daungier of Iryshmen, tyll I be aduertised of your gracious pleasure. Signyfying unto Your Grace that when I was in OConors cuntrey, the Erll of Ormond made sharpe warre upon Okerrol, and hath doon his part right welc. Besechyng Your Grace to send your gracious letters of thankses unto hym, as wele for his good counsaill yeven to me, at all tymes, as for his paynfull diligent service doon to Your Grace here. Also, I have suter knowledge, by divers espayalles, that OKarwell dooth assemble a mouche gretter power, then he did this last tyme; contending to make a great invasion upon Your Graces poore subgies. For the repressyng of whoos malyce, I assay all the freendes I can, oswele English as Irysh; and shall do my best, not onley to let hym to invade Your Graces subgies, but also to doo the moost hurtes I can to hym, and his partetakers. Also, oon Richard Pepyr, of Calays, hath of late robbed and despoyled twoo Brytton shippis, upon the see, and hath brought with hym oon of their ballyngers. He had in his company aboutes 20 persons, and they bee in preson at Corke. Besechyng Your Grace, that I may be aduertised of your gracious pleasure, whate shall bee done with hym and theyme. If Your Grace wold have thyme put to execusyon, Your Grace muste send me a comyssion soo to doo; for I haue noon auctoritie otherwise to put them to deth, and the long keepyng of theme wold bee chargeable to Your Grace. I can aduertys Your Grace of noo moo of their names, but onely Rychard Pepyr; wherfor, yf Your Grace wol have them put to deth, there must be lefte a blanke in the comyssion, for their names to bee put in when I shall know theym. Also, I beseeche Your Grace, that there may bee joyned with me in the comyssion, Patrike Brynmyngham, Chief Justice of your Benche, Rychard Delamayde, Chief Justice of the Comon Place, James Cantwell, Arthur Mygyn, Cormok McRoryk, Bachetors of Lawe. Also yf it myght stand with your gracious pleasure to send me a comyssion, with auctoryte to put to deth all rovers of the see, that shuld fortune to bee takyn in this land, it is thought by Your Gracis Counsaill here, it shuld doo muche good, for this land is the very land of refuge that Englysh pyratres resort moost unto. And I, having the

said comyssion, Your Grace shuld tooe at me charge in keepyng of theyme, unto a comyssion were sent fro Your Grace to the out of England. Besechyng Your Grace, if it shall lyke Your Highness to sende me any of the said comyssioners, to geve me auctorytie to pardon suche of theyme, as shall be thought by me, and Your Gracis Counsaill here, the leest offenders, and moost convenyent to bee pardoned; or els, yf there were never soo many taken, all must dye, which I feare might be rekensyd to bee too soore. Most humble besechyng Your Grace, that I may brevely know your gracious pleasure in the premissis, and I shall dayly pray for the long prosperous contynewance of your most royal astate. Wryten in Your Graces Castell of Dublyn, the 29 day of July [1584]. Your most humble subject,

"(Signed) T. SURREY."

"(Superscribed)
To the Kynges Most Noble Grace."

PARISIAN STATISTICS.—During the last year there were born in Paris 29,130 children, namely—14,901 males, and 14,229 females. Of these 19,145 were legitimate; 13,885 of them being born in private houses, and 460 in the hospitals or almshouses; 9985 were illegitimate, 5473 of whom were born in private houses, and 4512 in the hospitals. Of the natural children 1170 were acknowledged by their parents. The deaths amounted to 24,177 namely—12,004 males, and 12,173 females. Of these 15,840 died in their own houses, and 8,337 in the hospitals. The number of births exceeded that of the deaths by 4953. The marriages were 8088. In 1833 there were 27,460 births; 25,096 deaths, 7938 marriages.

A PARTICULAR MISTRESS.—A Provincial paper contains the following advertisement for a housemaid:—"A young French girl wanted, as housemaid; she must rise early in the morning, light the drawing-room fire (but not clean the grate;) she must never wear curl papers, and never presume to give her advice or suggest any thing."

To the Editor of the National Gazette:

The following lines by the Hon. Mr. Wilde, of Georgia, were probably not designed for publication; but the feeling and taste which pervade them can scarcely fail to be admired, and permission has therefore been obtained of the lady to whom they were inclosed, to hand them over to you.

Ship Westminster at sea off the Highlands of Newcastle, June 1, 1835.

Farewell! my more than father land!
Home of my heart and friends adieu!
Lingering beside some foreign strand,
How oft shall I remember you!
How often o'er the waters blue,
Send back a sigh to those I leave,
The loving and beloved few,
Who grieve for me;—for whom I grieve.
We part!—no matter how we part,
There are some thoughts, we under not,
Deep treasured in our inmost heart,
Never revealed, and ne'er forgot!
Why murmur at the common lot?
We part!—I speak not of the pain,
But when shall I, each lovely spot,
And each loved face, behold again?
It must be months,—it may be years,—
It may—but no!—I will not fill
Fond hearts with gloom,—fond eyes with tears,
"Curious to shape uncertain ill."
Though humble,—few and far,—yet still,
Those hearts and eyes are ever dear;
There's is the love no time can chill,
The truth no chance nor change can sever!
All I have seen,—and all I see,
Only endears them more and more;
Friends cool—hopes fade—and hours flee,
Affection lives when all is o'er!
Farewell my more than native shore!
I do not seek or hope to find,
Roam where I will, what I deplore
To leave with them and thee behind!

[FOR THE NEW-YORK AMERICAN.]

SONG.—Hours of absence.

Round our lone and ancient dwelling,
(Like the sighs of friend's away)
Mournfully the breeze is swelling,
And the billows wildly play.
There when shades of eve are o'er the,
And the taper's cheerful light
Shines on all (but one) before me,
Memory pictures scenes more bright.
And in vision I am wand'ring
By a cool embower'd stream,
On thy parting accents pond'ring,
Life! would thou wert all a dream!!
Can it be? that voice of sweetness
I must sigh to hear in vain?
Fly oh! thou—with love's own sweetness,
Till I hear those songs again.

ELIZ.

HENRY B. CAMPRELL, Eng. Philad,
German and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JULY 4, 1835.

[VOLUME IV.—No. 28.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JULY 4, 1835.

THIS number completes the first half of volume FOUR of the Railroad Journal. The Journal was commenced with little expectation of profit, yet not without confidence that the receipts from subscriptions and sales would meet its expenses for paper, engraving, and printing. Our expectations have not been realized, and, therefore, retrenchment must become the order of the day; present engagements, however, will be fulfilled, and the Journal, containing 16 pages each number, will be sent to all who are new subscribers until the close of the volume, or 1st January next; but after that date, and to all new subscribers from the present time, the Railroad Journal will contain eight pages only to each number. The terms, however, will not be reduced, as the expenses of the work must be paid, hereafter, by those for whom it is published, or it will not be continued as a distinct work. I profess to be liberal, and desire to be of service to others, yet I cannot afford to work for nothing, as its editor, and fall in debt at the close of the year for the privilege. If the work has been of any service to the cause to which it has been devoted, then should it be sustained, if not, then it should, and shall, be discontinued, or devoted to other subjects—reprinting of novels for instance, or the like works of utility! which seldom languish for want of subscribers.

Subscribers, who are now indebted for the Journal, will greatly oblige us by remitting the amount due, or we shall certainly oblige them—by discontinuing to send it to them, —as a work which is not worth paying for, in the course of the year, cannot be worth having.

☞ If this should meet the eye of any who desire to aid in sustaining the work, they will learn from it, that for a ten dollar note, current money, they can obtain the work entire, from commencement to this date, three and a half years, stitched in half yearly parts, of about 400 pages each, which can be sent by mail to any part of the United States.

☞ If two hundred complete sets of the work now on hand could find sale immediately, it would place the balance on the other side of the ledger. Would it not be for the interest of railroad companies, throughout the United States, to purchase each four or five sets of the Journal, rather than to have it discontinued? Who would be the greatest gainer, those so deeply interested in knowing all the improvements connected with railroads, or the proprietor, who has published it near four years without a penny for his personal services?

This is the last appeal in its behalf; and should it not produce the desired and necessary result, the Railroad Journal will probably be merged in the Mechanics' Magazine after the close of the current volume; or be discontinued entirely.

AUGUSTA AND ATHENS (Geo.) RAILROAD.—We continue in this number the Report of A. A. DEXTER, Esq., which was commenced in our last, on his survey of the route for a Railroad from Augusta to Athens, Georgia. This will be, in truth, a continuation of the Charleston and Augusta road which is now in successful operation; and another important link in the railroad which will surely be extended through Alabama and Mississippi to the Father of Rivers, and probably to the Gulf of Mexico.

We are much obliged to Mr. Dexter for his politeness in forwarding drawings also with the report, as it is of importance, as we believe, to Engineers, to know the manner in which the different roads are constructed; and we like to have the "Journal" made the medium of that communication. For its long delay after it came to hand, he will please accept as an apology—"misaid amongst other documents on the Editor's table."

EXPERIMENTS on the Strength and other Properties of Malleable Iron, by PETER BARLOW, F. R. S., London.—We commence, in this number, the publication of this work, and shall publish the remainder of it in the two succeeding numbers. The information contained in it will be found highly valuable to those interested in Railroads.

Mr. Barlow, it will be seen, gives the preference to the parallel rail, and says, that on the Liverpool and Manchester Railroad they re-place the fish-belly with the parallel rail, whenever it is necessary to take up a defective rail.

☞ PIRACY.—The Gallatin (Miss.) Democrat has the following important intelligence:

ADDITION TO A NAME.—We learn that the paper to be published at Madisonville, in this State, called the Southern Transcript, is to have an additional name appended to it, and to be called The Southern Transcript and "Railroad Journal."

Now look at the title of this Journal, and then tell us if they have not pirates as well in Mississippi as on the "high seas," or in New-Jersey. But, never mind—there is work enough for more of the same name, if they will only strive to advance the cause they profess to advocate. They will find, however—as we have—that the name will not ensure a patronage equal to its expenses, if they give the necessary engravings and illustrations.

We are gratified to learn that Captain McNeil is appointed Chief Engineer of the Long Island Railroad.

MISSISSIPPI AND PEARL RIVER RAILROAD.

—We copy the following notice from the Gallatin (Miss.) Democrat. This road, when completed, will be about 120 miles long—extending from Natchez to Jackson.

RAILROAD SURVEY.—We had the pleasure of conversing with Mr. F. H. Petrie, Chief Engineer, and learn that the route of the railroad from Natchez to Gallatin, and as far as it is now surveyed, is not only practicable, but that, in his own words, "fewer difficulties will be encountered in its execution than are ordinarily met with, on so great an extent of line. Other routes will be examined, and when the difficulties and facilities incident to each are ascertained, the results will be laid before the Railroad Committee."

[COMMUNICATED.]

Operations are just commenced on the Andover and Wilmington Railroad. The Stock is 1 per cent. above par. A gentleman informed me this week that he was offered 80 dollars advance on his 80 shares. This route extends 7 2-3 miles from the Lowell Railroad at Wilmington, to Andover. The Directors of this Company, whose charter has been extended to Haverhill—10 miles further—it is said, contemplate breaking ground soon on that part of the route between Andover and Haverhill. There is, besides, a Company formed for the purpose of extending the route from Haverhill to the line of the State of Maine—and a petition has been presented to the present Legislature of New-Hampshire, for a charter. It is also contemplated to form a Company, and to petition the next Legislature of Maine for a charter, for extending the route to Portland. Thus a line of railroad will probably be established between the cities of Boston and Portland, within a few years. T.

A bridge is about to be constructed over the Ohio at Louisville—by a joint Stock Company. The estimated cost is between three and four hundred thousand dollars. Books for the stock are to be opened in this city and Louisville on the 13th July.—[N. Y. Amer.]

THE MENAI BRIDGE.—A friend of ours, who lately crossed this bridge, was informed by a gentleman who resided close to it, and has erected standards by which to mark the degree of vibration to which it is subject, that during the late violent gales it was on several occasions so much agitated as to oscillate to the extent of eight feet six inches—that is, four feet three inches both ways, out of the straight line. We believe, however, that even a much greater rate of oscillation than this was allowed for in the calculations on which it was constructed.

A RAILROAD from Athens to the Piræus is stated by the Munich Journal to have been contracted for by the Greek Government, with the banker Fereldi.—[Lond. Mech. Mag.]

About 50l. were received, in pence, from the frequenters (nearly 10,000) of the London and Greenwich Railway Mall on Sunday.—[Herald.]

Report of A. A. DEXTER, Esq. on the Survey of a Route for a Railroad from Augusta to Athens, Geo. [Continued from our last.]

I shall now proceed to furnish estimates in detail for the various sections into which the line is divided, as shown upon the maps.

The estimate of evacuation and embankment will be made by the line of graduation established on the profiles, furnishing the surface on the line of survey. Although, on the aggregate, of greater lineal extent, this surface will not, generally, materially differ from that of the assumed line of location shown upon the maps.

Further examinations may, in many instances, effect a favorable change in the aspect of the profile, as well as in the line of location.

In my estimates, I shall endeavor to make such allowances for improvements, where I have definite knowledge in regard to their practicability, as will bring the result nearer the truth. I furnish them as approximate estimates. Accuracy can only be arrived at after the location has been definitively fixed on the ground, and all the minute data obtained for the purpose.

SECTION NO. I.

This section is 13½ miles in length, from Augusta to the ford of Butler's creek, near Verdery's.

This line is necessarily very circuitous, to avoid the high ridge between Rocky and Butler's creeks, which, at the most favorable point of crossing, is utterly impracticable, requiring two long planes of graduation of 1 in 100, (52 8-10 feet in a mile,) with 40 feet depth of cutting, and 20 feet height of embankment. The cost of graduation in reducing the "Hillock" to this grade, would not fall short of \$30,000, which would more than provide for the additional extent of road, about 3½ miles, necessary to avoid it. The route we propose passes down the Savannah road, and to Judge Schley's, on the Louisville road, at Butler's creek, where the ridge before mentioned abruptly terminates.

An easy and gently ascending graduation may be obtained on the north side of the creek, by Schley's, Walker's, Fox's, and Hale's saw-mills, to Verdery's.

As no instrumental examination has been made of this section, on the route recommended, we have no data except that derived from personal reconnaissance, and comparison of the ground with other routes. The average depth assumed is, I am confident, sufficiently great, and the soil being for the most part loose, and easy of excavation, the price ought to be an ample one.

ESTIMATE.

77,856 c. yards excavation and embankment on the first 6 miles, 10 c.	7,785 80
6 miles construction plan No. 2, at \$4,135.	24,810 00
Bridge work across creeks.	1,800 00
Culverts and road bridges.	1,000 00
176,938 cubic yards of excavation and embankment at the most, 7½ miles at 12 c.	21,288 56
7½ miles construction, \$4,135.	31,012 50
Culverts, road bridges, &c.	500 00
3 turnouts, at \$600.	1,800 00
3 houses for attendants.	1,500 00
Grubbing and clearing for the 13½ miles, at \$100.	1,350 00
Extra tracks at termination.	1,000 00
	93,790 86
Add 10 per cent. for contingencies.	9,379 08
Amount.	\$103,169 94

SECTION NO. II.

From Butler's creek, at Verdery's, (13½ miles,) to two miles west of Kirkpatrick's, on the Milledgeville road. This will be the most difficult and expensive section on the whole line. Passing from Verdery's by Clyatt's, and Captain Beal's Mills, we ascend the valley of Butler's creek to its head,

rising in the last 3 9-100 miles 118 51-100 feet, 44 4-10 feet per mile, with a maximum depth of cutting of 35 feet. Much time was spent by myself and party in our examinations about the head of Butler's creek. A line passing up Welche's Branch was tried, and not less than five or six different routes examined, and for some time I despaired of being able to ascend from the valley of the Savannah without the aid of stationary power; but at length, by crossing a narrow and low part of the ridge, between Butler's creek and the Uchee, and crossing round under the breaks of the latter creek, I was able to obtain a route, which though circuitous and expensive is highly satisfactory in affording a location for locomotive power.

It would be well that further examinations be made for a route passing out of the head of Spirit creek, and also out of some of the head branches of the Uchee, into which we must necessarily partially descend. Although in this location the adoption of stationary power would afford a saving in the first cost, yet I have no question as to the propriety of incurring the additional expenditure necessary in avoiding it.

ESTIMATE.

253,078 cubic yards excavation and embankment, at 17 c.	\$43,023 26
223,666 cubic yards excavation and embankment, at 18 c.	40,250 99
205,765 cubic yards excavation and embankment at 15 c.	30,864 75
High truss or bridge work across hollow of Uchee.	10,000 00
10 miles of construction, with iron complete, at \$4,134 80-100 per mile.	41,348 00
3½ miles construction at \$3,438 20-100.	12,016 20
Clearing and grubbing, at \$150.	2,025 00
3 turnouts at \$600.	1,800 00
Houses for attendants.	1,500 00
Culverts and road bridges.	2,000 00
	\$184,837 20
Add 10 per cent. for contingencies.	18,483 72
Amount.	\$203,320 92

SECTION NO. III.

Embracing Sweetwater, extending west 11 miles, and ending at 38 miles from Augusta.

This section, by the route surveyed, and on which the estimate is predicated, crosses the valley of Sweetwater about one mile north of the Milledgeville road; but I am convinced that the profile could be rendered more favorable, and a saving in distance effected, by heading the depression, and passing by the White oak camp ground, nearly on the old tobacco road. I feel confident that a steeper graduation than 1 in 150 will not be necessary on this route.

ESTIMATE.

449,480 cubic yards excavation and embankment at 16 cts.	\$71,916 80
7 miles construction with iron complete at \$4,134 80.	28,942 60
4 miles construction at \$3,433 20.	13,732 80
Grubbing and clearing at \$130.	1,430 00
Culverts and road bridges.	1,800 00
2 turnouts at \$600.	1,200 00
Houses for attendants.	1,000 00
	120,123 20
Add 10 per cent. for contingencies.	12,012 32
Amount.	132,135 52

SECTION NO. IV.

Twelve miles long, passing within 3½ miles of Warrenton, ending at 50 miles from Augusta.

This section is generally favorable, the average depth of cutting and filling being several feet less than in either of the preceding sections. The line, in following the direction of the ridge, has 8 curves in the distance of 12 miles, none however of a less radius than 3000 feet. The growth of timber continues to be pine to the end of the section, the soil on the surface light and easy of excavation.

ESTIMATE.

258,765 c. yds. of ex. and emb't. at 13 c....	\$31,051 80
7 miles construction ironed complete at \$4,134 80 per mile.....	28,943 60
5 miles of construction at \$3,433 20.....	17,466 00
12 miles grubbing and clearing at \$150.....	1,800 00
Culverts and road bridges.....	2,900 00
2 turnouts and houses for attendants.....	2,200 00
	84,061 40
Add 10 per cent.....	8,406 14
Amount.....	\$92,467 54

SECTION NO. V.

This section, 12 miles in length, terminates at 62 miles from Augusta, and 4 miles east of Crawfordville. The average depth of excavation and embankment is 5 33-100. The steepest grade is 1 in 200. Maximum height of embankment, 21 feet, and of excavation, for a short distance, 16 feet. The pine wooded region in this section is lost in a mixed growth, in which oak and chestnut predominate. In these 12 miles there are but 5 curves, of which the shortest radius is 3000 feet. The soil in the excavations will form a good foundation for plan No. 1.

ESTIMATE.

291,805 c. yds. of ex. and emb't. at 13 c....	\$37,934 65
7 miles construction complete at \$4,134 80.....	28,943 60
5 miles do. do. at \$3,433 20.....	17,166 00
2 turnouts.....	1,400 00
2 houses for attendants.....	1,000 00
Culverts and road bridges.....	2,800 00
Grubbing and clearing at \$125.....	1,500 00
	90,744 25
Add 10 per cent.....	9,074 42
Amount.....	\$99,818 67

SECTION NO. VI.

Beginning 4 miles east, and extending 8 miles beyond Crawfordville, passing directly through that village, being 12 miles.

This section is the most favorable of any on the whole route, as regards the depth of cutting, and quantity of excavation and embankment. The maximum height of the latter being only 12 feet, and the former but 10 feet. The steepest graduation need not exceed 1 in 200, although 1 in 176 is adopted for a short plane on the profile. There are six curves on the line of location, all of easy radii, the shortest 3000 feet.

The soil is a stiff, red clay, which will afford a very solid foundation. The line passes through a highly cultivated and productive cotton region. The timber (oak and chestnut) is generally cleared off—however, it is probable that enough may be obtained, in convenient vicinity to the line, for the purposes of construction.

ESTIMATE.

175,043 c. yds. of ex. and emb't. at 10 c....	\$17,504 30
6 miles construction at \$4,134 80.....	24,808 80
6 do. do. at \$3,433 20.....	20,599 20
3 turnouts and water stations and extra fixtures at Crawfordville.....	3,600 00
2 houses for attendants.....	1,000 00
Grubbing and clearing.....	1,200 00
	\$68,718 30
Add 10 per cent.....	6,871 23
Amount.....	\$75,589 53

SECTION NO. VII.

This section is 13 miles in length, and ends at 87 miles from Augusta, about 1 mile west of Penn's store. The profile is not unfavorable, although the expense of graduation considerably exceeds that of the preceding section. The curvature and planes of profile as favorable as heretofore. At 4 miles from the beginning of this section, the branch line passing through Greensboro commences.

The excavation will be in a hard clay, and rock may be obtained in the vicinity of the line.

ESTIMATE.

315,394 c. yds. ex. and emb't. at 13 c.....	\$41,001 22
7 miles of construction at \$4,134 80.....	28,943 60
6 do. do. at \$3,433 20.....	20,599 20
2 turnouts and water stations with extra fixtures at Carlton's.....	4,400 00
2 houses for attendants.....	1,000 00
Culverts and road bridges.....	1,700 00
Grubbing and clearing.....	1,300 00
	98,944 02
Add 10 per cent.....	9,894 40
Amount.....	\$108,838 42

SECTION NO. VIII.

This section is 15 miles in length, ending at 102 miles from Augusta. The course is very circuitous, necessarily, in pursuing the ridge round the head of Big creek, the valley of which is so deep and broken as to be utterly impassable.

The line makes nearly a right angle in its direction at the Hon. W. H. Crawford's, turning in a radius of 3500 feet. The greatest depth of cutting which will be requisite on this section, will be about 17 feet, and 28 feet will be the maximum height of embankment.

A plane, rising 1 in 176, or 35 feet in a mile, will be the steepest rate of inclination.

ESTIMATE.

313,761 c. yds. of ex. and emb't. at 12 c....	\$39,220 12
8 miles of construction at \$4,134 80.....	33,073 40
7 miles of construction at \$3,433 20.....	24,032 40
2 turnouts and water stations.....	1,400 00
2 houses for attendants.....	1,000 00
Grubbing and clearing at \$125.....	1,875 00
	100,605 92
Add 10 per cent.....	10,060 59
Amount.....	\$110,666 51

SECTION NO. IX.

This section, part of which is yet unlocated on the maps, extends from near Gen. Pope's, to Athens, a distance of 12 miles, ending at 114 miles from Augusta. A plane of 1 in 176 will be necessary in rising out of the valley of Sheal creek, after which, by crossing into the head of Trail creek, an easy descent may be obtained along the bed of that stream into the valley of the Oconee, striking the same above the present bridge at Athens. Rising from the river into town, the ground is favorable for an inclined plane.

ESTIMATE.

263,521 c. yds. ex. and emb't. at 13 c.....	\$34,127 73
71 miles construction at \$4,134 80.....	31,011 00
41 do. do. at \$3,433 20.....	15,449 40
3 turnouts and water stations \$700.....	2,100 00
Houses for attendants.....	1,500 00
Bridge across Shoal creek.....	1,800 00
Viaduct across the Oconee river.....	10,000 00
Culverts and road bridges.....	2,000 00
Grubbing and clearing.....	1,800 00
Graduation drainage and construction of inclined plane.....	15,000 00
	\$114,538 13
Add 10 per cent. for contingencies.....	11,458 81
Amount.....	\$126,046 94

Summary of the cost of a Railroad from Augusta to Athens:

Section No. 1.....	\$103,169 94
Sec. " 2.....	203,320 92
Sec. " 3.....	132,135 52
Sec. " 4.....	92,467 54
Sec. " 5.....	99,818 67
Sec. " 6.....	75,583 53
Sec. " 7.....	108,838 42
Sec. " 8.....	110,666 51
Sec. " 9.....	126,046 94

Amount incl'g 10 p. ct. for contingencies.....	\$1,052,047 99
Add for depositories and fixtures—	
No. 1 at Augusta, say.....	\$7,000 00
" 2 opposite Warrenton.....	3,500 00
" 3 at Crawfordville.....	5,000 00
" 4 at Carlton's.....	2,000 00
" 5 opposite Lexington.....	3,500 00
" 6 at Athens.....	7,000 00
Stationary engine and fixtures..	12,000 00
	40,000 00
Amount.....	\$1,092,047 99

We omit the details of the Sections and give the GRAND SUMMARY.

Cost of railroad from Augusta to Athens.....	\$1,092,047 99
Cost of western branch lines to Madison and Eatonton.....	513,744 71
Total, exclusive of machinery.....	\$1,605,792 70
The above amount may thus be divided:	
Cost of the main Union track, from Augusta to Carlton's, 78 miles.....	\$763,996 12
Cost of the branch from Carlton's to Athens, 36 miles.....	328,051 87
Cost of the branch from Carlton's to Tompkins's, 25 miles.....	329,249 10
Cost of the branch to Madison, 12 4-5 miles.....	114,353 03
Cost of the branch to Eatonton, 75-6 miles.....	70,142 58
	\$1,605,792 70

Add for machinery—	
10 large English freight engines, at an average of \$6,000.....	\$60,000 00
250 freight cars, at \$300.....	75,000 00
6 English passenger engines, at \$5,500..	33,000 00
18 carriages, at \$600.....	10,800 00
Tools and fitting up workshops, and duplicates of machinery.....	25,000 00

Grand total amount..... \$1,810,592 70

It has been my desire, in making the foregoing estimates, to put every thing at its highest valuation, that no disappointment may hereafter ensue, from an excess in the expenditure over the contemplated cost. I have endeavored to guard against a dangerous practice, too often pursued, of misleading the public mind in the estimates; the consequence of framing the same rather in the spirit of sanguine expectation, than from the results of experience, and the dictates of impartial judgment.

While I am sensible that the cost will, in all probability, fall within the amount in many items of the estimate, yet, as the contingencies are numerous on a work of this kind, and unexpected difficulties may occur, I do not think that I have exercised more than a proper caution in this respect.

It scarcely enters into the province of the engineer to furnish statements regarding the revenue and statistics of a work of this nature. The direction have probably much better sources of information than myself, for forming a correct judgment on this important subject. However, as the estimate of the income involves considerations arising from the expense of transportation, as well as the wear and tear of machinery and repairs of the road, an estimate of this nature from the engineer may be of some service in determining the probable nett revenue of the work.

As a portion of the cotton, which now finds a market in Macon, will unquestionably take the route of the railroad to Augusta, we think we may safely calculate on taking from Athens, Madison, Eatonton, and the intervening points, Greensboro, Crawfordville, Lexington, Warrenton, &c.: 150,000 bales, at \$1..... \$150,000 00

Transportation of up freight, equal to the above, and 33 1/3 per cent. over..... 200,000 00

Passengers, equal to 100 per diem, on all the routes taken, 110 miles, including way passengers..... 200,750 00

Transportation of mails, and various downward freight, other than cotton.. 25,000 00

Amount..... \$575,750 00

To do the business of the road, about 16 engines would be necessary, of which 10 would be constantly in use. The following arrangement might be adopted with the passenger engine: One to leave Athens, and one to leave Madison at about the same time in the morning. The engine with the passengers from Madison would proceed to Eatonton in time to receive the great western mail and passengers, which would be conveyed by the same engine through

Greensboro to Carlton's, a distance by this route of 54 miles. Here this locomotive would meet the engine from Athens, which would have travelled 36 miles.

The train of cars from the north and west would now be united in one, and taken by a third engine to Augusta.*

The engines from the west and Athens would then remain at this station until the arrival of the Augusta locomotive, when that from Athens would proceed to Madison by way of Eatonton, leaving at the latter place the western mail and passengers, and that from Madison would go on to Athens.

Thus the daily service of each engine would not exceed 90 miles; those on the Athens and western branch line would run 90 miles; that on the main line to Augusta, would travel 78 miles.

In this distribution of the labor of the locomotives, the amount performed by each would not exceed that which it would be capable of accomplishing with ease and certainty. This would require, therefore, the constant use of four locomotives, two on the union line, and two on the several branches. To provide six English passenger engines would be an abundance, allowing for accidents, and occasional repairs of those in use.

The engines for freight should be made of great power, capable of carrying from 500 to 1000 bales of cotton.

On a road built on the plan of the Georgia railway, with permanent embankments, a rate of 10 or 12 miles an hour, with the freight engines, may be allowed. As stoppages, taking in fuel and water, delivering and receiving freight, &c., will occupy considerable time, and as steep rises at the head of Butler's creek and on the branch lines, may cause some detention, the freight engines may not perform the trip in the winter season in less than 1½ days.

One engine with freight might leave Madison, Eatonton and Athens every other day, and meet at Carlton's, where a daily departure would be made for Augusta, and likewise from Augusta for Carlton's; this arrangement would require the constant employment of 5 engines, that is, 2 on the main and 3 on the branch tracks. But as, at certain seasons, the exigencies of business might require a greater number of engines, so as to leave each of the terminating points daily, and as provision ought to be made for every extent of business, as well as against every contingency of accident, &c., we will assume that 10 freight engines may be necessary. There will be, by the arrangement we have mentioned, 4 passenger and 5 freight engines in daily use.

Allowing for all wear and tear of engines and cars, expense of oil, fuel, water stations, attendants, engineers, &c., we may put cost of running each engine at \$16 per diem.

27 supervisors of road and keepers of turn-outs.....	\$52,560 00
Expense of hands at the depositories and repairs of the road, &c.....	9,720 00
Agents and collectors at the various depositories, with assistants, &c.....	25,000 00
3 general superintendents.....	9,000 00
Engine at the inclined plane, with wear, tear, and attendants.....	3,000 00
	4,380 00

\$103,660 00

Add for workshops, and contingencies.....

9,366 00

Which amount.....

\$113,026 00

Deduct from.....

575,750 00

Leaves.....

\$462,724 00

As a net amount of income, equal to 25 per cent. on the capital invested.

—

* Passengers for Augusta might remain at Tompkins to breakfast, while the engine went to and returned from Eatonton.

I consider the above result entirely derivable from the present work, as contemplated, without taking into view any additional revenue from those extensions of the road into Tennessee, and west from Madison or Eatonton, which will be the almost inevitable consequence of the completion of the Georgia railroad. The receipts of the South Carolina railroad, in a short period, will probably average 12 or 1500 dollars per diem; as upwards of 1000 dollars have lately been frequently taken in the day, although the amount of cotton sent upon the road, up to this time, does not exceed 8000 bales, as the high river during the whole of this season, and long drayage, and heavy tolls across the Savannah bridge, have prevented any cotton of consequence being sent by way of the railroad from Augusta to Charleston.

The fact, that it costs the planter at Madison, Eatonton and Athens about 3 dollars per bale, nearly one tenth part of the value of his crop, to take it to Augusta, places the certainty of the transportation of this grand staple on the railroad beyond a question. The same fact applies also to up freight, which costs in wagons about \$1½ per 100 wt. per 100 miles.

The circumstance, indeed, that there is no competition of any nature to be feared in the operations of this railroad; that not even a good turnpike exists to offer a feeble contention with it; that the roads, at the very season when the crops are ready for transportation to market, are almost impassable—presents a combination of facts, which speaks in the most encouraging language to the promoters of this enterprise to persevere in their undertaking.

But it is not to the amount of the yearly dividends on the capital invested, however flattering the prospect, that the planter is to look for his chief reward from the work. It is from the increase in the worth of his real estate, in the doubled, trebled, and quadrupled value of which, he will find himself suddenly invested with fortune, as if by magical influence. The tide of emigration will be arrested, as it sweeps over the country in its westward course, and the people learn to be satisfied in the enjoyment of a new prosperity, and the attendant comforts, and refinements secured to them in their "father land."

If we were asked to define one of the chief sources of the wealth and prosperity of the people of America, we should say it was the increase in the value of real estate. And wherever we see the greatest industry and enterprise among the people, evidencing itself in the improvement of property, and in the establishing of those grand channels of communication, which are the very arteries of the agricultural, as well as of the commercial system, we plainly perceive the stronger indications of solid wealth and growing prosperity.

It is perhaps a fortunate circumstance that the south has not hitherto embarked more extensively in those great schemes of internal improvement, in the accomplishment of which, northern capital and industry, for many years past, have been so forcibly directed.

Treading upon the footsteps of our neighbor, we may avoid her blunders, and take warning from the beacons of misdirected enterprise.

As I have thus ventured to stray from the subject matter of my report, I will take occasion to offer a few additional remarks, in which I hope your patience will indulge me.

Turning our eyes upon the north, we behold a country, naturally rugged and barren

in comparison with our own, highly cultivated, wealthy, and populous, filled with the spirit of active industry; the restless and unsatisfied march of improvement manifesting itself in every department of the useful arts; an immense tide of commerce pouring itself through a thousand fruitful channels of inland transportation, wherever it flows, like the floods of a mighty river, leaving a deposit of wealth upon its way.

It has been urged that there exists in the domestic institutions of the south an opposing evil, which prevents the action of this spirit, and deprives us of the benefits which result from its exercise. But where is the foundation for the assertion?

There is in the Agricultural interest of the south a real and substantial wealth, which, being widely diffused, and generally enjoyed, is the source of security and ease among the people, rendering them less disposed to speculative enterprises, which require the withdrawing of capital from an always safe and profitable investment.

That the ability to execute exists, and that there is a good sense among the people which will point out to them the vast and inestimable advantages, to themselves, and to the country, which will reward their efforts, cannot be questioned. Let them once awake to a full sense of the importance and value of these undertakings—let them take the necessary measures to empower their construction, embarking with zeal in their prosecution, and foreign capitalists, lured by the valuable privileges of the charters, and the rich harvest of revenue to be secured, will gladly lend a helping hand in furnishing the necessary means for their accomplishment.

Our great staple of production is, of all others, the best calculated, from its portability, and value, for railroad transportation. No doubt can be entertained, at this time, of the fact, that railroads may be constructed at the south, owing to the mildness of the climate, the clearness of the land, the abundance of materials, and the peculiar labor, at a cost, vastly less than is necessary at the north.

Complete this Union Georgia railroad, and we shall have 296 miles of railroad accomplished in South Carolina and Georgia, at a cost of \$2,700,000—less than one half the cost of the 35 miles of the Liverpool and Manchester railway, about double the cost of 16 miles of the Albany and Schenectady road, and not more than that of the 14 miles of the Chesapeake and Delaware canal.

The works which we have named are of the most expensive class—and, on the same plan of graduation, would doubtless have cost nearly as much in a southern climate. But at the same time we contend that, weighing the results produced, will the capital expended, the balance is vastly in favor of the south.

In no works of the north, nor in any that we are aware of in Europe, will the same capital afford the amount of nett revenue, which may be obtained when judiciously expended in these southern enterprises.

Not only may an immediate and large revenue be expected, but, extending over so wide a section of territory, these works embrace the prospect of a vast addition to their income, from an improvement in the agricultural condition of the country through which they pass, and from the ultimate extensions which will necessarily ensue.

That a communication between Charleston and the valley of the Mississippi, by means of an extension of the Athens branch of the Georgia road, will be accomplished, is as certain as that the Georgia railroad will be executed. It needs no extraordinary

foresight to perceive the splendid results which will attend the accomplishment of this great work.

It will not only add an immense value to the stock of the original roads, but will be productive of incalculable benefit to the whole country.

The productions of the fertile west will find a profitable market in the south Atlantic states, flooding the land with almost every article of domestic consumption, for not only will her overflowing granaries pour their rich stores into the cotton growing sections of the south, but manufactories and every species of domestic industry, encouraged by the facility of intercourse with the seaboard, by the abundance of water power, and the cheapness of labor, will spring up in the west, as well as in every section of the south where natural advantages are enjoyed.

But, not only from a reciprocity of commercial intercourse, will the south and west derive a mutual benefit, but the over-production will find a ready market for exportation in Charleston, which, from her commanding position and peculiar advantages, should she still continue true to herself, and actuated by the same bold spirit of enterprise which has lately given a new impulse to her prosperity, must eventually become the great mart of southern Atlantic commerce. The lines of railroad soon to be in course of construction, in addition to those already completed, embrace two-thirds of the whole distance between the Mississippi and the Atlantic.

The eye of the patriot cannot but dwell with satisfaction on the prospect presented in the accomplishment of this grand chain of commercial intercourse.

Intersecting the great valley of the Mississippi below the junction of all its important tributaries, arresting the rich freights of the Tennessee on their great northern tour, embracing in multifarious extensions the interest of the whole interior, it is almost beyond the imperfect efforts of the imagination, to perceive the full extent of the results of this great work, which is to revolutionize the transportation, and affect more or less the whole agricultural and commercial interest of the west.

An amount of \$3,000,000, in addition to the capital already embarked in these enterprises, will probably accomplish this grand object, and secure a trade to the south Atlantic seaboard infinitely more valuable than that for which those great rival works, the Pennsylvania canal, the Baltimore and Ohio railroad, and the Chesapeake and Ohio canal, with an aggregate capital of \$50,000,000, are now contending.

With these prospects, and these facts before them, is it possible that this feasible undertaking, for the accomplishment of which such comparatively insignificant means are necessary, can long appeal, in vain, to an enterprising people, for the amount of capital necessary to carry it into execution?

There can be but one reply to this interrogatory, even were we ever so doubtful of the alacrity of those, who have so large an interest at stake, to embark in it. It is known that many English, and other foreign capitalists, are now turning their attention to the south, as embracing from the solid and substantial basis of its agricultural wealth, and from the wide and virgin field for speculative enterprise which it opens before them, advantages for the investment of capital which are entirely unknown to any other country.

In conclusion, we have our prosperity in our own hands, and with that wide extent of territory, which is one of the greatest

blessings which characterizes our country, united with an enterprising spirit, establishing the means of ready intercommunication and commercial exchanges,—diffusing the lights of education among the people,—the south may, in a few years, secure in her own enviable and increasing prosperity, smile at the disappointed predictions—alike, of mistaken friends and fanatical revilers.

With my best wishes, gentlemen, for the complete success of the noble and patriotic enterprise in which you have embarked with so determined a spirit, and with such flattering prospects before you,

I have the honor to be,

With the highest respect, &c.

ANDREW ALFRED DEXTER,
Civil Engineer.

Augusta, May 29, 1834.

Statement of the party employed under the Chief Engineer, in the duties of the survey.

George B. Lithgow,* of South Carolina, assistant engineer, head of party No. 1.

D. W. Johnson and G. V. B. Williams, of South Carolina, rodmen; James W. Harris, of North Carolina, topographical delineator.

Two chainmen and one axeman.

John L. Cole,† of Charleston, S. C., assistant engineer, head of party No. 2.

S. F. A. McDowell, of Columbia, S. C., rodman; Wm. Henry Austin, of Missouri, surveyor and topographical delineator.

Two chainmen and one axeman.

Remarks.—The time occupied in the field labors was three months—from November to February—the season was remarkably inclement and unfavorable. Difficulties peculiar to the country rendered the task unusually burdensome and disagreeable. The heavy rains and snows made the roads nearly impassable, so that it was with difficulty a six horse team could convey our baggage wagon, containing the tents, camp equipage, luggage, provisions, instruments, &c., of the two parties from place to place. During a week, when incessant rains confined the party to the tents, they were greatly indebted to the kindness of Mr. Henry Pope, of Oglethorpe, for many polite attentions, for which, at the request and in the name of the whole party, I tender him their grateful acknowledgments.

To the untiring industry and perseverance of Messrs. Cole and Lithgow, and the gentlemen assisting them, I am indebted for the rapid prosecution and timely completion of the survey, embracing 170 lineal miles, and I should do injustice to my feelings, were I to neglect this opportunity of bearing testimony to their ability and professional merit. In protracting the maps and profiles, making out the estimates, &c., which occupied between three and four months, I was assisted by Messrs. Wm. Henry Austin and James W. Harris, and occasionally by Mr. A. Mezzyk, McCaine.

* Since appointed superintending engineer of the western division of the South Carolina railroad.

† Since appointed superintending engineer of the eastern division of the South Carolina railroad.

Experiments on the Transverse Strength and other Properties of Malleable Iron, with Reference to its Uses for Railway Bars. By PETER BARLOW, F. R. S., Cor. Mem. Inst. of France; of the Imp. and Roy. Acad. of Petersburg and Brussels, etc.

In order to render some remarks and observations in the following pages intelligible to the general reader, it will be necessary to state a few particulars relative to the circumstances which gave rise to the experiments, and to the appearance of them in their present form.

The Board of Directors of the London and Birmingham Railway Company, desirous of carrying on the great work in which they are engaged on the most scientific principles; and, if possible, to avoid the enormous cost of repairs which has attended some large works of a similar description, offered, by public advertisement, a prize of one hundred guineas "for the most improved construction of railway bars, chairs, and pedestals, and for the best manner of affixing and connecting the rail, chair, and block, to each other, so as to

avoid the defects which are felt more or less on all railways hitherto constructed;" stating, that their object was to obtain, with reference to the great momentum of the masses to be moved by locomotive steam engines on the railway,

1. "The strongest and most economical form of rail.

2. "The best construction of chair.

3. "The best mode of connecting the rail and chair; and also the latter to the stone blocks or wooden sleepers. And that the railway bars were not to weigh less than fifty pounds per single lineal yard."

In consequence of this advertisement, a number of plans, models, and descriptions were deposited with the company within the time limited by the advertisement; and others were received afterwards, which, although not entitled to the prize, were still eligible to be considered with reference to their adoption for trial. On the 24th of December last, a resolution was passed at a meeting of the Directors, appointing J. U. Rastrick, Esq., of Birmingham, N. Wood, Esq., of Newcastle, Civil Engineers, and myself, to examine and report upon the same, with a view to awarding the prize; and, at the same time, we were requested to recommend to the Directors such plans, whether entitled to the prize or not, as might be considered deserving of a trial. We met accordingly in London; and, after a long and careful examination of the several plans, drawings, and written descriptions, recommended those we thought entitled to the prize, which was awarded by the Directors accordingly. But that part of our instructions which required us to recommend one or more rails for trial, we were unable to fulfil to our satisfaction, principally for want of data to determine which of the proposed rails would be strongest and stiffest under the passing load, and whether permanently fixing the rail to the chair, for which there were several plans, would be safe in practice. No experiments on malleable iron having ever been made bearing on these points, it was considered better to leave the question unanswered, than to recommend, on no better ground than mere opinion, an expensive trial, which might ultimately prove a failure.

Seeing, however, how desirable it was that such data should be obtained, I proposed to the Directors to undertake a course of experiments, which should be conducted on a scale adequate to the importance of the subject, provided my Lords Commissioners of the Admiralty would allow me the conveniences His Majesty's Dockyard at Woolwich afforded, (which I had every reason to hope they would do, from the liberality I had so frequently experienced from that Board on similar occasions,) and that the Directors would supply such instruments, materials and workmanship, as might be required for the purpose.

The Admiralty, as I had anticipated, immediately granted my request; and at a public meeting of the proprietors, held at Birmingham, a resolution was passed embodying my proposition. I accordingly commenced, and continued my experiments, till I had elicited such facts as I thought necessary; and having arranged them, as in the following pages, I delivered the results, with a report founded upon them, to the Secretary of the London Committee, to lay them before the Board; which being done, the Directors were pleased to express their high approbation of my labors, and

their wish that the results should be made public. I have been, therefore, induced to print them in their present form, introducing only such foot notes as seemed to me necessary to render the subject intelligible to the general reader. I have given, also, in addition, the solution of one or two equations, which, to avoid embarrassing the report, had been suppressed, the results only having been stated.

Such are the circumstances under which the following pages have been submitted to the press; and they will serve to account for the form in which the subjects are arranged, which would probably have been different, if the publication in a separate work had been anticipated in the beginning. I have no doubt, however, if the facts elicited be found useful, the form and arrangement will be considered matters of secondary consideration.

PRELIMINARY REMARKS.

It is only since the very general adoption of railways in this country, that malleable iron has been employed to any extent to resist a transverse strain, and writers who have undertaken experiments to investigate the strength of materials, have hitherto passed over those inquiries which relate to the transverse strength of this metal.* The extraordinary extent, however, to which malleable iron is now applied to resist transversely a passing load, renders it highly essential that this resistance, and its other properties, should be fully investigated; for it is obvious, that every additional weight of metal, beyond that which is requisite for perfect safety, is not only useless, but injuriously employed, it being generally admitted that bars beyond a certain weight cannot be so well manufactured as those of less dimensions; and it is no less certain, that by a proper disposition of the metal in the sectional area of the bar, (which depends on the data in question,) a greater strength may be obtained with a given weight of iron, than with a greater weight injudiciously disposed. Under these impressions, the following experiments have been undertaken, and to these inquiries only they have been directed; and I am not without hope that on those points they may be found useful.

Before, however, proceeding to these experimental researches, there is one subject, rather of investigation than of experiment, on which I have thought it necessary to bestow some attention, it being one on which the opinions of practical men are much divided; this is, the comparative advantages and disadvantages of what is called the fish-bellied rail, and that with parallel edges.

Examination of the Properties, Curvature, and Resistance, of the Fish-bellied Rail.

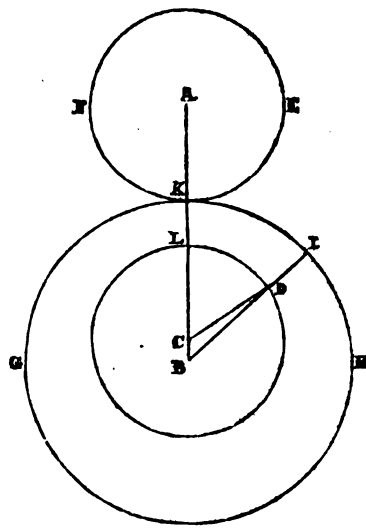
It is well known, both as a theoretical and mechanical fact, that if a beam be fixed with one end in a wall, or other immovable mass, to bear a weight suspended at the other end, the longitudinal section of such a bar (its breadth being uniform) should be a parabola; because, with that figure, every part of it will be strong in proportion to its strain, and thus one-third of the material may be saved. This form of construction

* Some few experiments on the transverse strength of malleable iron have certainly been made. I have given three in my Essay on the Strength of Materials. Mr. Hodgkinson has also glanced at this subject in his valuable paper of Experiments on Cast Iron, published in the Memoirs of the Manchester Philosophical Society, and M. Duleau has treated of the subject in his "Essai Théorique et Experimental," &c.; but those points of greatest importance connected with the application of this metal to the purposes of Railways have never formed the subject of inquiry.

is frequently adopted in the case of cast-iron beams in buildings, and with great advantage, as thereby one-third of the material is saved, while the strength is preserved, and the walls of the building relieved from a great unnecessary weight.

This seems to have led to a somewhat similar principle of construction in what is called the fish-bellied rail; and the question here is, with what advantage? In the first place, it is to be remarked that the figure, which theory requires in this case, is not, as in the preceding, a parabola; for, as in the transit of the locomotive, every part of the bar has, in succession, to bear the weight; and as the strain on any part of a beam supported at each end, and loaded in any part of its length, is as the rectangle of the two parts,—the strength being as the square of the depth,—it follows that the square of the depth ought to be every where proportional to the rectangle of the two parts, which is the known property of a semi-ellipse. The bar, therefore, in theory, ought to be a semi-ellipse, having its length equal to the transverse diameter, and the depth of the beam for its semi-conjugate, and there can be no doubt, that such a figure would be, to all intents and purposes, as strong in its ultimate resistance as a rectangular beam.

But it is difficult to obtain this figure correctly in malleable iron, and many of what are called fish-bellied rails are but bad approximations to it, although others differ from it but slightly. The following is the general mode of manufacture.



EF is the section of an iron roll; GH the section of another. This latter being hung on a false centre C, is turned down, leaving a groove of varying depth as shown in the figure. The cylinder GH being now again placed on its proper centre B, the bars are introduced between the two rolls at KL; and as the iron passes through, it acquires the variable depth shown in the lower roll. The inner circle, or bottom of the groove, is generally one foot in diameter, and the upper three feet in circumference; consequently, the figure is completed in a length of three feet, and there are commonly five such lengths in a bar. The computation of the ordinates to the curve thus formed is by no means difficult; for, calling the radius of the cylinder $CD=r$, and the distance of the centres $BC=d$ and x any angle LCD, we find the ordinate

$$ID=BI-\sqrt{(r^2+d^2-2rd\cos x)}$$

And by this formula the ordinates of the curves have been computed for two different fish-bellied rails; the extreme depth in both

being five inches, but the lesser depth in one three inches, and in the other three and three-quarter inches, the latter being that proposed by Mr. Stephenson for the London and Birmingham Railway. The ordinates are taken for each 10° , or for every inch of the half-length, and in the last column are given the ordinates of the true ellipse.

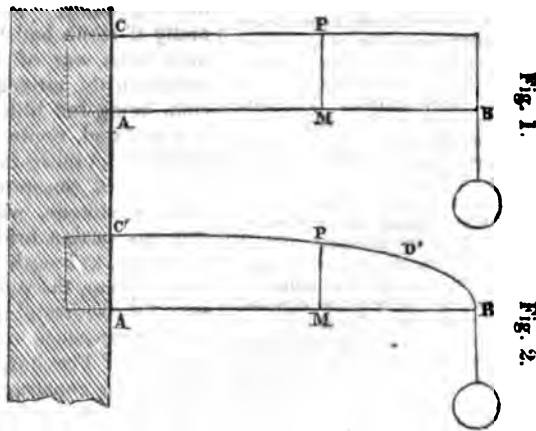
TABLE OF ORDINATES.

ABSCISSES.	Ordinates in Fish-bellied Rail. Greatest depth 5 in. Least do. 3"	Ordinates in Mr. Stephenson's Rail.	Ordinates in the Ellipse.
Deg. In.			
0 = 0	3.00	3.75	0
10 or 1	3.01	3.76	1.64
20 .. 2	3.05	3.78	2.29
30 .. 3	3.12	3.82	2.76
40 .. 4	3.21	3.88	3.14
50 .. 5	3.31	3.96	3.46
60 .. 6	3.44	4.04	3.72
70 .. 7	3.59	4.14	3.96
80 .. 8	3.75	4.23	4.16
90 .. 9	3.92	4.34	4.33
100 .. 10	4.09	4.45	4.48
110 .. 11	4.27	4.55	4.61
120 .. 12	4.43	4.66	4.71
130 .. 13	4.59	4.75	4.80
140 .. 14	4.72	4.84	4.87
150 .. 15	4.84	4.91	4.93
160 .. 16	4.93	4.95	4.97
170 .. 17	4.98	4.99	4.99
180 .. 18	5.00	5.00	5.00

We see by this table, (although it is impossible, with any proportions or degrees of eccentricity, to work out a true ellipse by this method,) that we may approximate towards it sufficiently near for practical purpose, as Mr. Stephenson has done; while, on the other hand, without due precaution, we may so far deviate from it as to render the bar dangerously weak in the middle of its half-length.

As far as relates to ultimate strength, there can be no doubt Mr. Stephenson's rail is equal to that of an elliptic rail, and consequently to that of a rectangular rail of the same depth; but there is still an important defect in all elliptical bars, viz., that although this form gives a uniform strength throughout, it is by no means so stiff as a rectangular bar of a uniform depth, equal to that of the middle of the curved bar, and it is the stiffness rather than the strength that is of importance; for the dimensions of the rail must so far exceed those which are barely strong enough, as to put the consideration of ultimate strength quite out of the question. The object, therefore, with a given quantity of metal, is to obtain the form least affected by deflection; and unfortunately the elliptical bar, although equally as strong as the rectangular bar of the same depth, as far as regards its ultimate resistance, is much less stiff. This will appear from the following investigation.

The deflections which beams sustain when supported at the ends and loaded in the middle, is the same, as the ends would be deflected, if the beams were sustained in the middle, and equally loaded at the ends, each with half the weight; and the law of deflection is the same in the latter case, as when the beam is fixed in a wall and loaded at its end, although the amount is greater. At present, however, our inquiry is not the actual, but the relative deflection in two beams, one elliptical, and the other rectangular, of the same length, and of the same extreme depth—the breadth and load being also equal in each. It is quite sufficient, therefore, to consider the corresponding effects on two half-beams, each



fixed in an immovable mass, as represented in the preceding figures.

Now, in the first place, the elementary deflection at C is the same in both beams, because the lengths and loads are the same, and the depths at C A equal; but the whole deflection at any other point P, will be directly as M B², and inversely as M P³. If, therefore, we call M B = x, and M P = y, the sum of all the deflections in the two

beams will be $\int \frac{x^2}{y^3} dx \Delta$, Δ being the

sine of deflection at C. But in fig. 1, y is constant and equal to d, (the depth,) while in the latter,

$$y = \frac{d}{l} \sqrt{(2lx - x^2)}$$

l being the semi-transverse or length, and x any variable distance.

The whole deflections, therefore, in the two cases, are,

Fig. 1:—

$$\text{Deflection} = \int \frac{x^2}{d^3} dx \Delta = (\text{when } x = l) \frac{1}{3} \frac{l^3}{d^3} \Delta$$

And in fig. 2:—

$$\text{Deflection} = \int \frac{x^2}{d^3} (2lx - x^2)^{\frac{3}{2}} dx \Delta = (\text{when } x = l) \frac{41}{3} \frac{l^3}{d^3} \Delta$$

The deflections, therefore, in the two cases are, with the same weights, as 33 to 41,* or nearly as 8 to 4, a result fully borne out by subsequent experiment. It is to be observed, also, that this investigation applies only to the deflection when the weight is in the middle of the bar, and that it would be much greater in comparison with the parallel rail towards the middle of its half-length.

This want of stiffness is, I should imagine, but badly compensated by the trifling saving of metal thus effected; for I find that an addition of little more than four pounds per yard, would convert this rail into a rectangular one of the same depth, which would have one-third more stiffness at its middle point, and probably one-half more a little beyond the middle of the half-lengths. I am aware, objections are made to rectangular bars having so much depth of bearing in their chairs, and this may be a practical

* Experiments have been made from which it has appeared that the fish-bellied rail was stiffer than the parallel rail, which is certainly possible, if the parallel rail be of inferior metal or of injudicious figure; but it is mechanically impossible if the parallel bar be made of the figure here assumed.

defect, on which I shall offer no opinion; at all events, it is well to estimate properly both evils, and then to choose the least.*

Having thus satisfied myself on the nature of the fish-bellied rail, I proceeded with my experimental inquiries, which I have divided into the following sections:

1. To determine the extension of an iron bar of given area, under different degrees of tension; and hence the force with which the same bar will contract with a given reduction of temperature.

2. The comparative resistance of malleable iron to extension and compression, and thereby the position of the neutral axis.

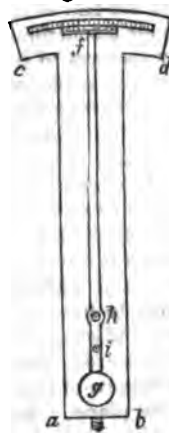
3. The figure of the area of section, which gives the greatest strength with the same quantity of metal.

4. The strains which bars of given sections are capable of sustaining without injury to their elastic power.

Experiments to determine the quantity which iron extends under different degrees of tension.

With a view to this inquiry, an instrument was made as in the annexed

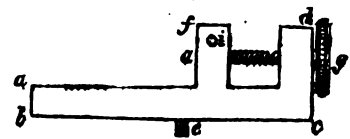
Fig. 1.



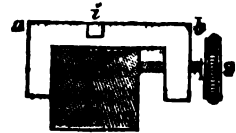
sketch. a b c d is a piece of brass, about one-fifth of an inch thick, having an arc at top, divided into tenths of inches; f g h is a hand, with a vernier, turning freely on a centre k; and i is a steel pin, about half-an-inch long, projecting perpendicularly forward; the distances f k to k i being as 10 to 1. e is a small end with a screw, for the purpose described below. a b c d is another

* It will be seen in a subsequent page, that by introducing what is called a lesser web, that weight for weight, a parallel rail may be made as strong as the fish-bellied, with only an additional depth in the chair of three-quarters of an inch.

Fig. 2.



piece of brass, having a screw e; f is a piece of brass working in a dove-tail, adjustable for position by the screw g, and i is another steel pin projecting forward. a b is an iron



saddle-piece, with a set screw s; and at i a hole is tapped to receive the screw e, fig. 2; and another saddle piece, exactly like this, is made to receive the screw e, of fig. 1.

The iron bars intended to be experimented on were made of the annexed form, about ten feet in length; these, by proper bolts and sheckles, were fixed at a and b in the proving machine;* the two saddle pieces were then fixed on at the exact distance of 100 inches; the instruments, fig. 1 and 2, screwed into their respective saddle pieces, and a light deal rod hung, by means of two small holes formed in it, (also at the distance of 100 inches,) upon the two pins i; and then by means of the set-screw, fig. 2, the vernier of fig. 1 was adjusted exactly to zero. The pump of the hydraulic press was now put in action, and after one, two, or more tons pressure were on, according to the size of the bar, and every thing brought well to its bearing, the hand was again adjusted to zero, after which the index was read for every additional ton. Here it will be seen, that whatever the bar stretched between the two instruments, the lower pin of fig. 1 was drawn forward, and the index-end thrown back ten times that amount, consequently to ten times the actual amount of the quantity stretched.

It has been observed, that after one, two, or more tons strain were applied to bring every thing well to its bearing, the index was adjusted to zero, and its reading afterwards carefully registered as each additional ton was added. The strain during the experi-

ment was repeatedly let off, and the index was found to return to zero, till the strain amounted to about nine or ten tons per inch, when the stretching became greater for each ton, and the bar did not any longer regain its original length when the strain was removed, its elasticity with this tension being obviously injured.

These experiments required more attendance than it was possible for one person to give; the adjustment of the weights, the

* The Lords Commissioners of the Admiralty having been pleased to allow me any facilities His Majesty's Dock-yard at Woolwich afforded for conducting these experiments on a proper scale, the proving machine here referred to is an hydrostatic press, constructed by Messrs. Bramah's, principally for the purpose of testing or proving the iron cables, before they are issued for service. It is an excellent machine of its kind, is capable of bearing a strain of 100 tons and is very sensible to a difference of strain of 1-8th of a ton.

reading and registering the index, required each the undivided attention of one individual; the pumping also required to be watched with care. And I have great pleasure in acknowledging the ready assistance I received from Messrs. Lloyd and Kingston, the Engineers of the yard; from Mr. P. W. Barlow, Civil Engineer; as also from Lieutenant Lecount, who came from Birmingham to witness and assist in the experiment.

(To be continued.)

AERIAL STEAMBOATS.—Some sixteen or eighteen years since, I passed a day at a tavern in Hanover, N. H. with Mr. Maury, the inventor of the rotary steam engine, used in the glass-house at Lechmere Point, and who has made numerous experiments on light, heat and combustion, and in various branches of mechanics. He stated that he should live to see the mail transported by carriages, propelled by steam, between our largest cities, and that I should live to see it carried in steamboats through the air. On expressing doubts of the practicability of the latter improvement, in the mode of transmitting intelligence, he went into a long argument to prove, that it was not only possible, but absolutely easy of accomplishment. It has been ascertained, he observed, that large weights can be elevated high above the earth, by balloons filled with air, lighter than that of the atmosphere. The first grand step, then has been securely taken, and it is only necessary to apply a power which shall give the balloon a horizontal motion, when a rudder can be applied to guide it, and this can be done by a steam engine, working paddle-wheels as in a steamboat on our waters, but each of the paddles to move on an axis so as to offer no resistance, after having struck the air in one direction. The balloon must be constructed in the form of a fish, or in other words, have length, and such a structure as will be most easily propelled and guided, while space is afforded for the machinery and passengers. He had estimated the requisite size of a steam aerial boat to sustain an engine capable of propelling it sixty miles an hour. After many details, this intelligent, ingenious, and sanguine gentleman, closed his remarks with this bold and prophetic declaration, "You, sir, if you live to the common age of man, will see aerial steamboats rise up out of our large cities every morning, like a flock of wild geese, and take their several directions to the various parts of the Union, laden with the mails and passengers."

Notwithstanding the doubts which are generally entertained of the ultimate benefit to be derived from balloon experiments, a very scientific man, many years since, did foretell the establishment of railroads, and may not be mistaken as to the aerial ocean being successfully navigated. It would not be more wonderful than was the first steamboat which the illustrious Fulton launched upon the Hudson, or the sight of the first locomotive, which sped like the wind from Liverpool to Manchester.—[Boston Atlas.]

ALLEGANY RIVER.—The convention which was held at Kittanning on the 18th inst. for the purpose of devising the best method of improving the navigation of the Allegany river, up to the New York Line, has induced many persons to examine the subject carefully, and the result is, the entire conviction of almost every one that it can be accomplished with certainty, and at a very small expense, comparatively. The plan which practical men and those who are acquainted with the stream think best, is that of dams and locks, so as to make a steamboat navigation at all times, except when obstructed by ice; and that interruption would not

continue, on an average, more than ten weeks in each year.

The dams should be made of brush, loose stones, and gravel; and extended across the river, up and down the stream, say 70 feet; with a lock on one side large enough to allow a steamboat carrying 100 tons, with a stern wheel, to pass. The dam should not be more than 4 1/2 to 5 feet high.

These dams would not interrupt the descending navigation, particularly of lumber, at all; and they can be made at a very small expense.

They have been tested in many of the western streams particularly those which have gravelly bottoms. One of these dams on the Sciota, (Ohio) belonging to a Mr. Musselman, has been in use near thirty years, and has cost scarcely any thing for repair, and does not interrupt the ascent of large Orleans boats, carrying 3 or 400 bbls of flour each.

It is the opinion of practical men acquainted with the river, that a judicious expenditure of \$500,000 would give a steamboat navigation for boats of 100 tons, at all seasons, except when obstructed by ice, to the New York State line. This would open another channel of trade to the West, of vast importance; and connected with the Hudson and Erie Rail Road, or with a canal from Rochester to Olean, would furnish the city of New York with the most advantageous connection she ever can have with the vast country in the valley of the Ohio and its tributaries. Merchandise could, by this route, be delivered from the city of New York at the towns on the Ohio six weeks later in the fall, and six weeks earlier in the spring, than by any other route she can command, and at one third less expense.

Any one who will examine the map will see the immense advantages of this route for New York.—[Pittsburg Gazette.]

[From the London Mechanics' Magazine.]

DESCRIPTION OF THE FREYBURG SUSPENSION BRIDGE.

Translated from the German, by J. E. Terry, C. E.

The city of Freyburg, in Switzerland, is well known to most travellers for its remarkable locality, being seated partly in a deep and winding valley, watered by the river Saone, and partly on the adjacent high and overhanging cliffs. To arrive at the centre of the town, by the road from Berne, carriages were formerly obliged to descend the steep declivity of the Staalberg. On arriving at Bernegate, it seemed to travellers as if they had already got to the end of their journey, but great was their astonishment to be informed that they had yet to travel for half an hour before they could reach the city—to follow the several large windings of the river, cross it three times, then to ascend the long, difficult, and steep ascent called *Alt Brunnen Strasse* (Old Well-street), which was at all times enough of itself to dismay a traveller, and has proved the death of many a horse. The bad state of the roads, and defective plan of the streets leading to the centre of the city, increased the difficulty of approaching it. Industry, commerce, social life, all felt alike the influence of this almost isolated position of the place. But what could be done? The obstacles seemed insurmountable; the almost perpendicular cliffs on which the chief part of the town stands, seemed to mock the idea of forming a street through them of any tolerable degree of ascent; and had even this been possible, it would only have tended to increase the length of the windings. On the other hand, the idea of erecting a bridge, either of wood or stone, of a sufficient height to overcome the difficulty of the rugged ascents and descents, seemed too daring for contemplation, the height

being upwards of 150 feet, and the length much greater. The expense, too, especially if stone had been employed, would have been out of all proportion to the means of the citizens; for the city is not rich, being but little frequented, and thinly populated, containing, exclusive of the suburbs, no more than 9,000 inhabitants.

Some of the more public spirited and zealous citizens, who had heard of the iron suspension bridges erected in other countries, at length proposed to raise, by subscription, the pecuniary means necessary for ascertaining the applicability of such a structure to the natural circumstances of Freyburg, and, if practicable, of actually constructing it.

As soon as the subscription reached a suitable amount, several eminent engineers were consulted, and after examination of the plans of different competitors, M. Chaley, the famous French engineer, who erected the wire bridges at Beaucaire, Chassey, and several other places in the south of France, obtained the preference. The contract agreed on with him on the 10th February, 1830, was to this effect: that he was to have, at different instalments, 200,000 (Swiss) francs, for the completion of an iron wire bridge; that the expense of the approaches on both sides, and the compensation to individuals for loss sustained in their property, should be defrayed partly by the subscribers and partly by the government; and that the contractor, M. Chaley, subject to certain conditions, should have the enjoyment of the produce from the tolls for 80 years. Some time afterwards, these conditions were considerably modified; it being agreed that M. Chaley's right to the tolls should be limited to 40 years, at the end of which time, the profits are to revert to the subscribers during 59 years, after which the toll is to cease, and the bridge to become the property of the canton, or common property.

The first general meeting of the subscribers took place on the 19th of March, 1830, when they appointed a committee of 10 members (afterwards increased to 20) to superintend the erection of the bridge.

Immediately after these arrangements, the necessary preliminary preparations were entered upon; but the political disturbances which broke out, in 1830-1, in France, and afterwards in Switzerland but particularly in the canton of Freyburg, had a most injurious influence on the undertaking—added to which, differences arose between the contractor and the committee, which tended greatly to retard the project. The general good will of the citizens, however, and the indefatigable zeal and activity of some of the leading members of the committee, recalled ere long the dormant project into life and activity. In March, 1832, the works were entered upon with great zeal, and the first stone of one of the porticos was laid, under the superintendence of the architects Kraser and Brugger. From that time the works were continued in every department without interruption; and, to facilitate their progress, a temporary

bridge was thrown over the river Saone, it being for the ease and advantage of the workmen to get from one side to the other without loss of time.

The finances of the company were all expended, however, long before the bridge approached to its completion. But though the funds were exhausted, the ardor and generous feeling of the subscribers and donors were not. Government, which, from the beginning, had given its particular sanction and protection to the measure, came once more to its assistance, by granting leave for the opening of a lottery, which produced to the company the sum of 80,000 francs.

The work was now once more renewed with vigor, and on the 9th of June, 1834, the subscribers had the gratification of seeing extended across the valley, the first of the numerous wires which form the two main ropes or supports of the bridge. Next followed the fixing of the subordinate suspension wires, and the laying down of the beams to form the foundation or flooring of the bridge. The latter mentioned operation took place, it might be said, in a magical manner. The inhabitants were not a little surprised to find at their gates an unlooked-for, and, for foot passengers, a sufficiently solid bridge, where, ten days before, they had seen only two immense wire-ropes. After this, the other various inferior works soon followed, as the completion of the footway, the erection of the balustrade, &c. At length, on the 8th October, a carriage was driven over the bridge at full gallop, which was followed, on the same day, by the stage, or post coach, from Berne to Freyburg, enthusiastically greeted by a vast number of astonished spectators.

The balustrades, though simply modelled, present, nevertheless, a very handsome appearance. Any vehicle, be it ever so heavily laden, may safely venture over; and although the ear is at first rather startled at the noise of the trampling of horses, yet the most clear-sighted person cannot discover the slightest motion communicated either to the wire ropes or to any other part of the bridge. The traveller passing over does not feel the least vibration, and his astonishment finds no bounds, to think that he has arrived so soon, and in safety, across the deep gulf below.

As has been before observed, the whole structure is suspended by two large ropes of wire, firmly secured at each end, by being let into shafts made for that purpose. At each end the porticos, over which the ropes pass, serve for antagonist supporters, or counterforts. They are built partly of limestone, brought from Neuenberg and Neuenstadt, and partly of sandstone, which is got in the stone quarries in the neighborhood of Freyburg: all the blocks are, by way of greater security, connected with each other by means of iron cramps. The quantity of iron used for this purpose was 570 cwt. The height of the porticos is 65 Berne feet. The opening for the gateway is 45 feet high, 20 feet wide, and 19 feet in depth; the width of each pillar is 14 feet. About

160 feet from the porticos the shafts are situated; their depths are each 58 feet, and their diameters 32 feet. These shafts are hewn out of the rock on both sides, and comprise each three chambers, situated at a certain distance from each other, each containing three immense unwrought blocks of Neuenberg stone, to which the main wire ropes are fastened. The connecting wires or chains, 16 in number, are drawn through these vaults; they rest at the same time on 12 cast iron cylinders, and are held fast by 128 anchors or grapples, of a total weight of 1,024 lbs. These connecting ropes or ties serve the great main wire ropes as auxiliary supports, which bear up on both sides the great beams of the bridge flooring, by means of suspension wires or ties. The length of the main wire ropes is 1,280 feet each. They consist each of 2,000 separate wire threads, which united make a mass of 4,000 threads, or little chains, of a total weight of 960 cwt. Dependent from each of the two main connecting wire ropes, or inverted arch, hang 164 smaller suspension wire ropes, at about 5 feet asunder; these are made fast above through iron loops, and below are connected with hoops of iron, into which the beam ends which support the footway are firmly fastened. The longest of the smaller dependent ropes of wire is 60 feet, and the shortest half a foot; each is composed of 25 single wires, so that the roadway of the bridge is held up by more than 8,000 single wires. The number of beams which form the foundation or platform of the bridge, amounts to 166, held together by 328 hoops of wrought iron. Four lines of beams run longitudinally throughout the whole length of the bridge, upon which rest the two footways. On both sides, to separate the carriage-way from the foot-paths, are strong oaken balustrades, made in the form of St. Andrew's cross, the height of which is 4 feet. The carriage-way is 16 feet, and each footway 3 feet, wide: so that the total width of the bridge is 22 feet. Its total length, including the two counterforts, over which the main wire ropes are passed, is 941 feet; exclusive of the counterforts, its length is 903 feet; the carriage-way alone is 864 feet. Its height above the river, when measured 30th Oct. 1834, was 163 feet.

The quantity of iron used in this work was not less than 80 tons, and of wood 135 tons.

The weight sustained by the two main wire stays is 120 tons; and it is calculated to sustain the amazing and enormous weight of 2,400 tons. J. E. T.

[From the N. Y. Mechanics' Magazine.]

The following letter from Mr. Thomas, of Keeseville, refers to a subject, which, though it has been some time before the public, appears from various causes to have received but a small portion of the attention it merits. To find the true solvent for caoutchouc, or Indian rubber, was a desideratum long sought for by ingenious and scientific men, and great anti-

cipations of the benefits to be derived from it were indulged in, if it could be found; but great as they were, they appear to have borne scarcely the slightest proportion to what proves to be the reality, now that the solvent is found. The benefit of the discovery being secured by letters patent to the discoverer, makes it the business of him and his assigns to extend the application of it to its various uses; but so amazingly extensive is its usefulness, that years, and even ages, may pass away, before it shall be applied to all the purposes it is calculated to answer. When we see its wonderful efficiency, not only in rendering cloth impervious to air and water, but in joining the edges together without sewing—when we see not only cushions to sit on, but beds to lie on, filled with air, so that a stage passenger can sit all day upon a seat, and sleep at night upon a bed, infinitely softer than down—and deflating both in a moment, wrap them up and tuck them in a corner of his trunk or walle t—who, after seeing all this, will attempt to prescribe limits to the uses of such an invention, or who would be without a suit of clothes of it to wear in wet weather, if he could get them? I know not what calculations are made by the proprietors to extend it, but I will venture to say, when the patent expires, if not before, few sails will be seen which are not prepared with Indian rubber; and I think, also, the Mechanics' Magazine may be benefitted by the communications of Mr. Thomas. S. B.

Keeseville, Clinton co., N. Y., May 17, 1835.

S. BLYDENBURGH, Esq.: Sir,—In this age of "Indian rubber," will you permit me to submit to you, whether the application of that article to the sails of vessels of every description would not be highly advantageous to the interests of merchants and the government? Some of the advantages which have occurred to me as likely to be derived from its use, are the preservation of the cloth from mildew, its rendering the texture firmer, more elastic, and of course capable of enduring greater tension when in use. In wet weather the sails would be lighter, and more easily managed. I think if coal tar be the solvent used in making the varnish, the expense attending the process of covering the cloth would not be equal to the benefits arising from its use; but in this I may be in error.

I can think of but one objection to its use: it is possible that spontaneous combustion might ensue when sails should be stowed away in large quantity, and in a close, warm situation.

If you think, sir, the suggestion has any value, please communicate it (if new) to your friend Mr. Minor, of the Mechanics' Magazine, and oblige, very respectfully, your obedient servant,

J. THOMAS.

On the Use of Plated Glass as Sheathing for Ships' Bottoms.

To the Editor of the Mechanics' Magazine:

Sir,—Much ingenuity has been employed for a long time to invent a sheathing, or bottom, for ships, which would not be subject to corrosion by salt water, and at the same time avoid the accumulation of animalculæ and dirt attendant upon most bottoms which have heretofore been used.

I have thought that the following plan would be free from the usual difficulties, and have taken the liberty of introducing it to your notice. It is possible, however, that it may not be new, and that it may have been tested, but, as far as I have been able to learn, it has not. It consists of plates of different dimensions, size, thickness, and shapes, adapted to the size and form of the ship to be plated. They are to be made from glass, and the same earth and clay from which the wares denominated stone, earthen, and crockery wares, are made, (or from any others capable of being applied to such purposes,) and are to be polished in the same manner, or in any other way, on that surface intended to be exposed to the water. They are to be made with holes of sufficient size to admit screws or nails to pass through them for fastening. These holes are to be so formed, that the nails or screws shall catch and hold the plates below their outer surface. The cavities between the heads of the screws or nails, and the outer surface of the plates, and the crevices, or space between the plates, are to be filled with water lime, or any other matter, or composition of matter, which will protect the heads of the screws or nails from corrosion, and the bottom of the ship from the water, and give the plating a smooth and even surface.

If I am acquainted with the nature of the articles from which the above plates are proposed to be made, they will not be subject to corrosion, will resist all attacks by animalculæ, keep clean and smooth, and will not be worn by the friction of water. By their being made about one inch, or an inch and a half in thickness, and about a foot square, they will possess much strength. There is an objection which may be insuperable: that is, their danger of being broken by anchor cables. If that be an objection, perhaps it might be obviated by using copper, or some plan might be invented to prevent the cables from coming in contact with the bottom.

I presume that others may have thought of using glass for ships' bottoms, and I have heard it suggested that glass would do away all difficulties; but the suggesters have been at a loss to know how it should be put on to bottoms. If the putting of it on is all the difficulty, it is obviated by making it into such plates as I have described, and I am not aware that this plan has ever been proposed or tried by any person.

Many would look upon a plan for glass or stone ship bottoms as ridiculous; but when they come to consider, that these bottoms are composed of plates of a small size, and of considerable thickness, which renders them much stronger than a whole bottom of glass or stone, and far less liable to be broken, and if broken easily repaired, they might be inclined to regard it more favorably. The expense for plating a ship with these could not vary much from the present expense of coppering; but when a ship is once plated with glass, it is, as it were, plated forever, unless by some sudden blow upon the bottom it might be broken. We do not, however, expect a ship to strike the ground, or a rock, without doing great damage, whatever may be her bottom.

I have thus troubled you with an imperfect and disconnected statement of what I conceived might be an improvement in ship's bottoms; and I have endeavored to give you a few of my ideas in relation to it. They may be correct, and they may be grossly incorrect. If it should be deserving of any notice by one so capable as yourself to judge of its merit or demerit, I shall be much gratified and honored; if it is not, I shall not be disappointed. If my plan, or any part of it, shall be worthy of notice, I no doubt shall find that notice in your valuable Magazine; if it is not, I shall expect it to be treated accordingly.

I shall, in any event, have the consciousness of having made an endeavor to benefit mankind.

Yours, very respectfully,
ROSKIN.

Utica, March 31, 1835.

The letter we publish from Chicago, exhibits a curious state of things in that—newly discovered region we may almost call it—deserving of attention.

The land sales, wherever settlers, as they call themselves, but squatters in fact, have taken previous possession, become absolutely nominal—since these settlers combine to prevent, by force, other parties from bidding for the land.

Such was the ingress, it will be perceived, of strangers, to attend the land sales, that neither food nor lodging was to be obtained for love or money. It would be worth while for emigrants to carry with them some provisions, and a tent or two—the latter, in these piping times of peace, might be had dog cheap.

Extract from a letter dated, Chicago, June 18th.

"Mechanics wages are very high here, being \$1 50 to \$1 75, per day. Provisions of all kinds are also high, owing to the number of emigrants passing through, and to the extraordinary number of persons attending the land sale. Flour sold here yesterday at \$20; and 25, per barrel is asked to-day. Butter, 37 1-2 per lb.; Eggs 25 per doz; Potatoes, \$1 50 to \$2 per bushel; Oats \$1 a 1 25; Corn, \$1; Wheat, 80 cents, but no mills to grind it. We shall probably, however, have supplies from Lake Erie soon—or there will be a famine.

Hundreds have left here for want of accommodations. Several who came in the steamboat Thomas Jefferson to attend the land sale, returned in her, because they could get neither victuals to eat, nor a floor to sleep on. Hundreds who came before them, have no other bed than the floor, and many sleep in covered waggons in the open air.

The sales of public Lands have gone quietly on until to-day—the settlers bidding for that on which they had settled at \$1 25 per acre, when one or two speculators undertook to out bid them; this caused an immediate skirmish in which the speculators were rather roughly handled—not however very much injured. It is generally understood that the settlers are to be allowed to have the land on which they have located at government prices. They have in one township organized, and are determined, at all hazards, not to be interfered with.

June 19th.—I have but a moment to add that there has been no disturbance to-day, between the settlers and other purchasers, as was apprehended—except in one or two instances; and those were immediately quelled. There has been paid into the Land Office, up to 6 P. M. this evening, over \$200,000.

Flour sold this day at \$25, and \$28 per barrel was offered for more, and refused; I am happy however to say, that a vessel has arrived from Lake Erie, which is said to have some on board.

The following vivid description of the unparalleled emigration to Illinois, is taken from the 2d number of the Chicago American, of 13th inst. published in the village of Chicago, by Thomas O. Davis, recently of this city. Indeed the "Chicago American" is itself a striking evidence of the rapid growth, and increasing importance of that country as it is but a few months since its enterprising proprietor was, an apprentice, and more recently a journeyman in this city; in both of which stations he did himself credit; as we are confident he will in his present capacity, as proprietor, publisher, and Editor of a journal in this miniature city of the "far West."

The paper is handsomely printed on good paper, with new type, and evinces both talent and industry. A specimen of number one and two may be seen at the store of Messrs. T. & C. Wood, Stationers, next door to this office, who are Agents to receive and forward subscriptions and advertisements.

"THE CRY IS STILL THEY COME."—The tide of emigration which is flowing in, this season, far exceeds that of any former period. The flood-gates of enterprise seem to be let loose upon us, and multitudes are crowding on to this young land, as if the pestilence were behind, eager to find a better home, where they can build their fortunes and their hopes, and enjoy the plenty which our fat fields yield to the hand of industry. In addition to the actual emigrants that are now pressing into this region, the approaching land-sale is bringing into our town a crowd of strangers, and capitalists ready to avail themselves of the benefits of the rapid rise in value of the real estate of the country. The actual population of Chicago, we cannot estimate with any degree of accuracy, but it is now supposed to be between 2500 and 3000. Strangers, to the amount of some hundreds more, fill our public houses and streets, our wharves are covered with men, women and children, just landed from the vessels, and even some store houses have been thrown open to receive the unsheltered emigrants, who had else remained under the open sky upon the wharves. Some build tents upon the spot where they are landed from the boat, in the middle of our streets, then raise them and move on. The cry is "Westward Ho!" and they press on still deeper in the interminable prairies; history seems to be filling up the prophecy of the Bishop of Cloyne; the "Star of Empire" is taking its way westward, and in its last ascendant shall shine upon the noblest kingdom. The emigration to Illinois this season, is chiefly crowding into the northern part of the State, Cook county, which two years ago exhibited a few scattered dwellings, along the groves or by the streams, is now rife with thriving settlements; and some smart villages have arisen too, as by enchantment. The solitary inhabitant of a grove, has seen a community suddenly gather around him. Schools are actually in successful operation, where a year since was but a solitary emigrant. But we have land enough yet which offers itself to the moulding hand of the emigrant—yet untouched, and invites the hand of cultivation.

La Salle, and other neighboring counties at the north, are receiving a similar influx of emigration, though perhaps less abundantly than Cook. We are informed that they are rapidly settling in the Rock River country—a beautiful, fertile, and healthy region—and that hundreds have within the last few months, occupied the region before inhabited by a dozen or more. We rejoice in the fair prospect and rapid growth of our State. Our fat fields will soon be reduced to culture; and we trust, too, that our rivers will be deepened and brought into communication with each other, and with the great commercial marts of the nation, by artificial channels or roads; and thus our produce be made valuable by the convenience and facilities of good markets. Let emigrants come,—we have an immense domain for them.—More than twenty millions of acres of land in Illinois are spread out before them. Richer fields were never bared to the sun.

We welcome them to our young home of enterprise and prosperity. We welcome them to partake with us the pleasures as well as the hardships of a new country, and to enjoy with us the fond hopes in prospect.

NEW-YORK AMERICAN.

JUNE 27—JULY 3, 1833

LITERARY NOTICES.

THE AMERICAN QUARTERLY REVIEW, No. xxxiv., for June. Philadelphia. LYDIA R. BALEY.—We like this number much, though we are somewhat tardy in noticing it. The first paper, on *National Music*, is entertaining, though as a nation we have not, and from our heterogeneous origin and composition, cannot have any such. Moreover, music, like architecture, seems to us as yet, we confess, a stranger to our soil—at least among its white denizens. In both these particulars, we take after our English ancestors.

The paper on *Shirreff's Tour*, in this country, with the extracts given from the book, lead us to hope it may be republished here. Mr. Shirreff is "a plain East Lothian farmer," who visited this country with a view to determine, by his own observation, whether it would be expedient for a younger brother of his, to emigrate hither. He is evidently a scientific, as well as practical agriculturalist—and withal, possessing strong sound sense and a keen spirit of observation. We annex at hazard some quotations.

Visit to a celebrated seat upon the North River.—"We left New York early in the morning, by the Albany steam-boat, for Hyde Park, after viewing which we returned to the landing-place on the river Hudson, and, at half-past twelve at night, slept on board of a steam-boat which landed us at Albany a little after seven next morning. I got on deck at four, when passing the town of Hudson; the wind was blowing high from the north, and piercingly cold.

"Hyde Park, the seat of Doctor Hosack, is the most celebrated in America, and which Mr. Stuart describes as being 'embellished as a fine residence and fine grounds in England.' The house is situated some hundreds of feet above the level of, and at a considerable distance from, the Hudson; the intervening grounds being finely undulating.—In front of the house there is a road, leading from the landing-place on the river, along a small stream, over which there is an elegant wooden bridge, and several artificial cascades have been formed in its channel. The house is composed of wood, as well as the offices and lodges, painted white, and are very neat of their kind. The conservatory had been dismantled a few days before our arrival, by placing the plants in the open air: the collection seemed extensive and well kept.—The flower garden is small, the walks limited, and both destitute of beauty. I am aware that most of the evergreens which impart loveliness to the residences in Britain cannot withstand the rigors of an American winter, but this circumstance is no excuse for the nakedness of Hyde Park walks, the aid of many native plants having been disregarded. The matchless beauties of the situation have not only been frequently neglected, but destroyed by stiff, formal, naked walks, and the erection of temples resembling meat-safes, without a climbing plant, which the country produces in endless variety, to hide their deformity, and harmonize them with the surrounding scene. In short, while I greatly admire the situation of Hyde Park, I do not recollect having seen a celebrated place where nature had done so much, and man so little, to render beautiful. The embellishments at Hyde Park, contrasted with those met with every day in Britain, place American landscape-gardening immeasurably behind, if it can be said to exist.

"The progress of a people in refinement and taste, manifested in a combination of nature and art, is commonly the work of time, and the decoration of grounds an unproductive investment of capital. Thus the residences of England having descended for ages in the same line, without the power of the possessors' changing their destination, may be said to represent the accumulated savings, labors, and tastes of many generations. In America the country has not been long possessed by the present owners, and property does not necessarily descend in the same line; and if to these causes be added the high price of labor, and the scarcity of capital, the state of the residences will be sufficiently accounted for. Dr. Hos-

ack has great merit in what he has accomplished, but it is mockery to compare his grounds, in point of embellishment, with the fine places in Britain, which have originated from circumstances which America is not likely soon to experience.

"Throughout the whole of my transatlantic tour, the inhabitants of the country manifested perfect indifference to the beauties nature. It was rarely I could learn the name of a plant, with the exception of trees. Nurserymen, seedsmen, and farmers, were, generally, unacquainted with varieties, and, with the exception of two or three individuals, no one seemed interested in the matter. Rhododendrons grow as plentifully in many parts of the Eastern States as furze in Britain, yet I saw vast numbers of this plant shipping at Liverpool for Philadelphia, although millions of the same variety could have been obtained for the trouble of lifting, at no great distance from the city. Gardens and nurseries were overrun with weeds, and did not display beauty either in decoration or arrangement."

In a short time we find Mr. Shirreff at Lowell, Massachusetts, and the reflections suggested by the state of things in that manufacturing town, deserve to be extracted:

"The females engaged in manufacturing amount to nearly 5000, and as we arrived at Lowell on the afternoon of Saturday, we had an opportunity of seeing those connected with some of the largest cotton factories retiring from labor. All were clean, neat, and fashionably attired, with reticules hanging on their arms, and calashes on their heads. They commonly walked arm in arm without displaying levity. Their general appearance and deportment was such that few British gentlemen, in the middle ranks of life, need have been ashamed of leading any of them to a tea-party. Next day, being Sunday, we saw the young females belonging to the factories going to church in their best attire, when the favorable impressions of the preceding evening were not effaced. They lodge, generally, in boarding houses, and earn about 8s. 6d. sterling per week, independent of board; serving girls earn about 4s. 3d.

"The recent introduction of large manufacturing establishments, thin population, and ample reward of labor, account for the apparent comfort and propriety of the Lowell young women. The situation of the manufacturing class in Britain is very different: nurtured amidst poverty and vice, they toil in crowded and unwholesome factories from infancy, often disregarded by parents and employers, and attaining maturity ruined in constitution and morals, with few of the sympathies of humanity."

"This village may be taken as an instance of the giant strides by which the United States are advancing to greatness, and the immeasurable water power nature has lavished on them. The canal supplies more water than the present machinery requires; and, after inspecting the surplus in the canal and the rivers, I am of opinion, there is water enough to propel nearly one hundred times the machinery at present employed, and which might employ a population of above a hundred thousand souls.

"Britain is said to owe much of her greatness to the supply of coal with which she has been blessed; but however extensive and available it may be, the water power of the United States will excel it in cheapness and magnitude. The price of labor is, and will likely continue, much cheaper in Britain than in the United States, which seems the only circumstance that can ultimately give a superiority to the manufactures of the former."

On the score of domestic manners, the general deportment of the people, and the habitual civility of all classes among them, the testimony of Mr. Shirreff is to the following effect:—

"Although I did not often witness the domestic manners of the Americans, my opportunities of meeting the inhabitants of the United States in public were frequent, and the impressions imbibed during my intercourse with them were different from what the accounts of others led me to expect. Many travellers who have written on the subject were perhaps ill qualified to form a just estimate of American manners and character, from the sphere of society in which they themselves had previously moved. No action nor associate of British aristocracy, who has not been brought into familiar intercourse with the middling and lower orders of his own countrymen, is likely to do justice to the Ame-

ricans, and the tenor of many of the remarks which have been given to the world on the subject is evidence of the writers never having before associated with the class of people to whom they allude. The inhabitants of Britain, in private and public life, being divided into grades, some individuals are altogether unacquainted with the manners and customs of the classes below them. And as Englishmen of high pretensions and refinement, on reaching America, mingle on terms of equality at public tables and in conveyances with the commonest operatives, they feel disgusted with the manners of the people around them, without considering they belong to a different class from their own associates at home. In Britain, a person of rank is generally regarded with respect by the classes below him. In the United States, rank seldom meets with or expects deference from the people, and the humblest citizen familiarly enters into conversation with every individual who addresses him. This self-possession is often taken for forwardness, and their unembarrassed conversation for insolence. In Britain the different classes of population generally remain distinct, and many of their excesses are hid from common gaze. In most parts of the United States, the bar-rooms of hotels form the only scenes of tippling, and, being at all times open to the public, a traveller is apt to consider the people more dissipated than they really are. Were a gentlemanly foreigner to meet the lowest class of the people of England at table, and associate with them in their haunts of vice, his adventures would form a high-colored picture of English manners and society."

"On first reaching the United States, the plainness of the people's manners appeared remarkable. In all classes there was a total absence of grimace and corporeal token of respect, with corresponding sounds of address, an expression of obligation or thankfulness seldom being heard. In consequence the inhabitants appear as far behind the British as the French exceed them. But, on the other hand, vulgarity, rudeness, or insolence, is almost never met with in the humblest walks of life. Mechanics and storekeepers ride in the same vehicle, and sit down at the same table, with the most polished members of society; all seem desirous of behaving well to each other, a rude or indelicate remark never being made, nor a disgusting practice indulged in. On one occasion only I met with revolting behaviour, at the table of the Washington hotel, during my first residence at New York. On my second visit, I found the individual still an inmate of the house, in which he had lodged for 14 years. He was an eccentric character, and originally from England.

"A general propriety of deportment and softness of manners pervades the lower classes, and that coarseness, which is sometimes met with in Britain, does not appear to exist in the United States; but certain circles of society in Britain seem to have a higher polish than what is to be met with in America, and perhaps the general standard of manners of both countries is not widely different. The lower orders of the United States are, however, beyond all question, greatly superior in refinement and intelligence to the lower orders of Britain."

"The civility of all classes in the United States is so universal, that during my intercourse with the inhabitants, I scarcely experienced an indication of insolence, and never observed that democratic sauciness which I was taught to expect among the lower orders. Every individual feels that he is independent, and never alludes to the subject.—The case is, however, different in Canada, where some British emigrants seldom let an opportunity escape of telling a well-dressed person, that 'this is a free country, and that he does not care a * * * for any man.' The emancipated bondsmen alone bloats of being free from fetters. A foreigner, however, who arrogates to himself superiority in the United States, will be despised by the meanest of the people, and his money will neither purchase their attention nor services. The United States which I visited, seem to me an excellent place for teaching an overweening person a due estimate of himself and his fellow mortals. Twelve months' intercourse with the people would greatly improve the fagged and fagging youthful aristocracy of Britain. Their haughtiness of demeanor, and acerbity and impatience of temper would be changed, and they would return home with a just sense of the place they occupy in the world, and qualified to discharge the important duties they owe society.—

Every Briton who has mingled with the people for any length of time, and practised self-examination, will testify to the truth of my remarks."

PORTRAITS OF THE PRINCIPAL REFORMERS of the 16th century, &c., 1 vol. N. Y.—VAN NOSTRAND AND DWIGHT.—In this neatly printed and well-executed little volume, we have a brief history of the Reformation, and following it, portraits, with short biographical notices, of the leading Reformers from John Wickliffe to John Knox. The portraits are medallions, from Ormsby's machine.

THE STUDENT, a series of papers, by the author of *Eugene Aram*. 2 vols. New York. HARPER & BROTHERS.

We have before alluded to this collection, by Bulwer, of various essays—some of which have appeared before. It is one that makes up two very agreeable, and withal, instructive volumes, written in a style which "utters in prose, what are the ordinary didactics of poetry."

In the second volume are "The Conversations of an ambitious Student in ill health," which attracted so much attention, as they appeared originally, in the *New Monthly Magazine*.

We learn, for the first time, from the remarks prefixed to this collection, that *Bulwer* is engaged, and has for some years, at intervals, been, "upon a historical work." No indication is given as to its subject, or the period to which it refers.

A DETAIL OF SOME PARTICULAR SERVICES PERFORMED IN AMERICA during the years 1776, 7, 8, and 9, &c. &c. N. Y.—This is a very curious publication. The narrative purports to be compiled from journals and original papers, supposed to be chiefly taken from the journal kept on board of the ship *Rainbow*, commanded by Sir George Collier, while on the American station, during the period above referred to. It is printed for our fellow citizen ITHIEL TOWN—distinguished as an Architect—from a manuscript purchased by him in London, in 1830, at a public sale of autographs and manuscripts, from the collection of a private gentleman. It bears internal evidence of being genuine, and is valuable as a memoir to serve for future historians.

HORSE SHOE ROBINSON. A tale of the *TORY ASCENDENCY*—by the author of *SWALLOW BARN*—2 vols.: *Phila.*, CAREY, LEA & BLANCHARD.—In *Swallow Barn* the author gave in a somewhat disconnected story, a series of pictures of Virginia life—which presented in admirable relief, its peculiarities. It was in this, rather than in the interest of the story as a whole, that his success laid.

The work now before us, is of a higher cost and higher execution. It is indeed fraught with stirring incidents, and the characters are drawn with a master's hand. The blacksmith, *Robinson*, from whom the work takes its name—*Mildred Lindsay*, and her gallant brother, are finely conceived, and never falter in the course of the narrative.

"The political and documentary history of the revolutionary war," it is well said by the author, "has been written. Its romantic or picturesque features have been left for the industrious tribe of chroniclers." It is as one of them, that the author of *Swallow Barn* now addresses the public, and he has assuredly extracted from the many unsung, and unhonored, but not less daring and romantic incidents of the fierce civil war in the South, before GREENE had turned the tide of victory, the materials for two charming volumes.

Historical accuracy is preserved—and indeed the chief personages, including the blacksmith Hero, are also historical, though some license has of course been taken in the construction of the story.

Mr. KENNEDY, for it is no secret that he is the

author, has abundantly shown in this work, how fruitful our revolutionary struggle is, in incidents which the pen of genius may avail of, for the historical romance—and he has shown too, his ability and fitness to wield that pen.

An adventure wherein it is apparent that the actions of real life are full as marvellous as the inventions of romance:

On the morning that succeeded the night on which Horse Shoe Robinson arrived at Musgrave's, the stout and honest sergeant might have been seen, about eight o'clock, leaving the main road from Ninety-Six at the point where that leading to David Ramsay's separated from it, and cautiously urging his way into the deep forest, by the more private path into which he had entered.—The knowledge that Innes was encamped along the Ennoree, within a short distance of the mill, had compelled him to make an extensive circuit to reach Ramsay's dwelling, whither he was now bent; and he had experienced considerable delay in his morning journey, by finding himself frequently in the neighborhood of small foraging parties of Tories, whose motion he was obliged to watch for fear of an encounter. He had once already been compelled to use his horse's heels in, what he called, 'fair flight'—and once to ensconce himself, a full half hour, under cover of the thicket afforded him by a swamp. He now, therefore, according to his own phrase, 'dived into the little road that scrambled down through the woods towards Ramsay's, with all his eyes about him, looking out as sharply as a fox on a foggy morning'—and with this circumspection, he was not long in arriving within view of Ramsay's house. Like a practised soldier, whom frequent frays has taught wisdom, he resolved to reconnoitre before he advanced upon a post that might be in possession of an enemy. He therefore dismounted, fastened his horse in a fence corner, where a field of corn concealed him from notice, and then stealthily crept forward until he came immediately behind one of the out-houses.

The barking of a house-dog brought out a negro boy, to whom Robinson instantly addressed the query,

'Where is your master, you powder monkey?—stop that dog!'

'Yaick—ya hound!'—cried the boy, aiming a blow at the dog's head with his hand.—'What is you making a fuss about!—Massa done gone, sa.'

'Where?'—inquired the sergeant.

'Got on his critter, arter he done his breckfus, and started away, like all de world.'

'Your mistress?'

'She home, sa, shelling beans.'

'Any sodgers or strangers there?'

'All gone, sa,'—replied the negro.

Robinson, having thus satisfied himself as to the safety of his visit, directed the boy to take his horse and lead him up to the door. He then entered the dwelling.

'Miss Ramsay,' said he, walking up to the dame, who was occupied at a table, with a large trencher before her, in which she was plying that household thrift which the negro described,—'luck to you, ma'am, and all your house! I hope you haven't none of these clinking and clattering bul-lies about you, that are as thick over this country as the frogs in the kneading troughs—that they tell of.'

'Good lack—Mr. Horse Shoe Robinson!' exclaimed the matron, offering the sergeant her hand.—'What has brought you here?—What news?—Who are with you?—For patience sake, tell me!'

'I am alone,'—said Robinson—'and a little wet-tish, mistress,'—he added, as he took off his hat and shook the water from it:—'it has just soted up a rain, and looks as if it was going to give us enough on't.—You don't mind doing a little dinner work of a Sunday, I see—shelling of beans, I spose, is tantamount to dragging a sheep out of a pond, as the preachers allow on the sabbath—ha, ha!—Where's Davy?'

'He's gone over to the meeting-house on Ennoree, hoping to hear something of the army at Camden:—perhaps you can tell us the news from that quarter?'

'Faith, that's a mistake, mistress Ramsay.—Though I don't doubt that they are hard upon the scratches, by this time. But, at this present speaking, I command the flying artillery. We have but one man in the corps, and that's myself; and all the guns we have got is this piece of ordi-

nance, that hangs in this old belt by my side, (pointing to his sword)—and that I captured from the enemy at Bradstock's. I was hoping I might find John Ramsay at home.—I have need of him as a recruit.'

'Ah, Mr. Robinson,—John has a heavy life of it—over there with Sumpter. The boy is often without his natural rest, or a meal's victuals; and the general thinks so much of him, that he can't spare him to come home. I hav'n't the heart to complain, as long as John's service is of any account, but it does seem, Mr. Robinson, like needless tempting of the mercies of Providence. We thought that he might have been here to-day; yet I am glad he didn't come—for he would have been certain to get into trouble. Who should come in this morning, just after my husband had cleverly got away on his horse, but a young cock-a-whoop ensign, that belongs to Ninety-Six—and four great Scotchmen with him, all in red coats; they had been out thieving, I warrant, and were now going home again. And who but they! Here they were, swaggering all about my house—and calling for this—and calling for that—as if they owned the free simple of every thing on the plantation. And it made my blood rise, Mr. Horse Shoe, to see them turn out in the yard and catch up my chickens and ducks, and kill as many as they could string about them—and I not daring to say a word; though, I did give them a piece of my mind too!'

'Who is at home with you?—inquired the sergeant eagerly.

'Nobody but my youngest boy, Andrew,'—answered the dame. 'And then, the filthy, toping rioters,—she continued, exalting her voice.

'What arms have you in your house?'—asked Robinson, without heeding the dame's rising anger.

'We have a rifle, and a horseman's pistol that belongs to John.—They must call for drink too, and turn my house, of a Sunday morning, into a tavern.'

'They took the route towards Ninety-Six, you said, mistress Ramsay?'

'Yes,—they went straight forward upon the road. But, look you, Mr. Horse Shoe,—you're not thinking of going after them?'

'Isn't there an old field, about a mile from here, on that road?'—inquired the sergeant, still intent upon his own thoughts—

'Certain,'—replied the hostess.—'You must remember the cobbler that died of drink on the road side?'

'There is a shabby, racketty cabin in the middle of the field—am I right, good woman!'

'Yes.'

'And nobody lives in it.—It has no door to it?'

'There ha'n't been a family there, these seven years.'

'I know the place, very well,'—said the sergeant thoughtfully,—'there is woods just on the side of it.'

'That's true,'—replied the dame:—'but what is it you are thinking about, Mr. Robinson?'

'How long before this rain began, was it that they quitted the house?'

'Not above fifteen minutes.'

'Mistress Ramsay—bring me the rifle and pistol both—and the powder horn and bullets.'

'As you say, Mr. Horse Shoe,'—answered the dame as she turned round to leave the room,—'but I am sure I can't suspicion what you mean to do.'

In a few moments the woman returned with the weapons, and gave them to the sergeant.

'Where is Andy?'—asked Horse Shoe.

The hostess went to the door and called her son, —and, almost immediately afterwards, a sturdy boy, of about twelve or fourteen years of age, entered the apartment, his clothes dripping with rain. He modestly and shyly seated himself on a chair near the door with his soaked hat flapping down over a face full of freckles, and not less rife with the expression of an open, dauntless hardihood of character.

'How would you like a scrummage, Andy, with them Scotchmen that stole your mother's chickens this morning?'—asked Horse Shoe.

'I'm agreed,'—replied the boy,—'if you will tell me what to do.'

'You are not going to take the boy out on any of your desperate projects, Mr. Horse Shoe?—said the mother, with the tears starting instantly into her eyes.—'You wouldn't take such a child as that into danger?'

'Bless your soul, mistress Ramsay, there arn't no danger about it! Don't tak on so. It's a thing

that is either done at a blow, or not done,—and there's an end of it. I want the lad only to bring home the prisoners for me, after I have took them.'

'Ah, Mr. Robinson, I have one son already in these wars—God protect him!—and you men don't know how a mother's heart yearns for her children in these times. I cannot give another,'—she added, as she threw her arms over the shoulders of the youth and drew him to her bosom.

'Oh, it aint nothing,'—said Andrew, in a sprightly tone.—'It's only snapping a pistol, mother,—pooh!—If I'm not afraid, you oughtn't to be.'

'I give you my honor, mistress Ramsay,'—said Robinson,—'that I will bring or send your son, safe back in one hour; and that he shan't be put in any sort of danger whatsoever;—come,—that's a good woman!'

'You are not deceiving me, Mr. Robinson?—asked the matron, wiping a way tear.—'You wouldn't mock the sufferings of a weak woman in such a thing as this?'

'On the honesty of a sodger, ma'am,'—replied Horse Shoe,—'the lad shall be in no danger,—as I said before—whatsoever.'

'Then I will say no more,'—answered the mother.—'But Andy, my child, be sure to let Mr. Robinson keep before you.'

Horse Shoe now loaded the fire-arms, and having slung the pouch across his body, he put the pistol into the hands of the boy; then shouldering his rifle, he and his young ally left the room. Even on this occasion, serious as it might be deemed; the sergeant did not depart without giving some manifestation of that light-heartedness, which no difficulties ever seemed to have power to conquer. He thrust his head back into the room, after he had crossed the threshold, and said with an encouraging laugh, 'Andy and me will teach them, Mistress Ramsay, Pat's point of war, we will surround the ragamuffins.'

'Now Andy, my lad,'—said Horse Shoe, after he had mounted Captain Peter,—'you must get up behind me. Turn the lock of your pistol down,' he continued, as the boy sprang upon the horse's rump, 'and cover it with the flap of your jacket, to keep the rain off. It won't do to hang fire at such a time as this.'

The lad did as he was directed, and Horse Shoe having secured his rifle in the same way, put his horse up to a gallop and took the road in the direction that had been pursued by the soldiers.

As soon as our adventurers had gained a wood, at the distance of about half a mile, the sergeant relaxed his speed and advanced at a pace but little above a walk.

'Andy,' he said—'We have got rather a ticklish sort of a job, before us—so I must give you your lesson, which you will understand better by knowing something of my plan. As soon as your mother told me that these thieving villains had left her house about fifteen minutes before the rain came on, and that they had gone along upon this road, I remembered the old field up here, and the little log hut in the middle of it; and it was natural to suppose that they had just got about near that hut, when this rain came up,—and then, it was the most supposable case in the world, that they would naturally go into it, as the driest place they could find. So now, you see, it's my calculation that the whole batch is there at this very point of time. We will go slowly along, until we get to the other end of this wood, in sight of the old field—and then, if there is no one on the look-out, we will open our first trench;—you know what that means, Andy?—'

'It means, I s'pose, that we'll go right smack at them,'—replied Andrew.—'

'Pretty exactly,'—said the sergeant.—'But listen to me. Just at the edge of the woods you will have to get down, and put yourself behind a tree. I'll ride forward, as if I had a whole troop at my heels,—and if I catch them, as I expect, they will have a little fire kindled and, as likely as not, they'll be cooking some of your mother's fowls.'

'Yes I understand,'—said the boy eagerly.—'

'No you don't,'—replied Horse Shoe.—'but you will when you hear what I am going to say. If I get at them onawares, they'll be mighty apt to think they are surrounded, and will bellow like fine fellows, for quarters. And, thereupon, Andy, I'll cry out 'stand fast,'—as if I was speaking to my own men,—and when you hear that, you must come up full tilt, because it will be a signal to you that the enemy has surrendered. Then it will be your business to run into the house and bring out the muskets, as quick as a rat runs through a

kitchen: and when you have done that,—why all's done. But if you should hear any popping of fire arms—that is, more than one shot, which I may chance to let off—do you take that for a bad sign, and get away as fast as you can heel it. You comprehend?'

'Oh yes,'—replied the lad,—and I'll do what you want,—and more too, may be, Mr. Robinson.' 'Captain Robinson,—remember, Andy; you must call me captain, in the hearing of these Scotchmen.'

'I'll not forget that neither,'—answered Andrew.

By the time that these instructions were fully impressed upon the boy, our adventurous forlorn hope, as it may fitly be called, had arrived at the place which Horse Shoe had designated for the commencement of active operations. 'They had a clear view of the old field; and it afforded them a strong assurance that the enemy was exactly where they wished him to be, when they discovered a smoke arising from the chimney of the hovel. Andrew was instantly posted behind a tree, and Robinson only tarried a moment to make the boy repeat the signals agreed on, in order to ascertain that he had them correctly in his memory. Being satisfied from this experiment that the intelligence of young Ramsay might be depended upon, he galloped across the intervening space, and, in a few seconds, abruptly reigned up his steed in the very doorway of the hut. The party within was gathered around a fire at the further end; and, in the corner opposite the door, were four muskets thrown together against the wall. To spring from his saddle, thrust himself one pace inside of the door, and to level his rifle at the group beside the fire, was a movement which the sergeant executed in an instant,—shouting at the same time—

'Surrender to captain Robinson, of the Free Will Volunteers, and the Continental Congress—or you are all dead men!—Halt,' he vociferated in a voice of thunder, as if speaking to a corps under his command:—'file off, cornet, right and left, to both sides of the house. The first man that budes a foot from that there fire place, shall have fifty balls through his body.'

'To arms!' cried the young officer who commanded the squad inside the house. 'Leap to your arms, men! Why do you stand, you villains?' he added, as he perceived his men hesitate to move towards the corner, where the muskets were piled.

'I don't want your blood, young man,' said Robinson, coolly, as he still levelled his rifle at the officer, 'nor that of your people:—but by my father's son, I'll not leave one of you to be put upon muster roll, if you move an inch!'

Both parties now stood, for a brief space, eyeing each other, in a fearful suspense, during which there was an expression of mixed doubt and anger visible on the countenance of the soldiers, as they surveyed the broad proportions, and met the stern glance of the sergeant—whilst the delay, also, began to raise an apprehension in the mind of Robinson, that his stratagem had been discovered.

'Upon him—at the risk of your lives!'—cried the officer:—and, on the instant, one of the soldiers moved rapidly towards the further wall; upon which the sergeant, apprehending the seizure of the weapons, sprang forward in such a manner as would have brought his body immediately before them, but a decayed plank in the floor caught his foot and he fell to his knee. It was a lucky accident,—for the discharge of a pistol by the officer, planted a bullet in the log of the cabin, which would have lodged, full in the square breast of the gallant Horse Shoe, if he had retained his perpendicular position. His footing, however, was recovered almost as soon as it was lost, and the next moment found him bravely posted in front of the fire-arms, with his own weapon thrust almost into the face of the foremost assailant. The hurry, confusion and peril of the crisis did not take away his self-possession,—but he now found himself unexpectedly thrown into a situation of infinite difficulty, where all the chances of the fight were against him.

'Back men, and guard the door,'—he cried out as if again addressing his troop.—'Sir, I will not be answerable for consequences if my troopers once come into this house. If you do hope for quarters give up on the spot.—'

'His men have retreated,'—cried one of the soldiers.—'Upon him boys!—and instantly two or three pressed upon the sergeant, who seizing his rifle in both hands, bore them back by main force until he had thrown them prostrate on the floor.—'

He then leaped towards the door with the intention of making good his retreat.

'Shall I let loose upon them, captain?' said Andrew Ramsay, now appearing most unexpectedly to Robinson, at the door of the hut. 'Come on my brave boys, he shouted as he turned his face towards the field.

'Keep them outside of the door,—stand fast,'—cried the doughty sergeant again, with admirable promptitude, in the new and sudden posture of his affairs caused by this opportune appearance of the boy. 'Sir you see that you are beaten—let me warn you once more to save the lives of your men, its onpossible for me to keep my people off a minute longer. What signifies fighting fire to one?'

During this appeal the sergeant was ably seconded by the lad outside, who was calling out first on one name and then on another, as if in the presence of a troop. The device succeeded, and the officer within, believing the forbearance of Robinson to be real, at length said—

'Lower your rifle, sir. In the presence of a superior force, taken by surprise and without arms, it is my duty to save bloodshed. With the promise of fair usage, and the rights of prisoners of war, I surrender this little foraging party under my command.'

'I'll make the terms agreeable,' replied the sergeant. 'Never doubt me, sir. Right hand file, advance and receive the arms of the prisoners!'

'I'm here captain,'—said Andrew in a concited tone as if it were a mere occasion of merriment;—and the lad quickly entered the house and secured the weapons, retreating with them some paces from the door.

'Now, sir,'—said Horse Shoe to the ensign,—'your sword, and what ever else you mought have about you of the ammunitions of war!'

The officer delivered up his sword and a pair of pocket pistols.

'Private property, I presume, will be protected,' he said.

'Ondoubtedly,' replied Robinson: 'your name? if I mought take freedom,?—'

'Ensign St. Jeremyn, of his Majesty's seventy-first regiment of Light Infantry,'—

'Ensign, your sarvant,'—added Horse Shoe, aiming at an unusual exhibition of politeness.—

'You have defended your post like an old sodger, although you ha'n't much beard on your chin;—I'll certify for you. But, seeing you have given up, you shall be treated like a man who has done his duty. You will walk out now and form yourselves in a line before the door. I'll engage my men shall do you no harm;—they are of a marcful breed.'

When the little squad of prisoners submitted to this command, and came to the door, they were stricken with the most profound astonishment to find, in place of a large detachment of cavalry which they expected to see, nothing but one horse, one man and one boy. Their first emotions were expressed in curses, which were even succeeded by laughter from one or two of the number. There seemed to be a disposition on the part of some, to resist the authority that now controlled them; and sundry glances were exchanged, which indicated a purpose to turn upon their captors. The sergeant no sooner perceived this, than he halted, raised his rifle to his breast, and, at the same instant gave Andrew Ramsay an order to retire a few paces, and to fire one of the captured pieces at the first man who opened his lips:

'By my hand,'—said he,—'if I find any trouble in taking you, all five, safe away from this here house, I will thin your numbers with your own muskets! And that's as good as if I had sworn to it.'

'You have my word sir,'—said the Ensign.—'Lead on—we'll follow.'

'By your leave—my pretty gentleman—you will lead, and I'll follow,'—replied Horse Shoe.—'It may be a new piece of drill to you—but the custom is to give the prisoners the post of honor, and to walk them in front.'

'As you please, sir,'—answered the Ensign.—'Where do you take us?'

'You will march back the road you came,'—said the sergeant.

Finding the conquerer determined to execute summary martial law upon the first who should mutiny, the prisoners now marched in double files from the hut, back towards Ramsay's—Horse Shoe, with Captain Peter's bridle dangling over his arm, and his gallant young auxiliary, Andrew, laden

with double the burden of Robinson Crusoe, (having all the fire arms packed upon his shoulders,) bringing up the rear. In this order, victors and vanquished returned to David Ramsay's.

'Well, I have brought you your ducks and chickens back, mistress,' said the sergeant, as he halted his prisoners at the door; 'and what's more, I have brought home a young sodger that's worth his weight in gold.'

'Heaven bless my child!—my boy, my brave boy!' cried the mother, seizing the lad Andrew in her arms, and unheeding any thing else in the present perturbation of her feelings. 'I feared ill would become of it: but Heaven has preserved him. Did he behave handsomely, Mr. Robinson? But I am sure he did.'

'A little more venturesome, ma'am, than I wanted him to be,' replied Horse Shoe. 'But he did excellent service. These are his prisoners, mistress Ramsay—I should never have got them, if it had not been for Andy. In these drumming and firing times, the babies suck in quarrel with their mother's milk. Show me another boy in America that's made more prisoners than there was men to fight with them—that's all! He's a first rate chap, mistress Ramsay—take my word for it.'

EUROPEAN INTELLIGENCE.

LATER FROM ENGLAND.—We received on Saturday evening files of London and Liverpool papers, to the 26th and 27th inclusive, by the packet *INDEPENDENCE*, CAPT. NYE.

The Francis Depau, Capt. Robinson, from Havre, whence she sailed on the 19th May, also arrived on Saturday, bringing our files of papers also, which, however, are of little interest, as we have several days later dates by way of London.

We do not find in any of the papers one word in relation to the indemnity bill. The entire attention of the French people is directed to the trial of Lyons rioters, which proceeds very slowly.

The accounts from Spain are any thing but cheering to those who desired the overthrow of Carlos.

Of England it may be said, *stocks have fallen*.

"BRING FLOWERS, BRING FLOWERS."—Felicia Hemans is dead, after long suffering. But she cannot all die—while tender and beautiful images and gentle affections, expressed in genuine poetry, can confer immortality.

DEATH OF MRS. HEMANS.—Died, on Saturday evening last, in Dawson street, Dublin, after a long and painful illness, which she bore with that cheerfulness and pious resignation which might have been expected from her writings and her character, Mrs. Hemans.—[Dublin Mail.]

MRS. BEECHWORTH.—It is stated in an Irish paper, that this admired writer—now no longer young—had by an accidental fall, broken her leg.

Yesterday a public meeting was held in the Mechanics' Institution, for the purpose of agreeing on a petition to the House of Commons for the repeal of the stamp tax on newspapers, Mr. Wakley, M.P., in the chair. The meeting was numerously attended. Mr. Roebuck, M.P., moved the first resolution, which was seconded by Mr. O'Connor, M.P. Both gentlemen addressed the meeting in speeches, which were greatly applauded. The resolutions were unanimously agreed to; a petition, founded upon them, to the House of Commons, was likewise agreed to, and Mr. Wakley requested to present it. Letters were read from Lord Brougham, Mr. Hume, Col. Evans, Mr. Cobbett, Sir S. Walley, and Mr. T. Duncombe, who had been invited to attend, declaring their concurrence in the object of the meeting, and regretting their inability to attend.—[Times.]

LONDON, May 21.—We gave on Monday an account of the abrupt manner in which the Belgian Chambers had been brought to the close of their labors. Our Brussels correspondent's letter, which appears in another column, contains some remarks relative to the causes of that occurrence, which will not be read without interest. The session has lasted six months, during which period it has done but little for purposes of public utility. The Chamber of Deputies has held 119 sittings, of which fifty-three were entirely devoted to the communal law. The other sittings were taken up with long dis-

cussions on the budgets and the law of expropriation.

TURKEY.

The sailing of the Sultan's fleet from the Dardanelles for Tripoli is confirmed. It left the Straits on the 28th, with a force calculated not to exceed 3000 or 4000 men.

PERSIA.

Letters from Persia bring accounts that the greatest anarchy prevails in that country. Mohamet Miza has appeared at the head of 60,000 men and 60 pieces of cannon, before the gates of Teheran, where he proclaimed himself King. Prince Shah, Governor of the town, wished to oppose his entry, but was obliged to retire, owing to Ali Yankhan, general of his army declaring in favor of Mohamet.

LONDON, Monday, May 25.—The *Allgemeine Zeitung* states, that the Shah of Persia had entered Ispahan in triumph, and that the civil war in that kingdom might be considered at an end.

LATER FROM EUROPE.—By the London packet *Philadelphia*, of 1 ult. papers to 31st May are received:

The affairs of Spain furnish the chief topic of interest, and it now seems certain that the rumors heretofore treated rather as stockjobbing inventions, than as founded in truth, of the growing strength of the Carlists, and the proportionate sinking of the Queen's cause, are confirmed.

The Queen has finally applied for the aid stipulated in her behalf by the quadruple treaty; and we are to expect to see a Portuguese force from one quarter, and a French force from another, enter Spain, while England shall have a fleet on the coast to intercept supplies to the Carlists. These, at least, are the stipulations of the treaty, if they be complied with. It is said, however, that *Louis Philippe* is by no means anxious to fulfil his part, of sending an army of fifty thousand Frenchmen into Spain, to sustain a cause which, as not being well looked upon by the Northern powers, he, too, is careless about.

In England the Ministry have sustained another defeat in their candidate for South Staffordshire, Sir E. Goodricke, Tory, being elected, after a hard contest, over Col. Anson, the Ministerial candidate.

A Riot ensued at Wolverhampton, which the troops were called in to suppress. They fired upon, and charged the mob, wounding several but not killing any.

Owing to the extent of gambling in foreign securities, especially in Spanish Bonds, great derangements occurred on the London Stock Exchange on settling day, and immense losses were sustained.

From Paris, the dates are of 26th May. Nothing more of our indemnity bill in the House of Peers—which House indeed is said in an extract to have adjourned *sine die*. That, however, is evidently an error—though they may possibly have adjourned the trial of the conspirators.

From late official returns it appears that the number of curates in England, whose salary amounts only to 80l per annum, or less than \$400 is five thousand two hundred and eighty-two! that, too, in a land where the income of the bishop is from \$20,000 to \$100,000 per annum.

SLAVE TRADE.—On the motion of Mr. Buxton, in the House of Commons, an address to the King was agreed to, requesting his Majesty to take effectual measures to put an end to the slave trade, by endeavoring to form such treaties with foreign nations as will extend the limits of the right of searching slave vessels to the whole of the Western and Eastern coasts of Africa and the island of Madagascar, allow the vessels captured to be broken up, and declare the trade in slaves to be piracy. Mr. Hume seconded the motion; which Mr. Spring Rice did not oppose; though he said that treaties were actually pending with Spain and Por-

tugal, having for their object the accomplishment of Mr. Buxton's views.

Mr. Wyse obtained leave to bring in a bill to establish a Board for the advancement of education in Ireland. The object of Mr. Wyse appeared to be to extend the benefits of the Government plan now in operation.

The members of the London Mechanics' Institute assembled on Wednesday, at their theatre in Southampton Buildings. Among the gentlemen on the platform, were Sir Francis Burdett, Mr. Hume, Mr. Harvy, Mr. Tooke, and Mr. Robert Owing. Dr. Birkbeck took the chair, and delivered the prize to the members. Sir Francis Burdett addressed the meeting in praise of the objects of the Society; after which several resolutions were carried.

A TURK CONFORMING TO CHRISTIAN USAGES.—A dinner was given by the merchants of London engaged in the Levant trade, to Nourri Effendi, the recently arrived Ambassador from the Court of Turkey. It was attended by upwards of a hundred of the Levant merchants; among whom were Sir J. R. Reid, M. P., Mr. Robinson, M. P., and the Lord Mayor. The chairman was Mr. Grant. He explained, that as Nourri Effendi understood no language but his own, and as none of the suite were very conversant with English, it would be necessary for him to propose the toasts in French; his Highness the Prince of Samos, who sat next to his Excellency, having kindly undertaken to convey their meaning in Turkish. In the course of the evening, the reserve of the Turk yielded to the conviviality which reigned around, and among the happiest of those present none appeared more happy than Nourri Effendi; who drank wine and cheered as the toasts were given, as heartily as any English foxhunter, in happy forgetfulness of the Prophet's commands.

The eight Metropolitan Water Works, which supply London, furnished in 1833, thirty-five million gallons daily! Upwards of three millions sterling, or about thirteen millions and a half dollars, had been expended on the works—yet a fresh water river, the Thames, runs through the city.

At the beginning of the present century (1800) there were not more than forty Catholic Chapels throughout England. There are now (1835) more than five hundred! some of them built on a large scale—quite cathedrals—and it is also true that these edifices are multiplying every month.—[Dublin Journal.]

FRENCH ARMY.—The following data, from the *Annuaire Militaire* show that the estimates of the French army are smaller than the last year of the Restoration. In 1830 the infantry consisted of 34 battalions of the guards, 64 regiments of the line, making 192 battalions; 29 regiments of light infantry, consisting of 44 battalions; foreign legion, 3 battalions; 4 Swiss regiments, or 12 battalions;—total, 275. In 1834, 67 regiments of the line, or 201 battalions; 21 light infantry, or 63 battalions; foreign legion 6 battalions;—total 270, being 5 battalions less than in 1830. The reduction is still more sensible in the cavalry. In 1830, cavalry of the guard, 8 regiments or 48 squadrons; 4 companies of body guards, or 8 squadrons; gendarmes d'élite, 2 squadrons; carabiniers, 13 squadrons; 10 regiments of cuirassiers, or 48 squadrons; dragons, 12 regiments, or 72 squadrons; chasseurs, 18 regiments, or 108 squadrons; hussars, 6 regiments, or 24 squadrons;—total 322. In 1835, 50 cavalry regiments, or 250 squadrons; 72 less than in 1830.—[Baltimore Gazette.]

DOMESTIC INTELLIGENCE.

Mr. LIVINGSTON, the Minister of the United States to France, arrived in this city on Friday night from New York, and is still here. On his way to this city, he received various marks of regard from his fellow citizens, and, among them, an invitation to a Public Dinner, which he accepted, from a number of political friends at Philadelphia.—[Nat. Intelligencer.]

We understand that Dr. Samuel Moore has resigned the office of Director of the Mint of the United States, to take effect on the first of the next month, and that Robert M. Patterson, M. D., of the University of Virginia, has been appointed to succeed him.—[Globe.]

LARGE DIVIDEND.—The Atlantic Insurance Company of this city, yesterday, declared a divi-

dend of ten per cent. for the last six months, payable on the 7th inst.

LAW OF PRINTERS.—We learn from a gentleman who was present, that in the case of Arnolds vs. Clifford, tried at Newport last week, Judge Story, upon an incidental point, stated, that a promise on the part of the writer of a libel to indemnify the printer of it against any damage he might sustain for printing, could not be enforced. Even if a bond were taken, that would be void.—[Daily Ad.]

The curious phenomenon of the Water Spout was witnessed on Sunday evening, about 6 o'clock, by hundreds of our fellow-citizens. It was formed near the lower extremity of the Ohio Falls. According to those, who saw the formation, a cone, in the shape of a trumpet, descended towards the river from a thick dark thunder-cloud, and at the same time, the agitated waters beneath whirled round and ascended with a spiral motion in the form of vapor, till they united with the cone of the cloud, when the whole column moved rapidly and majestically about a mile and a half up the river, where it struck the woods in Indiana, nearly opposite to this city, and disappeared. The whirlwind then passed over a part of Jeffersonville, unroofing houses and doing other damage, but soon struck the river a second time, forming another water spout, which crossed the river to the Kentucky side and disappeared a short distance above Geiger's Mills. On both sides of the river, the whirlwind's path is marked with desolation.—[Louisville Journal.]

TORNADO.—We learn by a letter from a gentleman in Liberty, in this county, that the eastern part of that town and the western part of Never-sink were, on Friday evening last before it was quite dark visited by a tornado, unprecedented in violence in that part of the country. It first vented its fury on the farm of Judge Crary, tearing up by the roots some of his most valuable apple trees, thirty or forty in number, destroying the shade trees near his dwelling house, and prostrating a large portion of his fences. The next place where much damage was done was the farm of Mr. Benjamin B. Krum, where two large hay houses were levelled with the ground; his barn was also injured; a few sheep were also killed. The hurricane thence passed to the farm of Mr. Phillip Leroy, killing a cow in its progress, and tearing from the ground rocks which, it is said two yoke of oxen could not have drawn out. About two miles further a new barn, belonging to Mr. Bently was blown down, and on the farm adjoining, belonging to Doctor B. Wales, a large building enclosing a cider mill and press, and another small building were entirely demolished. The house of Dr. Wales also received some injury. We have heard nothing of the further progress of the tornado in this direction and it seems soon after to have spent its force.—The stream of wind seems to have been about fifteen rods in width, accompanied with a dreadful noise, vivid and continued flashes of lightning and heavy thunder. The violence of the wind is almost beyond belief. Pieces of the cider mill of Dr. Wales, and the barn of Mr. Bently were carried to the distance of nearly a mile. Apple trees were blown several rods from the places where they stood, and in some places, it is stated that the grass was cut as smooth as could have been done with a scythe.

We learn from another source that the tornado extended its ravages into the town of Rockland.—A barn belonging to the Messrs. Waterbury was prostrated, and a large quantity of timber trees were blown down. A cow belonging to Mr. Israel Dodge and an ox of Mr. F. Smith were killed. We have not heard that any person has been either killed or injured.—[Monticello Herald.]

On Saturday afternoon our city was visited by a very heavy gust of rain, accompanied with thunder and lightning. The rain commenced falling about half past six, and was preceded by a violent whirlwind, which passed over without doing any material damage to property. In Albemarle street, two three-story houses, covered with tin, were unroofed, and a poplar tree immediately in front of them was blown down, but no person was hurt. The houses were occupied by Mr. John Fisher, and Mrs. Briscoe.

We regret to state the occurrence of a very serious accident immediately after the rain commenced. A number of persons took shelter in the Court House, and while there the electric fluid struck one of the chimneys and knocked it down among them. One of the bricks fell on the head

of a son of Chief Justice Marshall, and fractured his skull. Medical aid was immediately called, and we learn that though he now lies in a very dangerous condition, there is nevertheless some hope that he may survive.—[Baltimore American.]

STEAM FACTORY.—In the town of Newport are two Steam Cotton factories now in operation, and another is immediately to be built upon a large scale, being two hundred feet long by forty wide.—Those engaged in these enterprises say they have by practice demonstrated that it is cheaper to use steam power in the midst of a dense population, than to use water power, which often makes it necessary not only to build a factory but a town also. There is transportation, and various other items, which come into the account on one side or the other.—[Jour. of Commerce.]

Great excitement is said to prevail in Matamoras among the foreigners in consequence of the imprisonment of Messrs. Boyd and Lee, American merchants, and the subsequent harsh treatment they received. The Mercurio of Matamoras says that a few days before, the Parish Priest while conveying the sacrament in the usual cortege to the house of a sick person, was met by the above named gentlemen, who did not pay to the procession those marks of reverence which are customary. The Priest, irritated, appealed to the spectators, ordered them to seize Messrs. Boyd and Lee, and throw them into dungeon, which was done without the least hesitation on the part of the people, or interference on the part of the magistrates.

A correspondent of the Army and Navy Chronicle furnishes the following information respecting the movements of the U. S. Dragoons on our western frontier.

PORT LEAVENWORTH, 29th May, 1835.

Dear Sir:—For the information of your military readers, as well as those who have relatives and friends amongst the dragoons at this post, you can, if you think proper, say, in your next Chronicle, that Captain Hunter, with his company "D," about forty men, and wife, left here yesterday for his summer's tramp, as directed by the general order for the disposition of the dragoon regiment.—Mrs. H. has a saddle horse and small covered dearborn for her own use, and intends passing the summer in the field with her husband; she is an amiable and charming lady, and, as you may well conceive, a good soldier.

The officers with Captain H. are Lieutenants Moore and Ury, the latter acting commissary of subsistence, &c., a citizen, Doctor Wood, is employed for this company.

Colonel Dodge, with the remaining three companies "A," "C," and "G," consisting of about 100 men, in all, marched to-day. The officers with him are Lieutenants Kingsbury, Acting Adjutant; Terrett, Assistant Commissary of Subsistence; Lieutenant Steen, Ordnance Officer, in charge of two swivels mounted on wheels; and Assistant Surgeon B. F. Fellowes, U. S. Army; Captains Ford and Duncan, and Lieutenant Lupton, commanding companies; and Lieut. Wheelock, doing duty in company "C."

Colonel Dodge's route will probably be by the way of the Otto village, near the Platte river and Council Bluffs, to the "Pawnees" and "Aurickaree's;" and from thence the colonel intends to penetrate, as far as the season will admit of, into the "Blackfoot" country, to the north; and, if possible, obtain an interview with these Indians. He will also seek a meeting with the "Crows," who inhabit the region to the southwest of the Blackfoot, in the vicinity of the Rocky Mountains, near the head waters of the Yellowstone river.

Colonel Dodge takes with him, on pack mules, provisions for sixty days, and about twenty head of beef cattle. Two ox teams, loaded with flour, also go with the command as far as the Pawnee villages, when the flour will be distributed amongst the packs, and the teams discharged.

Major Dougherty, Indian Agent, who is intimately acquainted with the country over which the troops will march, and so well and favorably known for his acquaintance with the Indians, has volunteered his services to Colonel Dodge, and will accompany the dragoons on their expedition.

The horses are in good order, and the men in fine spirits, and all the officers anticipate an interesting tramp.

[From the Providence (R. I.) Journal.]

THE LAST OF THE TEA PARTY.—Last Friday we had the satisfaction of seeing and conversing with the only survivor of that daring band of patriots, who offered the first open resistance to the oppressions of the British Crown, the venerable Joseph Robert Twelves Hughes. Mr. Hughes was passing through Providence, from his residence Otsego county, New York, to attend the anniversary celebration of the independence of his country at Boston, whither he had been invited as the city's guest.

He was born in Massachusetts on the 5th of September, 1735, and on the 4th of July will want only sixty-three days of being one hundred years old.—His youngest son, the fifteenth of his children, and apparently about forty years old, was with him.—We have seen many men of seventy who appeared as old as Mr. Hughes. His voice was strong, his stature quite erect, and his step comparatively firm. He was evidently, even at this age, a brave, high spirited, warm hearted man, whose tongue was never controlled by ceremony, and whose manners have not been moulded by the fashion of any day. His etiquette may be tea party etiquette, but it was not acquired at tea parties in Beacon street or Broadway. The venerable Moses Brown, almost his compeer in years, called upon him and was introduced.—The contrast between the mild, gentlemanly mien of the patriarchal Friend, and the rough address of the veteran hero, was strikingly apparent.—The one was an apt personification of brazen fronted War, the other the dignified representative of gentle Peace.

During the Revolutionary war Mr. Hughes sailed out of Providence in an armed sloop, owned by John Brown, captured three prizes, and brought them into port. Our interview with him was so short that we had not an opportunity of ascertaining the other achievements of his protracted life.

The first person he inquired for on arriving here was the late Mr. George Freeman of this city, whom he says he named when an infant, and who died about ten years ago, at an age of upwards of fifty years.

EXPEDITIOUS TRAVELLING TO RUSSIA.—A passenger who arrived at Havre in the packet ship Charlemagne, embarked the same day in the Steamer packet for Hamburg, which performs the passage in 50 hours, when they take the stage for Lubeck, drive there in six hours, and then embark in the General Steam Navigation Co.'s Packet for St. Petersburg, where they arrive on the fourth day—thus making a voyage from New-York to St. Petersburg, in less than 25 days.—[Jour. of Com.]

The Captain of the brig Falcon, at Baltimore, which left Rio Grande May 13, reports that one tenth of the inhabitants died in the months of March and April, of Cholera. Markets for all kinds of American produce glutted, and country produce very scarce and high.

On the Loss of a Child in Infancy.

"They only can be said to possess a child forever, who have lost one in infancy."

Our beautiful child we laid amidst the silence of the dead, We heaped the earth and spread the turf above the Cherub head;

We turned again to sunny life, to other ties as dear, And the world has thought us comforted when we have dried the tear.

And time has rolled his onward tide, and in his ample sweep, Has poured along the happiest paths, vicissitudes and change.

The flexible forms of infancy their earliest leaves have shed, And the tall and stately forest trees are waving in their stead. We guide not now our children's steps as we were wont before,

For they have sprung to warrior men, they lean on us no more, We gaze upon the lofty brow, and time sad thought have cast

A shade through which we seek in vain the memory of the past.

And do we mourn the utter change which mocks our memory here?

Oh no! 'tis but the answered wish of many a secret prayer, Centre of all our dearest hopes, we live but in their arms; But our love, as to a little child, how can it be the same?

We still have one, an only one, secure in sacred trust; It is the lone and lovely one, that's sleeping in the dust; We fold it in our arms again; we see it by our side, In the helplessness of innocence, which sin has never used.

All earthly trust, all mortal years, however light they fly, But darken on the glowing cheek and dim the eagle eye; But thou, our bright, unwithering flower, our spirit's hoarded store,

We keep through every chance and change, the same forever more.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of EIGHT pages, devoted mainly to the subject of internal improvements, in all its various modes and forms. Three volumes were completed in December, 1834, and the 4th volume is now in progress.

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Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.13 ly

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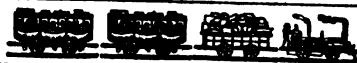
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son at	Ferry at
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2 $\frac{1}{2}$ " " " " " " " "	11 $\frac{1}{2}$ " " " " " " " "
5 $\frac{1}{2}$ " " " " " " " "	8 " " " " " " " "
6 $\frac{1}{2}$ " " " " " " " "	6 $\frac{1}{2}$ " " " " " " " "

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Pateron at 5 $\frac{1}{2}$ o'clock, A. M. by Steam,	5 $\frac{1}{2}$ o'clock, A. M. by Horses,
8 " " " " " " " "	8 " " " " " " " "
11 $\frac{1}{2}$ " " " " " " " "	11 $\frac{1}{2}$ " " " " " " " "
New York at 8 o'clock, A. M. by Steam,	8 o'clock, A. M. by Horses,
11 $\frac{1}{2}$ " " " " " " " "	11 $\frac{1}{2}$ " " " " " " " "
2 $\frac{1}{2}$ " " " " " " " "	2 $\frac{1}{2}$ " " " " " " " "
5 $\frac{1}{2}$ " " " " " " " "	5 $\frac{1}{2}$ " " " " " " " "

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AMERICAN
RAILROAD JOURNAL,

AND

ADVOCATE OF INTERNAL IMPROVEMENTS.

JULY, 1835, TO JANUARY, 1836.

VOL. IV.—PART II.

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Price, five dollars per annum, in advance.

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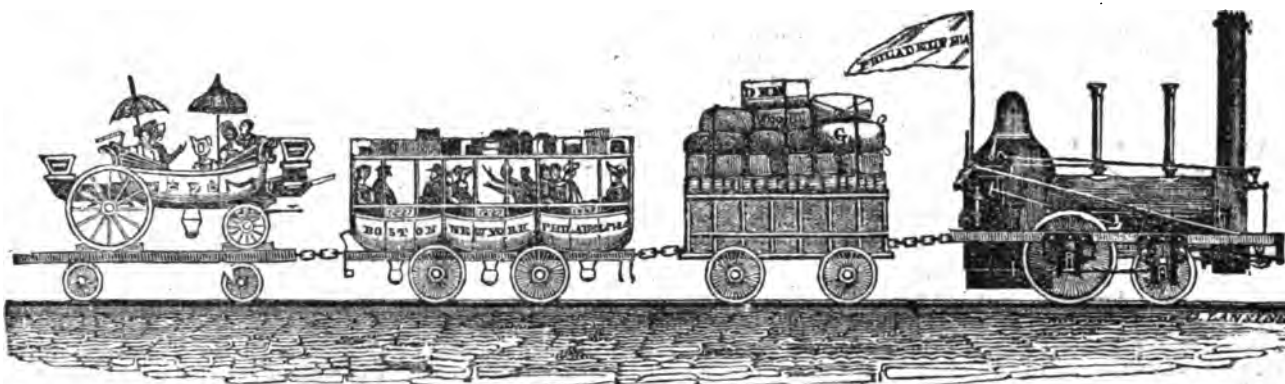
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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JULY 11, 1835.

We would call the especial attention of our readers to the annexed notice of a meeting held at Owego, in June, calling a RAILROAD CONVENTION, to be held in that place on the 28th of the present month, July. The importance of the object of the Convention, to wit, the *New-York & Erie Railroad*, will unquestionably command the attention of the inhabitants of this city, as well as other sections of the State, interested in its furtherance.

RAILROAD MEETING.—At a meeting of the inhabitants of the county of Tioga, convened at the Court House in the village of Owego, on the 13th June, 1835, to choose delegates to represent this county, in a convention to be held at the village of Owego on the 29th July next, to take into consideration the projected Railroad from New-York to Lake Erie,—the Hon. John R. Drake was chosen President, Theodore North and Geo. Fisher, Vice Presidents, and E. S. Sweet and James Dunn, Secretaries.

Resolved, That a committee of four be appointed to report nominations of suitable persons for delegates. The committee retired and reported the following persons, who were unanimously appointed. From the Western Jury district, Theodore North, H. Luce, Wm. Maxwell, James Dunn, John Arnot, M. McReynolds, Hiram W. Jackson, E. Quinn, Charles Cook, J. G. McDowell, Jacob Westlake, C. Bennett, George Gardner.

From the Eastern Jury district, James Pumpelly, George Fisher, J. R. Drake, L. A. Burrows, Stephen Strong, Henry McCormick, S. B. Leonard, Saml. Baragar, G. H. Barstow, Wm. Ransom, Elijah Shoemaker, Thomas Pearshall.—[Owego Gazette.]

[From the Buffalo Com. Advertiser.]

NEW LINE OF CANAL PACKETS.—We have been quite remiss in omitting to notice this new enterprise. For about two weeks past, a line has been running between this city and Rochester, performing the distance in about half the time heretofore consumed in making the passage by the ordinary packets. The great augmentation of speed is obtained by constructing the boats on a new plan, in which swiftness is especially consulted. They are built considerably narrower than the common boats very sharp at the bows, and exceedingly light; and it is found that the same power necessary to impel the common packets at the rate of four miles an hour, will enable those of the improved construction to move with double the velocity.

The originator of this improvement is Captain Seth C. Jones, of Rochester, who has been some time of the opinion that a boat might be so constructed as to be drawn by horse power at the rate of ten or twelve miles an hour. He accordingly tried the experiment, and found his expectations fully realized. It is demonstrated that when moving at the rate of seven or eight miles an hour, these boats ride upon the swell created, and thus receive a constant onward impetus, instead of laboring at the base of the wave, pushing it forward, instead of surmounting it.

The tow boats plying between this city and Rochester, are the "S. C. Jones" and "Ohio," both of which are elegantly and tastefully fitted up,—one leaving every afternoon, for the present, at 5 o'clock, P. M.

As there is a regulation prohibiting the running, of boats on the canal at a rate exceeding four miles an hour, for the prevention of injury to its banks by excessive agitation of the water, application has been made to the Canal Board for permission to run these boats at the rate of ten miles an hour—as the swell created by them at that velocity is not greater than would be caused by common boats, at the ordinary rate. Should this permission be granted, as there is every reason to anticipate, two additional boats, of larger size, will be immediately added to the line. Those now running, average between seven and eight miles the hour. It having been stated that they made the passage through by *day-light*, it may be proper to mention that it is contemplated to do it, as soon as permission is obtained to that effect.

Capt. Jones is now on a visit to the cities of New York, Baltimore, and Philadelphia, for the purpose of procuring the information necessary to enable him to construct a *sheet iron Packet Boat*, on the plan of those used in England; a model of which he intends bringing with him on his return, with a view of testing their practical adaptation to our own canal navigation. His enterprise is commendable and deserves success.

QUICK CANAL PASSAGE.—The Canal Boat Albany, Capt. Bromley, of the Transportation Line, made her last trip from Buffalo to this city, in *four days and a half*.—[Alb. Eve. Jour.]

[For the American Railroad Journal.]

Foot Railroads.

It is proposed to show in this article, that railroads for short distances may be used to advantage by men to transport themselves and moderate loads by their own strength.

1. In showing this, I may first state the force of traction required on railroads. The force of traction is measured by a weight suspended to a cord passing over a pulley. The traction, or tractive power of a horse, is said to be 125 pounds, because a horse at his ordinary labor draws with a force sufficient to raise up 125 pounds by a cord over a pulley. The tractive power necessary to move waggons on common roads, and cars on railroads, has been very accurately ascertained. If a waggon with its load weighs 2400 pounds, then, if a weight of 300 pounds is suspended to a cord passing over a pulley, which cord draws the waggon, this weight would move the waggon forward on a good level turnpike road. But a car on a level railroad, weighing with its load 2400 pounds, would be moved forward by a weight of only ten pounds, suspended to a cord running over a pulley. If then a man could draw up a weight of ten pounds, he could, with the same rapidity that it ascends, move forward, on a level railroad, a car and its load weighing together 2400 pounds. If he could draw ten pounds up ten feet in a second, he could move the car and its load ten feet in a second; and if he could do this for an hour in succession, he could then move forward the car and its load 3600 feet in the hour. But if the railroad rises but 32 feet in a mile, the traction of 10 pounds will not move 2400 pounds up this ascent; but the traction of 10 pounds must be added, or the traction of 20 pounds will be needed; and if the ascent is 44 feet in a mile, another additional traction of 10 lbs. must be made, or there must be a traction of 30 pounds. The traction of 10 pounds, at 10 feet in a second, might be made to operate on a car 20 feet in a second; but the traction of ten pounds would not move a car weighing 2400 pounds 20 feet in a second, for it would propel only half the weight, or 1200; and if the traction of 10 pounds, at 10 feet in a second, were made to move a car 40 feet in a second, it would propel a car at this rate, weighing only 600 pounds. With the same power with which a weight of 2400 pounds is moved forward on a level railroad 3600 feet, a weight of

600 pounds might be propelled four times that distance, or 14,400 feet.

2. What now is the power ordinarily exerted by a laboring man? Different estimates are made of this power. By Dr. Farey, a recent writer on the steam engine, the power of man is assumed to be equal to the raising of 60 cubic feet of water, which is equal to 3750 lbs. avoirdupois, through the space or height of one foot in a minute. A stout laborer, says Dr. Farey, will continue to work at this rate during eight hours per day. The relative values of the labor of a man and a horse, as to physical strength exerted, are variously stated. Some estimate them as 1 to 5, some as 1 to 6, and some as 1 to 7. The efforts of men differ with the manner in which these efforts are employed. It has been estimated by Mr. Buchanan, that the same quantity of human labor employed in working a pump, turning a crank, ringing a bell, and rowing a boat, are as the numbers 100, 167, 227, 248. The strength of man could be applied in the most economical way on a railroad, and so as to act with even more efficiency than in rowing a boat. He might sit in a reclining posture like a man pulling an oar, with his feet pushing against the flat boards of a small wheel, and by his hands drawing upon the slats of a drum wheel, instead of drawing upon an oar, while the wheel on which his feet operate, and that on which his hands operate, act on the same working point. This machinery might occupy but about the space filled by two chairs, or very little more than is required by one man to sit at his ease.

Attempts have been made to construct carriages by which a man might propel himself on common roads; but a knowledge of the power of traction necessary on common roads, would show that this is wholly impracticable. If a man's weight is 175 pounds, it would require an additional tractive power of 14½ to move himself on a common road, while this additional power would of itself alone move forward on a level railroad 3480 pounds; but for a man to move himself forward on a level railroad would require an additional traction of only two thirds of a pound, if his weight is 175 pounds.

If a laboring man ordinarily exerts strength sufficient to raise 3750 pounds 10 feet high in a minute, then he could propel 3750 pounds 240 feet in a minute, or half a mile in 12 minutes; or he could propel 937 pounds one mile in six minutes, or ten miles in an hour, and do this for eight hours in a day.

3. The attention may now be directed to the various occasions persons have to go, or to carry goods for short distances. Among the new and striking circumstances that in the city arrest the visitor from the country, is the throng of carts, and carriages, and horses, crowding the streets, and stunning his ears. This fact shows that there is a vast amount of conveyance of persons and loads from one part of a city to another. While such an amount of transportation is demanded by the necessities and convenience of the people of a city, it is manifest that railroads along some principal streets, reducing the freight of goods and persons to one tenth, or one third of its present cost, would be an immense gain to the community. The result would be that much mechanic business needed in a city would be done at a distance, where there was more room, and where on many accounts it could be done to more advantage. By the railroad the mechanic would be as near his customers four miles off, as he is now one

third of a mile. From a centre of business a man might transport himself with great ease several miles for his food and lodging, since, as easily as he would walk up stairs, or up a hill, 22 feet, with two pounds weight in his hand, he could move forward a mile on a level railroad, transporting himself, whatever is his weight, and moving his car also weighing 480 lbs. Or, supposing that it is about as fatiguing to a man to walk at the rate of three miles an hour, as to work for that time with the strength of a laboring man, then, as easily as he could walk one mile to his lodgings or home, he could propel himself and car, weighing together 625 pounds, 4½ miles on a level railroad, and in the same time that he could walk a third of a mile. In the country an immense advantage would accrue from light and cheap railroads to centres of business, to get to stores, to physicians, to schools, to public lectures, and meetings, and to religious assemblies.

The influence of such means of communication on intellectual, moral, and religious improvement, I would set above all other advantages. The greatest mental and moral debasement is found in remote country neighborhoods, and in dark city lanes, and in their deep cellars.

4. The position of places of business is ordinarily such that they can be accommodated to a great extent by level railroads. Cities are commonly built on navigable waters; and the business in them is done along a water line, and here are ranged the workshops and stores. Railroads from the country will naturally terminate on this level, for they must be kept on low ground, and in the valleys of streams, which keep the lowest and most level courses. The railroads from Providence and Worcester terminate in Boston at what was once the neck, from whence very level rail paths might extend to the principal wharves, and indeed around the whole city. Rail tracks, extending from the termination of these railroads over the city, would greatly promote the success of the railroads, for, on a level track, a horse might draw several cars and loads, weighing together 12 tons. A car might receive the passengers directly from the steamboat, or travellers might enter one at their hotel, and without being delayed by the long process of getting seated at the head of the railroad, the cars, all loaded, might meet almost at the minute from different quarters, and pursue their course without hindrance.

Slight and cheap lines of railroad for the application of human power, intersecting the city and country, will accommodate especially the great body of the middling and poor classes, and may thus do as much good as the grand and heavy railroads, on which the ponderous cars of three and four tons weight are rolling; and they may add vastly to the business of these main channels of communication. If there are to be conveyed loads of 50, 100, 200, or 500 pounds, porters could convey them as easily on their light cars on rail tracks, as they could walk on a common road without any burden. To draw a load of 480 lbs. a man has to exert only the power that would raise two pounds over a pulley; and to move himself also on his load, he would have to exert only the additional tractive power of one third of a pound. The effect of cheap rail tracks would be as though a railroad terminated at each man's door.

By these facilities of communication, both the country and the town would be benefited. Labor is nearly double in the city what it is in the country; and this is a loss to

the laborer and the employer. It is a loss to the employer, because the labor he gets costs him so much; and it is a loss to the laborer, because his expenses are great and his accommodations poor. It is a loss also to the laborer in the country, because he cannot get the products of his labor to market without losing a great part of their value. The expense of transportation is a dead loss to the public; and by how much this expense is reduced, by so much is the whole public benefitted.

PUBLICOLA.

Experiments on the Transverse Strength and other Properties of Malleable Iron, with Reference to its Uses for Railway Bars. By PETER BARLOW, F. R. S., Cor. Mem. Inst. of France; of the Imp. and Roy. Acad. of Petersburg and Brussels, etc.

(Continued.)

Collecting the results of these seven experiments, (see opposite page,) and reducing them all to square inches, we find that the strain which was just sufficient to balance the elasticity of the iron, was in—

Bar, No. 1.	(re-manufactured iron);	10 tons.
" 2.	ditto	11 "
" 3.	New Bolt	11 "
" 4.	ditto	10 "
" 5.	(re-manufactured)	9.5 "
" 6.	ditto, from old furnace bars,	8.25 "
" 7.	New bar, by Messrs. Gordon,	10 "

We may consider, therefore, that the elastic power of good iron is equal to about ten tons per inch, and that this force varies from ten to eight tons in indifferent and bad iron. It appears, also, (considering .000096 as representing in round numbers $\frac{1}{10416}$ th,) that a bar of iron is extended one ten-thousandth part of its length by every ton of direct strain per square inch of its section; and consequently, that its elasticity will be fully excited when stretched to the amount of one-thousandth part of its length.

Remarks on the foregoing Experiments.

These results have an important bearing on the question of railway bars. We shall see, in the following section, how they become applicable to the investigation of the transverse strain; but, at present, I shall only speak of them as they apply to the fixing of the rail to the chair. Amongst the numerous models which the Directors did Messrs. Rastrick, Wood, and myself, the honor to submit to our inspection, for the purpose of awarding their prize, there were several in which it was intended to fix the rail permanently to the chair—a very desirable object, if it could have been safely adopted; and it was the want of data to enable us to decide on this point, which first led me to propose this course of experiments. The question is now satisfactorily answered. We have seen that, with about ten tons per inch, a bar of iron is stretched $\frac{1}{10416}$ th part of its length, and its elasticity wholly excited or surpassed. Again, admitting 76° to be the extreme range of the thermometer in this country between summer and winter, it appears, from the very accurate experiments of Professor Daniell,* that a bar of malleable iron will contract with this change $\frac{1}{1111}$ th part of its length. And hence it follows, that if the rails were permanently fixed to the chair in the summer, the contraction in the winter would bring a strain of five tons per inch upon the bar, and a strain of twenty-five tons upon the chair, (the bar being supposed of five-inch section,) thereby deducting from the iron more than, or

* See Phil. Trans. 1831.

Experiments on the Longitudinal Extension of Malleable Iron Bars, under different Degrees of direct Tension.

TABLE I.

Bar No. 1, 1 inch square. February 21st.			Bar No. 2, 1 inch square. February 21st.		
Weight in Tons.	Index Readings.	Parts of the whole Bar extended by each Ton.	Weight in Tons.	Index Readings.	Parts of the whole Bar extended by each Ton.
2	zero		2	zero	
3	-625	-0000025	3 1/4	-11	-0000733
4	-136	-0000035	4	-15	-0000800
5	-365	-0001060	5	-24	-0000900
6	-375	-0001100	6	-35	-0001100
7	not observed	mean.	7	-44	-0000900
8	-562	-0000935	8	-52	-0000800
9	not observed	mean.	9	-62	-0001000
10	-750	-0000940	10	-70	-0000800
11	-875	-0001250	11	-81	-0001100
			12	1-13	{ Elasticity } { injured. }

Bar No. 3, 1 inch diameter. February 23d.			Bar No. 4, 1 inch diameter. February 23d.		
Weight in Tons.	Index Readings.	Parts of the whole Bar extended by each Ton.	Weight in Tons.	Index Readings.	Parts of the whole Bar extended by each Ton.
1	zero		1	zero	
2	-16	-0001600	2	-15	-0001500
3	-31	-0001590	2	-28	-0001300
4	-44	-0001300	4	-42	-0001400
5	-56	-0001200	5	-56	-0001400
6	-67	-0001100	6	-69	-0001300
7	-79	-0001200	8	-79	-0001000
8	-91	-0001200	7	-97	-0000800
9	-103	-0001200	9	-116	{ Elasticity } { destroyed }

Mean extension per ton, per square inch,
 Bar No. 1. -0000962
 No. 2. -0000903
 No. 3. -0001019
 No. 4. -0000976

Mean of the four . . . -0000967

TABLE II.

Bar No. 5, 2 inches square. February 28th.			Bar No. 6, 2 inches square. February 28th.			Bar No. 7, 2 inches square. March 7th.		
Weight in Tons.	Index Readings.	Parts of the whole bar extended by each 4 tons.	Weight in Tons.	Index Readings.	Parts of the whole bar extended by each 4 tons.	Weight in Tons.	Index Readings.	Parts of the whole bar extended by each 4 tons.
4	zero		4	zero		4	zero	
6	-100		6	-090		6	-065	
8	-180	-000180	8	-150	-000150	8	-125	-000125
10	-240	-000140	10	-210	-000120	10	-175	-000110
12	-290	-000110	12	-250	-000100	12	-230	-000050
14	-350	-000110	14	-290	-000080	14	-280	-000050
16	-400	-000110	16	-335	-000085	16	-385	-000060
18	-450	-000110	18	-375	-000080	18	-385	-000105
20	-500	-000100	20	-410	-000075	20	-435	-000100
22	-550	-000100	22	-445	-000070	22	-480	-000095
24	-600	-000100	24	-485	-000075	24	-530	-000095
26	-650	-000100	26	-525	-000080	26	-575	-000095
28	-695	-000095	28	-565	-000080	28	-625	-000095
30	-740	-000090	30	-620	-000095	30	-670	-000095
32	-790	-000095	32	-660	-000095	32	-715	-000090
34	-825	-000085	34	-730	-000110	34	-755	-000085
36	-860	-000075	36		{ Full } { elasticity. }	36	-805	-000090
38	-900	-000095	38			38	-850	-000095
40	-1-03	-000145	40			40	-900	-000095
		{ Elasticity } { destroyed }						{ Elasticity } { perfect. }

Mean extension per ton, per square inch,
 No. 5. -0001082
 No. 6. -0000957
 No. 7. -0000841

Mean . . . -0000946
 Mean of preceding Table -0000967

full half, its strength, and submitting the chair to a strain very likely to destroy it. Every proposition, therefore, for permanently attaching the rail to the chair is wholly inadmissible.

These remarks may also be carried still farther. If it be dangerous to attach the rail *directly* to the chair, it must be bad in practice to affix it *indirectly* by wedges, cotters, or otherwise, beyond what is absolutely essential to give it steadiness under the passing load; for it is evident, that if by these means we could prevent any motion taking place, we should fall into the same evil as by the permanent attachment; and if, as most probably will happen, we fail of entirely accomplishing this, still all the friction which is produced must be overcome by the contracting force of the iron, and be so much strength deducted from its natural resisting power.

The problem, therefore, which engineers have to solve, is, "To find a mode of fixing the rail to the chair, which shall give sufficient steadiness to the former; but which, at the same time, shall produce the least possible resistance to the natural expansion and contraction of the bar."

The quantity of motion which thus takes place is certainly but small, viz. about 1/4th of an inch between summer and winter, with a fifteen-foot bar; but the force of contraction is great, amounting to five tons per sectional inch for the annual extremes, and frequently to not less than two and a half tons between the noon and night of our summer season, while the whole power of iron within the limits of its elasticity does not exceed nine or ten tons.

This is an important consideration, and for want of attention to it, or rather, in consequence of its amount not having been ascertained, a practice of wedging or fixing the rails has prevailed, which must necessarily have been the cause of great destruction to the bars.

I would also suggest here, as a matter deserving the attention of practical men, that as the bar must necessarily contract, it will draw from that side, which is least firmly fixed, and hence all the shortening will most probably be exhibited at one end, however slight the hold on either may be; and when it happens that the adjacent ends of two bars both yield, the space between the two is rendered double that which is necessary. To avoid this evil, one of the two middle chairs in each bar might be permanently attached to the rail, in which case the contraction must necessarily be made from each end, and the space occasioned by the shortening of the bars would then be uniform throughout, and much unnecessary and injurious concussion thus saved both to the rail and to the carriage.

Experiments to determine the comparative Resistance of Malleable Iron to Extension and the Depression, and the position of the neutral axis in bars submitted to a transverse strain.

Let A B (see figure 1, on the following page) represent an iron or any other bar supported at A and B, and loaded in the middle by a weight W, which deflects it; extending the fibres between n and c d, and compressing those between n and c' d. Now, supposing the system in equilibrium, 1/2 W acting at the extremity of the 1/2 length, or 1/2 l W, is equivalent to the sum of all the resistances to extension in n c d, and to all those of compression in n c' d, each fibre acting on a lever equal to its distance from the neutral axis n. Consequently, as the quantity of extension of any fibre is as its distance from the neutral axis, and the

Fig. 1.

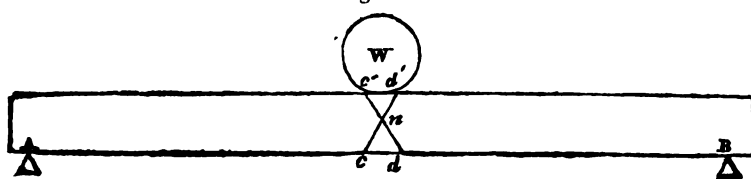
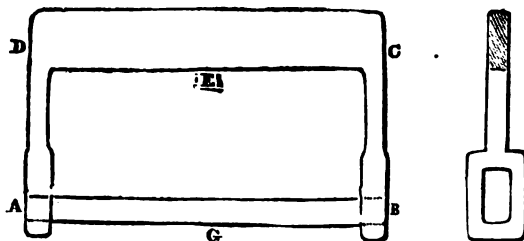


Fig. 2.



lever by which it acts, being also as that distance, the actual resistance of a fibre at the distance, x , is as $\frac{x^2 t}{d'}$, t being the tension of the lower fibre, and d' its depth below the neutral axis; and the sum of all these resistances will be $\int \frac{x^2 d x}{d'} = \frac{1}{3} d' t$, (when $x=d'$) or for the whole depth. In the same way, c being taken to denote the compression of the upper fibre, corresponding to the tension t , the sum of all the compressions will be,

$$\frac{1}{3} d'' t c,$$

d'' denoting the depth of compression; hence the whole sum is,

$$\frac{1}{3} d'' c + \frac{1}{3} d' t = \frac{1}{4} W l;$$

but $d'' c = d' t$, the quantity of resistance being equal to that of extension; this, therefore, becomes

$$\frac{1}{3} d' d' t + \frac{1}{3} d' t = \frac{1}{4} l W, \text{ or}$$

$$\frac{1}{3} (d'' + d') d' t = \frac{1}{4} l W, \text{ or}$$

$$\frac{1}{3} d' d' t = \frac{1}{4} l W;$$

d being the whole depth, and d' the depth of tension; whence,

$$d' = \frac{3 l W}{4 d a b} = \text{depth of tension, and}$$

$$d - d' = \text{the depth of compression,}$$

consequently, $\frac{d'}{d-d'}$ the ratio, in which the neutral axis divides the sectional area in rectangular bars.

Comparison of the Formula with Experimental Results.

In order to submit this formula to practical results, a strong iron frame was forged, of the form shown above, (see figure 2.) D C is thirty-six inches long, six inches broad, by two deep; the two arms two inches square, and the ends of proportional

* To prevent misapprehension, it may be proper to observe that c here is not intended to represent the force requisite to compress a fibre the same quantity that the force t extends it; but simply, the force of the compression at c , corresponding to the tension t on the lower fibre. The equation, therefore, $d'' c = d' t$ is equivalent to saying that the sum of all the forces in $n' c' d'$ is equal to all the forces in $n c d$; or that $a g = n a' g'$; a, a' , denoting the areas, and g, g' the distances of the centres of gravity from n , and taking $n t$ to denote the force which will compress a fibre to the same extent as the force t will extend it.

dimensions to those represented. The other view of the arms is represented in the side figure, with an opening six inches by three, in which the bars for experiment were placed, as represented by A G B; the space between is thirty-three inches. The shackles were applied at E and G, and connected by strong iron cables to the press; the strain was then brought on and the results recorded.

In order to measure with every requisite accuracy, the deflections which the bar sustained, as different weights were applied, an instrument of the form shown in the annexed figure was neatly and accurately



made in iron, having two feet, A D, B C; the centre was tapped to receive the brass screw, H S, of twenty threads to the inch, and the head was divided into five equal parts, and by again subdividing these divisions into ten, a deflection of $\frac{1}{1000}$ of an inch might be measured with great ease.

The method of applying it was to rest its feet on the bar, and then to retain it in its place by cramps and screws. The micrometer screw was then run down till it was in contact with the bar, and the divisions read and registered, either before any strain was on, or when the first slightest strain could be estimated, as stated in the following table.

Experiments made to ascertain the Deflections due to different Transverse Strains, and the Weight which first produces a Strain equal to the Elastic Power, and thence the position of the Neutral Axis.

TABLE III.

PART 1. BAR No. 5.		
Bearing 33 Inches. 2 Inches Square.		
Weight in Tons.	Readings by Scale.*	Deflections for each Half Ton.
No Weight.	1.96	
.875	1.92	.023
1.00	1.90	
1.50	1.90	.016
2.00	1.88	.020
2.50	1.86	.020
Weight removed.	1.96	
3.00	1.80	
Weight removed.	1.88	

* In the first of these experiments the deflections were measured by a scale in front of the bar, the micrometer screw not being ready.

PART 2. BAR No. 5.

Bearing 33 Inches. 2 Inches Square.

Weight in Tons.	Readings by Scale.	Deflections for each Half Ton.
No Weight.	1.95	
.750	1.92	.030
1.00	1.91	.020
1.50	1.89	.020
2.00	1.86	.030
2.50	1.84	.020

Weight removed. } returned to
3.00 } 1.95
Weight removed. } 1.81 } Elasticity injured.

PART 1. BAR No. 6.

Weight in Tons.	Readings by Scale.	Deflections for each Half Ton.
No Weight.		
.50	1.56?	
1.0	1.50	
1.5	1.48	.020
2.0	1.45	.030
2.5	1.24	.210 } Elasticity injured.
3.0		

PART 2. BAR No. 6.

Weight in Tons.	Readings by Micro. Screw.	Deflections for each Half Ton.
No Weight.	.025	
.50	.043	.018
1.0	.068	.025
1.5	.091	.023
2.0	.128	.037 injd.
2.25	.178	.100
2.50	.313	.185

PART 1. BAR No. 7.

Weight in Tons.	Readings by Micro. Screw.	Deflections for each Half Ton.
No Weight.	.031	
.50	.053	.022
1.0	.077	.024
1.5	.096	.019
2.0	.126	.030
2.5	.147	.021
3.0	.211	.064 injd.

PART 2. BAR No. 7.

Weight in Tons.	Readings by Micro. Screw.	Deflections for each Half Ton.
No Weight.	.025	
.50	.056	.031
1.0	.077	.021
1.5	.098	.021
2.0	.109	.011
2.5	.137	.028 injd.
3.0	.180	

PART 3. BAR No. 7.

Weight in Tons.	Readings by Micro. Screw.	Deflections for each Half Ton.
No Weight.	.075?	
.50	.130	
1.0	.156	.023
1.5		.023
2.0	.199	.023
2.5	.230	.021
3.0	.240	.070 injd.

PART 2. BAR No. 7.

Reversed.		
Weight in Tons.	Readings by Micro. Screw.	Deflections for each Half Ton.
No Weight.	.025	
.10	.054	.029
1.0	.092	.038
1.5	.153	.061
2.0	.235	.062

Elasticity clearly injured by the former experiment.

The first six experiments were made on different parts of the bars, Nos. 5, 6, and 7, without cutting them, by introducing them into the iron frame above described (having thirty-three inches clear bearing,) and straining them till the successive deflections showed a tendency to increase in amount, which was taken as a sign of the elasticity being injured; and the amount of this strain having been previously ascertained by the former experiments, they furnish the best possible data to apply to the formula for determining the position of the neutral axis.

It appears from these experiments, that both parts of the Bar No. 5, (whose direct elasticity was 9.5 tons,) had their restoring power just preserved with a transverse strain of two and a half tons on a bearing length of thirty-three inches. Hence in the formula:

$$d' = \frac{3lw}{4dat}$$

we have $l=33$, $w=2\frac{1}{2}$, $d=2$, $a=2$, $t=9.5$, and $d'=1.62$ inches, depth of tension.

Consequently $d''=38$ inches, depth of compression, and the ratio of the area of compression to tension 1 : 4.3

In the first part of Bar No. 6, w is not quite 2 tons, and $t=8.5$ tons; and hence the ratio 1 : 2.7

In the second part of the same bar, ditto 1 : 2.7

In the first, second, and third parts of Bar No. 7, $w=2\frac{1}{2}$ tons, and $t=10$ tons 1 : 3.4

As far as these experiments are authority, therefore, the neutral axis divides the sectional area of a rectangular bar in about the ratio of one to three and a half.

In the following experiments, the iron was all supplied by Messrs. Gordon, and was of the same quality as the Bar No. 7,—its elasticity may therefore be taken as ten tons, but it was not determined by testing, as in the preceding experiments.

TABLE IV.

BAR No. 8.

Distance of bearing.	Breadth.	Depth.	Weights.	Deflections.	Deflections each 1 Ton.	REMARKS.
in.	in.	in.	tons.			
33	1.9	2	1.25	0.034		
			2.50	0.046		
			5.00	0.060		
			1.00 missed.	0.019		
			1.50	0.098	0.019	
			2.00	0.120	0.022	
			2.25	0.134	0.028	$w=2.25$. Neutral axis 1 : 3.4
			2.50	0.151	0.034	
			2.75	0.176	0.044	Elast. inj. with 2.50 T
						Mean .024

BAR No. 9.

33	1.9	2	.250	.047		
			.500	.055	.016	} Mean .021 w=.25. Neutral axis 1:3.4
			1.00	.077	.022	
			1.50	.097	.020	
			2.00	.123	.026	
			2.25	.132	.018	
			2.50	.145	.026	
			2.75	.164	.038	Elast. inj. with 2.50
			3.00	.120	.022	Ditto. dest. with 2.50

BAR No. 10.

33	1.9	2	5.00	0.056		
			1.00	0.076	0.020	} Mean .024 $w=2.5$. Neutral axis 1 : 4.2
			1.50	0.095	0.019	
			2.00	0.124	0.029	
			2.50	0.151	0.027	
			3.00			

Deductions from the three last Experiments, confirmed by direct Observation of the place of the Neutral Axis.

These experiments, like the former, imply, according to the formula, that the neutral axis lies at about one-fourth or one-fifth of the depth of the bar from its upper surface; but a method was adopted in these to discover, if possible, its position mechanically. With this view, a keyway, or groove, was cut in the side of the bar one inch broad, and one-tenth of an inch deep,—thus reducing the breadth to 1.9 inches. To this keyway, or groove, was fitted a steel key, which might be moved easily; and when the strain was on, the key was introduced, which it was expected would be stopped at the point where the compression commenced, and this was accordingly found to be the case in two out of the three bars, but not in the third, the fitting not being sufficiently accurate. The other two, however, showed obviously a contraction of the groove, at about half an inch from the top, agreeing with the preceding computations. To make the results more certain, three other bars, exactly like the former, had deeper grooves cut, and the key more exactly fitted, and with these the results were as definite as could be desired. The key, as above-stated, moved smoothly and easily before the experiment; but when two tons strain were on, and the key applied, it was stopped, and stuck at a definite point. The strain being then relieved, the key fell out by its own weight; the strain was again put on, the key sticking as before; the strain being relieved, the key again fell, and so on, as often as repeated. Precisely the same happened with all the three bars. One of them was then reversed, so that the part which had been compressed was now extended, and exactly the same result followed: showing, most satisfactorily, that our former computed situation of the neutral axis was very approximate. The measurements obtained in these experiments being tension 1.6, compression .4 giving exactly the ratio of 1 to 4 in rectangular bars. These results seem the most positive of any hitherto obtained; still, there can be little doubt this ratio varies in iron of different qualities; but looking to the preceding experiments, it is probably always between 1 to 3, and 1 to 5.

On the Stiffness of Rectangular Iron Bars, and their Deflections under different Weights.

Although it is necessary to know the actual resisting power of bars in their ultimate state of strain, in order to determine the relative strengths of differently-shaped bars, yet the question of most practical importance is the stiffness they exhibit when loaded with smaller weights; for we ought never to strain a bar so nearly to its full power of bearing, as to make this the immediate subject of inquiry.

The experiments recorded in the last section are applicable to this purpose, but as these are all of the same depth, it was thought more satisfactory to make a few other experiments on bars of different breadths and depths. They were performed precisely like the last, and therefore require no particular description.

To reduce the law of deflection from these results, we may have recourse to two well known and well established formulæ: viz.

$$\frac{lw}{4ad^2} = S \text{ and } \frac{l^3w}{ad^3\delta} = E,$$

which are both constant quantities for the same material, w being the greatest weight

Experiments on the Deflection of Malleable Iron Bars, under different Strains.

TABLE V.
BAR No. 11.

Distance of bearing.	Breadth.	Depth.	Weights.	Deflections.	Deflections each 1 Ton.	REMARKS.
in.	in.	in.	tons.			
33	1.5	3	1.25	0.043		
			5.00	0.059		
			1.00	0.074	0.015	
			1.50	0.083	0.009	
			2.00	0.095	0.012	
			2.50	0.101	0.006	
			3.00	0.109	0.008	
			3.50	0.120	0.011	
			4.00	0.131	0.011	
			4.50	0.148	0.017	
						Mean .0103
						$w=4\frac{1}{2}$. Neutral axis 1 : 4.9
						Elast. pres. at 4½ tons.

BAR No. 12.

33	1.5	3	0	0		
			5.00	0.017		
			1.00	0.037		
			1.50	0.052	0.015	
			2.00	0.061	0.009	
			2.50	0.064	0.003	
			3.00	0.078	0.014	
			3.50	0.089	0.011	
			4.00	0.102	0.013	
			4.50	0.124	0.022	
						Mean .0108
						$w=4\frac{1}{2}$. Neutral axis 1 : 4.9
						Elasticity injured.

BAR No. 13.

33	1.5	2.5	0	.006		
			.50	.003	.024	} Mean .0173 w = 3. Neutral axis 1 : 4.9 Elasticity pre- served, 3 tons.
			1.00	.050	.020	
			1.50	.060	.010	
			2.00	.074	.014	
			2.50	.093	.019	
			3.00	.110	.017	
			3.50	.149		
			7.5	Bent 8	inches.	

the bar will bear without injuring the elasticity; consequently, when l is also the same in both, $d\delta$ will be also constant, a being the breadth, d the depth, and δ the deflection. That is, all rectangular bars having the same bearing, length, and loaded in their centre to the full extent of their elastic power, will be so deflected, that their deflection (δ) being multiplied by their depth (d) the product will be a constant quantity, whatever may be their breadths or other dimensions, provided their lengths are the same.

Let us see how nearly our several results agree with this condition.

In the several bars, Nos. 8, 9, 10, 11, 12, 13, multiplying the mean deflection for each half ton, by the number of half tons which excited its whole elasticity, and this again by the depth of the bar, we find

	Depth.	
No. 8, ultimate deflection	$1.08 \times 2 = 2.160$	
No. 9	$0.04 \times 2 = 1.880$	
No. 10	$0.120 \times 2 = 2.400$	
No. 11	$0.076 \times 3 = 2.283$	
No. 12	$0.018 \times 3 = 2.754$	
No. 13	$0.038 \times 2\frac{1}{2} = 2.595$	

6) 1.4417

Mean 2.2403

There is rather a large discrepancy in bar No. 9; the others are as approximative to the mean as can be expected in such cases.

If we make the same trial on the three parts of bar No. 7, we have,

1st part .116	×	2	=	.2320
2d part .105	×	2	=	.2100
3d part .115	×	2	=	.2300

3) 6720

Mean	-	-	-	.2240
Former Mean	-	-	-	.2403

2) 4647

General Mean - - - .2323

We may therefore say, that any malleable iron bar, of 33 inches bearing, being strained to its full elasticity, will be so deformed, that its depth, multiplied by the deflection, due to 30 inches, will produce the decimal .23; consequently $\frac{.23}{d}$ = the deflec-

tion, d being the whole depth in inches.

In this form, however, it applies only to rectangular bars. To make it general, we must estimate it from the neutral axis, which in rectangular bars, being $\frac{1}{4}$ th of the depth below the upper surface, the above constant, when thus referred, becomes $.2323 \times \frac{3}{4} = .1858$. But, on the other hand, our instrument for measuring the deflection was but 30 inches long; it has therefore to be increased again in the ratio $30^2 : 33^2$, or as $10^2 : 11^2$ on this account; so that, ultimately, the formula is $d' \delta = .22 d$ denoting now the depth of the bar below the neutral axis, and in this form it is general for parallel rails of any section whatever.

A curious circumstance was observed in these experiments, which, although it has no immediate bearing on the subject in question, it may be well to notice, and which is, I apprehend, characteristic of good malleable iron, viz. that the resistance to compression, although so much greater than the resistance to extension, is the first of the two which loses its restoring power; for if we so far increased the strain as to overcome the elastic power, the point of compression descended to nearly the middle of the depth, proving that the tensile force, although so much less, is the most tenacious; whereas I suspect, that in cast iron it is the reverse, that is, it is here the tensile power which first yields, and the consequence is a sudden fracture, and momentary destruction of the bar.

WASHINGTON AND BALTIMORE RAILROAD.—Earlier than we anticipated, the Railroad between this city and Baltimore is about to be brought into use, to the great joy, no doubt, of all who have need to go to and from Washington in a direction north of it. On Wednesday, the President and directors, with the principal officers of the Washington and Baltimore Railroad Company, accompanied by several invited citizens of Baltimore, made a trip of inspection on the new road, from Baltimore to Bladensburg, at which place the company was met by the Mayor of this city and some other gentlemen who take much interest in the success of that great undertaking. We are gratified to learn from one of our citizens who travelled the whole way from Baltimore in the car, (which was drawn by a locomotive engine,) that the greatest satisfaction was expressed at the manner in which the road has been constructed. The rails are of an improved construction, and greatly superior to any heretofore in use. The engine is of great power, and of the most approved construction, and the cars destined for this road superior to any heretofore in use, containing comfortably, within the body of each, sixty passengers.

The company would have been able to have opened the road through to their terminus in this city, but for the unaccountable delay in the arrival of a cargo of rail-iron, which did not sail from England until the 16th May, instead of the middle of April, as ordered.

We are pleased to learn that an arrangement has been made by the enterprising stage company of G. Beltzhoover & Co. with the Railroad Com-

pany, to open the road on Wednesday next; the passengers, until the final completion of the road to the canal basin in this city, to be conveyed from Bladensburg to the city in stage coaches. So that a person may hereafter go and return between Washington and Baltimore in less time than, when travelling at the fastest rate, it used to take to accomplish the single distance between the two cities. —[Nat. Int.]

The Baltimore Gazette furnishes us with the following remarks and report, which will afford pleasure to all our readers who take an interest in the progress and permanence of that Herculean work, the Baltimore and Ohio Railroad.

In reference to the Baltimore and Ohio Railroad, we have frequently taken occasion to remark upon the substantial and permanent manner in which the buildings, and all the other operations of that company have been constructed. We have uniformly approved of this policy, which, we are still satisfied, will in the end be found most economical and beneficial to the stockholders. Having understood that a thorough inspection had recently been made, of all the masonry on the road, we called at the office of the company and requested to see the report on this important part of the work. This permission was readily granted to us, as well as the liberty to publish the report if we desired to do so. Considering the information it discloses to be of deep interest to a large number of our readers, we now submit the same as follows:*

Engineer's Office,
Baltimore and Ohio Railroad, June 20, 1835. }
To PHILIP E. THOMAS, Pres't. &c.

I have now the honor to enclose a report dated the 18th inst., made to me by Robert Wilson, Assistant Superintendent of Masonry, relative to the condition of the masonry and bridges upon the Baltimore and Ohio Railroad between this city, Frederick, and Harper's Ferry, comprising a distance of about 85 miles.

This examination has been made in pursuance of the letter of instructions to me, dated the 24th of October last. The delay of this inspection of the masonry from the autumn, until the spring season, was the result of imperious calls upon my time in the railroad service, and as these circumstances are all familiar to thee, I need now only remark, that finding it wholly impossible to give my personal attention to the examination, I confided, with my verbal permission, the service to Robert Wilson, Assistant Sup't of Masonry in the service of the Company, in whom I have full confidence. His report now presented, and already referred to, is highly satisfactory, as showing the good condition and great permanency of the mason-work upon the entire line of railroad already completed to Frederick, and to Harper's Ferry, the repairs required and recommended being only to the amount of one hundred and eighty dollars.

As these repairs have been deemed necessary, I recommend that they be made without delay, under the inspection of Robert Wilson.

In confirmation of the opinions which this officer has expressed, I may add, that I have heretofore frequently inspected the mason work upon the whole line, and likewise upon the Washington Railroad; and am of opinion that it has been most faithfully executed, and of materials of the most

* It should be recollected that a considerable portion of this masonry has been built more than 4 years.

substantial character; and I do not hesitate to add, that I know of no public work of internal improvement in this country involving so much masonry of a character so substantial.

J. KNIGHT,
Chief Engineer B. & O. Railroad.

BALTIMORE, June 18th, 1835.

Jonathan Knight, Esq.

Chief Engineer B. & O. R. R.

Sir:—Your letter of the 2nd May, 1835, has been received, requiring me to make a minute examination of the masonry on the line of the Baltimore and Ohio road, from its commencement to its termination at Harper's Ferry, together with the actual situation of the wooden viaduct over the Monocacy, and report thereon respectively.

Pursuant to your instructions, those examinations have been carefully made, and it is with much satisfaction I am enabled to state that the masonry on the entire line, with few exceptions, which I will hereafter designate, is of the most permanent character, so much so, that with slight occasional repairs it will endure for ages.

The following statement shows where and what repairs are necessary, and their probable cost, viz:

4th mile Bridge Gwynn's Run—	some pointing wanted,	cost \$4
Culvert No 2, part of paving to be renewed,		" 2
7th mile, Culvert No. 4, south apron requisite,		" 6
" Bridge, No. 1, pointing, do.		" 4
8th mile, " 2, Gadsby's run, pointing requisite,		" 10
" Bridge, No. 1, Dorsey's run, do		" 2
11th mile, Bridge No. 2, Ellisott's field, pointing wanted,		" 2
" Bridge, No. 3, paving and pointing,		" 116
13th mile, Culvert No. 1, apron wanted,		" 6
14th " " 11, paving near south end,		" 3
67th " " 2, three cap stones broken, but no repairs now necessary.		"
70d " " 3, poplar branch, paving and pier to be repaired,		" 6
72d " Bridge No. 1, sugar tree branch, end of south wing requires repaving,		" 15
" " No. 2, Great Catoc-tin, pointing necessary,		" 2
76th mile, Bridge No. 1, Clagett's branch,		" 2
77th " Culvert No. 2, pier to be repaired,		" 3

\$180

making together \$180 as the aggregate costs of all the repairs deemed necessary to place the masonry in a sound condition, which allowance, it is confidently believed, is amply sufficient to effect the purpose, provided the work be executed under the direction of the supervisors on the road. It is proper to remark that the greater part of these repairs might be at present dispensed with, as, for instance, the pointing of the several viaducts, together with the paving of viaduct No. 3, on the 11th mile: I would, however, recommend that all the repairs mentioned be now made.

59th mile—the Monocacy viaduct on this mile appears in good order, except that a slight repair to the weatherboarding on the north side is necessary.

Respectfully submitted,

ROBERT WILSON,

Ass't. Sup't. of Masonry.

BOSTON AND WORCESTER RAILROAD.—On Friday last, the locomotive engine and passenger car, for the first time passed over the whole of this road from this city to Worcester. The Directors, and a number of other gentlemen, left this city at half-past 3 o'clock, with one of the engines, and after viewing the whole extent of the road—stopping three times by the way—once as much as fifteen minutes, they arrived at the termination of the road on Main street, in Worcester, at a quarter past 5. After a stay there of near an hour they set out on their return, and would have made their passage to Boston, exclusive of two short stops at Westborough and Needham, in two hours, had not their process been interrupted in Newton, by an accident which had happened to the engine of the regular afternoon train, and detained it on the road. The forward axle of the engine was broken, and it was necessary to remove the engine from the road, and to bring the whole load, consisting of about twelve cars, with a very large number of passengers, into town with one engine. In consequence of this accident, the train did not reach town until after ten o'clock.

On Saturday, the 4th instant, the four engines on this road, in conformity with the notice previously given, made each four trips between Boston and Worcester; two engines with eleven cars leaving each end of the road at the same time, at intervals of four hours, and conveying, during the day, more than fifteen hundred passengers. Each engine (with the exception of one which omitted one trip) and car travelled 176 miles in the course of the day, generally with full loads, and no accident or detention occurred during the day.

An instance of despatch, in the workshop of the corporation, deserves to be mentioned to the credit of the mechanics employed. In consequence of the accident above mentioned, to one of the engines on Friday evening, the engine was not hauled into the depot until 12 o'clock at night. The axle was then repaired, and the engine took her place on the road at 6 o'clock in the morning.

The Directors and Stockholders of the corporation and other gentlemen to the number in all of nearly three hundred, will proceed to Worcester to-day, in celebration of the opening of the railroad, having been invited to partake of a collation, by the citizens of that place.—[Boston D. Advertiser.]

Extract of a letter received by a commercial house in this city from their correspondent at Apalachicola, dated 25th June.—“Books of subscription for the capital stock of the Lake Winico and St. Joseph's Canal Company, were opened a few days since, the whole of which was immediately taken. The object of this Company is to connect the waters of the river Apalachicola with the Bay of St. Joseph's by a Canal or Railroad. The latter has been decided on for the present. The Bay of St. Joseph's is decidedly the best harbor in the Gulf of Mexico, having twenty-two feet on the bar at low tide and of easy access. It is fifteen miles in length, and from four to six in width, and will no doubt prove healthy, as there is no fresh water emptying into it—surrounded by a beautiful sand beach, and free from those marshes and stagnant water, the fruitful sources of disease in our Southern bays. The consequence, which may grow out of the successful completion of this work, it is impossible to foretell. By reference to the chart of the coast, made under the direction of General Bernard, you will find that these short cuts, less than twenty miles in all, will open an inland steamboat navigation from the Mississippi to St. Joseph's. The Company have purchased five sections of land in St. Joseph's, and are laying off a town on a beautiful elevated plain, about half way up the Bay. The loss will be brought into the market early in the Fall. Every exertion will be used to have the road, wharves, depots, &c. finished in time for the transportation of the crop. The distance from the head of the steamboat navigation on Lake Winico, to the site selected for the town in St. Joseph's, is a fraction less than six miles, and passes over a level pine wood country, affording the choicest timber for the road, right on the spot. The Company have acted wisely in the distribution of the stock. Three eighths have been transferred to the merchants of Columbus, Georgia; one fourth to gentlemen in Tallahassee; and the remainder is retained by the present citizens of Apalachicola. The latter are making preparations to remove en masse to St. Joseph's, and already a number of store houses, and one extensive tavern have been contracted for.—[Journal Commerce.]

The resolutions of the Canal Board, respecting the enlargement of the Erie Canal and its locks, will be found in our columns to-day. The doubling of the locks is, it will be seen, to be set about immediately. The enlargement of the canal cannot be undertaken until enough is in hand, from the revenues of the canal, to extinguish the existing debt. Meantime, however, surveys, &c., are to be made.

[From the Albany Argus.]

ENLARGEMENT OF THE ERIE CANAL.—The great increase of business on the Erie Canal, and the rapid settlement of the country seeking a market through that channel, having demonstrated the importance of enlarging and improving the canal, an act authorizing the work was passed at the last session of the Legislature. The Canal Commissioners were directed to commence the enlargement of the canal and the construction of a double set of lift locks, “as soon as the Canal Board may be of opinion that the public interest requires such improvement;” and “the dimensions to which the canal and locks shall be enlarged shall be determined by the ‘Canal Board.’” In pursuance of the authority delegated for that purpose, the Canal Board met at the Comptroller's office in this city, on the 30th ult., and on Friday last adopted the following resolutions:

At a meeting of the Canal Board, at the Comptroller's office, Canal Room, 3d July, 1835,—present—

STEPHEN VAN RENSSLAER, Canal Commissioner, President,
SAMUEL YOUNG, Canal Commissioner,
WM. C. BOUCK, do
JONAS EARLL, Jr., do
JOHN BOWMAN, do
JOHN TRACY, Lieutenant Governor,
A. C. FLAGG, Comptroller,
JOHN A. DIX, Secretary of State,
GREENE C. BRONSON, Attorney General.
WM. CAMPBELL, Surveyor General,
ABRAHAM KEYSER, Treasurer.

The Board having taken into consideration the act entitled “an act in relation to the Erie Canal,” passed May 11, 1835, thereupon,

1. Resolved, That the public interest requires the enlargement and improvement of the Erie Canal, and the construction of a double set of lift-locks therein.

2. Resolved, That the doubling of the locks, and the works connected therewith, ought to be commenced without delay and prosecuted with all reasonable diligence, beginning with that portion of the canal between the village of Syracuse and the city of Albany.

3. Resolved, pursuant to the 10th section of said act, That the enlargement of the canal should be commenced immediately after a sufficient sum shall have been collected and invested from the canal revenues, to discharge the Erie and Champlain canal debt.

4. Resolved, That the Canal Commissioners proceed without delay to make surveys for all the improvements contemplated by the said act, and that they make the necessary appropriation of all lands, waters and streams for the purposes afore said.

5. Resolved, That the canal be enlarged so as to give six feet depth of water, and in general, sixty feet width of water on the surface, with a slope of two feet to one in the banks.

6. Resolved, That the locks be enlarged so as to be one hundred and five feet long between the quoin posts, and fifteen wide in the clear, and in other respects be adapted to the enlarged canal.

7. Resolved, That the aqueducts be constructed so as to give at least forty feet water-way, except that the Rochester aqueduct may, in the discretion of the Canal Commissioners, be constructed with a water-way not less than thirty-six feet wide.

8. Resolved, That in other respects than those provided for by the foregoing resolutions, the Canal Commissioners make such improvements in the canal, and the works connected with the same, as they shall deem expedient.

9. Resolved, That the Canal Commissioners be requested to cause such examinations and estimates to be made as the time will permit, for the purpose of ascertaining the practicability and probable expense of an enlargement of the canal so as to give the several sizes of six and seven feet depth of wa-

ter—the width at surface to be in general ten times the depth of water.

10. Resolved, That the Board, when it adjourns, will adjourn to meet at this place on Tuesday, the 20th day of October next, to hear the report of the engineers, and consider further of this subject.

An extract from the minutes.

G. W. NEWELL, Clerk.

[From the Utica Observer.]

UTICA, May 22d, 1835.

A. G. Dauby, Esq.: Dear Sir,—I take the liberty of sending you the following correction of the statement in Williams' Register for 1835, of the length and cost of the New-York State Canals.

SUMMARY OF CANALS COMPLETED.

Name.	Length.	Cost p. mile.	Total cost.
Erie Canal.....	364	372	19,255 49 7,143,789 86
Feeder.....	8		
Champlain Canal.....	64		
Glen's Falls Feeder.....	12		
River navigation ab.		70	15,530 95 1,257,604 36
Troy dam.....	3		
Oswego Canal.....	38	14,879 98	565,687 35
Cayuga & Seneca do..	23	10,295 85	236,804 74
Chemung.....do..	23	39	8,505 96 331,693 57
Feeder.....do..	16		
Crooked Lake.....do..	8	19,597 11	156,776 90

Total miles, 559 Cost, \$9,592,106 68 or an average of \$17,367 57 per mile.

The Chenango Canal is now constructing, to be completed in 1836, is 97 miles long, 1021 feet of lockage by 100 locks, and is estimated by the Canal Commissioners to cost 1,960,456 23, or \$20,210 87 per mile, exclusive of land damages.—(Assembly Document of 1835, No. 296.) A. B.

STEAMBOAT CANAL ACROSS THE ISTHMUS OF DARIEN.—The Journal of Commerce, says:—By the annexed extracts from the Constitutional del Cauca, (New Granada,) which we find in a Jamaica paper of June 15th, loaned us by a friend, it will be seen that the object of Mr. Clay's resolution adopted by the Senate at the last session of Congress, in regard to a navigable communication across the Isthmus of Panama, is likely to be accomplished by private enterprise.

[Translated.]

“We are gratified in being able to make it known, that the Baron de Thierry has directed Post-Captain Labarriere, (of the new Grenada Navy,) to proceed to the Capital of this Republic, with proposals for cutting a Canal, which will unite by their own waters, Rio Chagres with Rio Grande, the latter having its outlet in the Pacific, and to make make both navigable by steamboats and small vessels, not drawing more than ten feet of water.

“It is admitted that the communication between the Atlantic and Pacific, by means of a carriage road, would be very advantageous; but how much greater facilities Steam Navigation would afford, by the contemplated Canal!

“Mercantile enterprise could be carried on to any extent. The transport of merchandize would be safe and expeditious, as steamers would be in continual readiness, and not subject to that constant expense required to keep a railroad in order, nor to many other inconveniences, as the Baron has pointed out in a note, which he has addressed through the Deputies of Panama, to the National Congress.

“It appears from several antecedent details, with the perusal of which we have been favored, that the Baron undertakes this gigantic concern, not for any individual benefit, but his principal object is to shorten the route between England and New Zealand, to which he is now proceeding to establish a Government on the European plan, and to encourage emigration to that fertile and extensive country, in which all the productions of the earth may be raised with the greatest ease and abundance, particularly the silky flax, (phormium tenax,) being an article of such great value in the commercial world.

“The Baron has ample funds of his own, and credit with several European Bankers; and the Canal being the most important of his present undertakings, we have no doubt of his success.”

In laying before our readers this interesting com-

munication, we hope, from the zeal of the Congress now assembled at Bogota, that they will give their aid to a measure for the benefit of universal commerce, and put an end to the long and dangerous voyages around the Cape into the Pacific. Such an undertaking has long been desired, and we hope to see it accomplished, under the superintendence of Baron de Thierry, with whose talents and scientific knowledge the public are well acquainted.

Extract of a private letter, dated Panama, 29th May.

I have this moment received my letters from Bogota, and the intelligence they convey is very satisfactory. M. La Barriere arrived at the Capital, twenty two days before our deputies. He writes to me as follows:—"The President gave me a most cordial reception, and read over with enthusiasm the proposals for the Canal—and promised in the kindest manner to exert all his influence with Congress to meet the views of the Baron; and added, that he would give 10 years of his life to have such a work completed during his administration. So all looks well."

We are indebted, and would again acknowledge our obligation, to P. G. VOORHIES, Esq., for the following and a continued regular monthly statement of the range of the Thermometer in the interior of Louisiana. It must be interesting to those who, in other parts of the country, keep a register of its variations. The accompanying remarks must also be interesting.

Extract of a Letter, dated

AVOYLE FERRY, on Red River, La., }
June 6, 1835. }

Sir,—The prospects of our planters are flattering—our crops of cotton and corn are generally very promising at this time throughout our section of country.

Yours, &c.

P. G. VOORHIES.

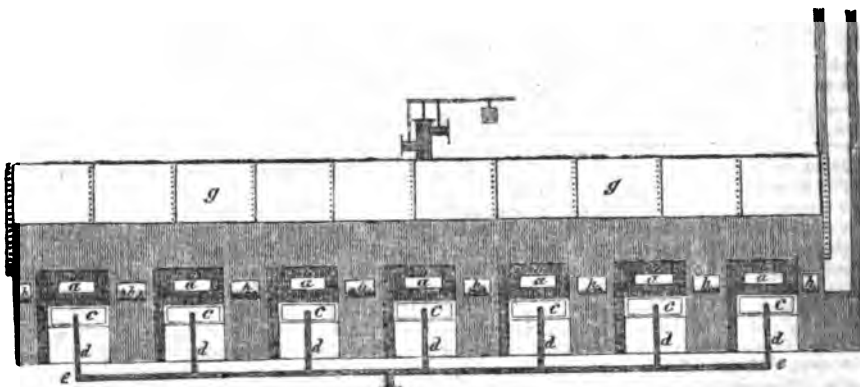
METEOROLOGICAL TABLE.

For the month of May, 1835—kept at Avoyle Ferry, Red River, Lou. (Lat. 31° 10' N., Long. 91° 59' W. nearly,) by P. G. VOORHIES. [Communicated for the American Railroad Journal.]

Days.	Morn.	Noon.	Night.	Wind.	Weather.	Remarks.
1	68	64	63	sw	cloudy	{ heavy rains and thunder all day
2	58	78	76	calm	clear	
3	68	82	78	..	..	Red river falling
4	70	82	77	sw	..	
5	72	80	78	calm	..	
6	66	81	76	..	..
7	71	80	77	sw	..	
8	72	84	79	se	..	high wind
9	64	70	68	nw	..	.. all day
10	60	69	64	calm	clear	Red river on a stand
11	66	82	78	..	..
12	72	81	76	s	..	
13	74	83	80	..	..
14	72	86	80	sw	..	
15	64	78	74	n	..	
16	60	77	70	calm	..	
17	58	80	73	..	..
18	60	78	72	se	..	light wind
19	71	78	76	..	cloudy	thunder storm at noon
20	71	83	80	calm	clear	{ cloudy evening—Red river rising
21	70	85	78	..	..
22	70	83	80	se	..	
23	70	84	80	calm	..	
24	70	84	75	s	cloudy	{ little rain and thunder in the evening
25	71	81	78	calm	clear	
26	69	83	78	..	..
27	68	84	80	..	..
28	70	84	79	..	..
29	69	85	81	..	..	{ U. S. snag steamboats, Capt. Shriver, passed down the river on Red river—left unfinished, 23 to 25 miles; 3 steamboats, 1 keel
30	68	86	83	s	..	
31	72	86	84	..	..

Red river rose this month, 1 foot 0 inches—and is below high water mark, 5 feet 2 inches.

IMPROVED PROCESS OF GENERATING HEAT AND STEAM.



We have been favored by Mr. Clute, of Schenectady, with the annexed specification and engraving of his improved furnace.

References—*a a*, apertures for iron; *b b*, grates; *c c*, receivers; *d d*, branches of main blow-pipe; *c e*, main blow-pipe; *g g*, cylinder boiler; *h h*, apertures for coal.

Specification of a Patent granted to PETER I. CLUTE, of Schenectady, New-York, for an Improvement in the Process of generating Heat, for forging Malleable Iron, and generating Steam to propel Machinery.

Be it known, that I, Peter I. Clute, of the city of Schenectady, in the county of Schenectady, and state of New-York, have invented a new and useful improvement in the art or process of generating heat for forging malleable iron, and of generating steam to propel machinery for the purpose of grinding and polishing iron when manufactured, and for the other purposes for which steam power is generally employed.

The following is a description of the construction and operation of the furnaces and apparatus to be used in my invention.

Where other than a cylinder boiler, or where more than one boiler, is designed to be used, a given number of furnaces of the description hereinafter set forth, are to be erected under the same, arranged in the most convenient form, to receive as many points of the boiler or boilers, as, according to the principles hereinafter laid down, may be deemed most expedient; as, for example, in a circular form.

The cylinder boiler, however, I deem best adapted to the contemplated purposes of my invention.

Where the cylinder boiler is used, the number and size of the furnaces will vary according to the size of the boiler, and the quantity of steam required to be raised. The furnaces are to be built in a straight line, of uniform width and height, equidistant and continuous, the boiler to be laid horizontally or lengthways on the top of the furnaces. There is an aperture at either end of each furnace, through which the coal is shoved on the grate, and the fires fed as occasion requires. Under each grate there is a box, which I shall designate by the

name of receiver, because it receives the blasts from the blow-pipe and the ashes falling through the grate. The receiver may be taken out and cleaned when necessary. Each receiver has at one of its sides an aperture for receiving a branch of the blow-pipe. There are, of course, as many branches to the main blow-pipe as there are furnaces, and the blow-pipe is connected with the bellows, which is worked by the steam the heat of the furnaces generates. The branch blow-pipe enters the receiver about at its centre, at a point equidistant from the grate and the bottom of the receiver, thus causing the wind in the receiver to circulate equally. There is an aperture near the top of the furnace, in front, through which to protrude the iron to be heated.

This aperture may be closed by a valve when not used.

Let the cylinder boiler be 20 feet long and 2½ feet in diameter; then there ought to be about seven furnaces, and the proportions of the different parts of the furnaces, &c., ought to be, as nearly as may be, as follows: Distance between the grate and the boiler, twelve inches; length of grate, eighteen inches; width of grate, eight inches; width of the furnace to correspond with the size of the grate; the aperture at either end, to admit the coal, to be 8 inches in width, and 6 inches in height; the receiver, 8 inches in width, and 6 inches in height; aperture for receiving the blow-pipe, 1½ inch in diameter; aperture through which to heat the iron intended to be worked, 6 inches in width, and three inches in height; distance between each grate, three eighths of an inch; diameter of blow-pipe, 4 inches, and diminished to one inch and a half at the entrance into the receiver.

The strength of the blast required is equal to that of a blacksmith's fire. The degree of heat may be regulated by valves placed in the blow-pipe.

I do not claim to have discovered or invented any thing new in the construction of the furnaces abstractly considered, or in any of the apparatus connected with the steam engine, nor can my invention in strictness be considered as an improvement of a machine or instrument previously patented; nor can it be considered an application of an old instrument or machine to a new purpose. What I claim as new, and my own invention, may be reduced to the following particulars:

1st, The using a number of furnaces to raise steam; 2d, the process of heating the boiler *uniformly* at many points, thus differing from the universal practice which now obtains, of heating the boiler at one particular point; 3d, the employing the same steam raised by the furnaces in driving the bellows connected with these furnaces; 4th, the application of the blow-pipe to ignite anthracite coal for raising steam; 5th, the using the same fire for the double purpose of raising steam and heating and working malleable iron.

I consider these two last particulars the most important, and as in especial manner distinguishing my invention from every other. This apparatus possesses a highly important advantage, in that it may be used for *manifold* purposes—for the manufacture of malleable iron into the different articles usually made by blacksmiths, and edge tools, nails, &c., and the steam power may be applied to grinding and polishing the iron, when manufactured, to propelling boats, driving a trip-hammer and mills of every description, and the other purposes for which steam power is generally employed.

PETER I. CLUTE.

AGRICULTURE, &c.

[From the American Gardener's Magazine.]

On Budding Trees and Shrubs. By the CONDUCTORS. To which is added, the different modes of Budding; and of Herbaceous, or Summer Grafting, extracted from Loudon's Gardener's Magazine.

The propagation and multiplication of the different species and varieties of trees, shrubs, and plants, especially kinds of delicate growth, is, we believe, quite imperfectly understood, in this country. The common methods of grafting and budding have long been in practice, as almost the only means of increasing plants, unless it were those which propagate easily from cuttings, suckers, or division of the root. We have lately observed in some of the nurseries which we have visited, several methods in practice which were quite new to us, and which we should think, from the success attending the practice, would, if become extensively known, be the means of greatly facilitating the multiplication of many delicate kinds, which it has been found exceedingly difficult to increase to any extent.

With trees, the common method of grafting is generally adopted, and in budding, the old system is almost universally pursued. Very few attempts have been made to render practicable and successful many of the new and more recent methods, laid down in most horticultural books, more particularly those in use by the French, who far excel even the English horticulturists in the multiplication of plants; this is owing to their knowledge in vegetable physiology, and to the various experiments which they are continually making for the discovery of some new method.

The following article we have extracted from Loudon's Magazine, with the hope that it will suggest some new ideas, as well as present some new methods, upon budding and herbaceous grafting, which will not fail to be of great benefit to individuals, as well as to the public in general. It was translated from a Belgium work, by Mr.

Loudon, the indefatigable editor of the Gard. Mag., with some additions and alterations; but as we are sure it will be one of the most interesting articles in our present number, we present it entire.

"The following article we have translated, with some additions and variations, from *l'Horticulteur Belge*; and we present it to our readers as more complete than any article which has hitherto appeared on budding and herbaceous grafting in the English language. We have given the French names of the different kinds, both of budding and grafting; not only because we think the doing so will be useful to gardeners who visit the Continent, or read French books on gardening, but because many of the terms are not translated literally. For example, the French apply the word *greffe* (graft) as a generic term, including both grafting and budding; whereas the English, and also the Germans, use distinct words for these two kinds of operations. The Germans use the word *veredlung*, ennobling or improving, as including both grafting, *pfropfen*, and budding, *oculieren*. In English we have no gardening word to express the two operations, although the word incision might be used for this purpose.

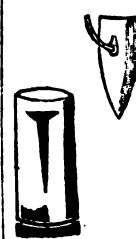
I. BUDDING. *Greffes par Gemmes.*

1. *Escutcheon Budding, without a Bud or Eye; Greffe en Ecusson sans Yeux.*—The object of this mode of budding is simply to cover a wound or blemish in one tree by the live bark of another. Take from a tree of the same sort, or at least of the same genus, as the wounded tree, a piece of bark rather larger than the wound, and form it into a regular shape; then cut the bark round the wound into the exact form and dimensions of the piece to be inserted, so that the latter may be let into the former with the greatest exactness. The inner bark of the graft and that of the stock being fitted so as to joint perfectly all round, and the shield closely adhering to the tree in every part, it is kept on by a ligature; and the edges of the wound are covered with grafting-wax or clay. It is a remarkable fact, which some are, perhaps, not aware of, that the wood formed under a piece of bark inserted in this manner, even though that bark be without a bud or eye, will be the wood of the tree from which the shield was taken. In this way several different kinds of wood might be formed on one tree, without introducing a single leaf belonging to those different woods. The portion of wood introduced will always be limited in diameter to the size of the portion of bark put on.

2. *Budding with a Bud or Eye, and a circular Escutcheon; Greffe en Ecusson par Inoculation.*—With the point of a grafting-knife, or rather with that of a penknife, cut a small bud out of the tree to be propagated, leaving a narrow rim of bark round it, and taking, at the same time, a portion of the wood, which is retained. A hole is made in the stock, of the same size as the bud and its rim, and of a depth equal to the length of the piece of wood left on. The whole is adjusted so that the bud, with its bark and wood, fills up the wound exactly; and the edges are then covered with grafting-wax. This mode of budding is employed to equalize the flower-buds over a tree, by removing some, from where there are too many, to those parts of the tree where there are too few.

3. *Escutcheon Budding with Wood under the Bark; Greffe en Ecusson boisée, (fig. 6.)*—To procure the escutcheon, a deep and

transversal incision is made above a healthy and vigorous bud; then, by withdrawing the



blade of the grafting-knife, and entering it rather higher than this cross cut, a narrow strip of bark, three or four lines broad, by 1 in. or 1½ in. long, is taken away, terminating in a point at the bottom. The eye should be situated about a third from the top, and the stipules, or other appendages that sometimes accompany the petiole, as well as prickles, &c., must be taken off with caution. With the point of the grafting-knife, the wood of the escutcheon is then taken out, leaving a small piece immediately under the eye, and about a third of the length of the escutcheon. The bud, thus prepared, is inserted in the stock, and then tied as before. This mode of budding is that most generally used in European nurseries.


4. *Escutcheon Budding, with a growing Bud; Greffe en Ecusson avec un Œil poussant.*—The escutcheon is cut, and placed in the same manner as by the preceding method; but, as soon as it is inserted, the head of the stock is cut off, and all the buds that push from it, except that from the escutcheon, are rubbed off as they appear. This mode of budding, when done in the spring, has the great advantage of forcing the bud to develop itself immediately, thus gaining a year. However, it sometimes happens that, if the bud does not take, the sap of the stock not being able to find a channel, from all the shoots being rubbed off as they appear, the stock, or at least a great part of its length, dies of repletion. When done in the month of August, this mode of budding seldom succeeds, because the young shoot, not having time to ripen, perishes with the frost, and often causes the death of the stock.

5. *Escutcheon Budding, with a dormant Bud; Greffe en Ecusson avec un Œil dormant.*—This mode is similar to the preceding; but it is performed in August, and nothing is cut away from the stock till the following spring, in order to prevent the development of the bud before that season. Though longer before it takes effect, this mode of budding is more certain to succeed than the preceding method. It has also the merit of not hurting the stock, if it does not take. The inhabitants of Vitry, who carry on the greatest commerce in fruit trees in the neighborhood of Paris, use it almost exclusively. This mode is that generally used in the British nurseries.

6. *Escutcheon Budding, without the Wood; Greffe en Ecusson dénuée de Bois.*—According to this mode, all the wood is taken away except a speck immediately under the bud; to the life of which bud, however, that speck is essential. The rest of the process is as usual. Besides being very suitable for orange trees, this mode of budding is used for all trees having hard wood, such as myrtles, hollies, and all analogous species, whether indigenous or exotic. It can be done either with the growing bud or dormant bud.

7. *Escutcheon Budding, with Pincers; Greffe en Ecusson à Emporte-pièce.*—A pair of pincers ought to be made on purpose, with which a piece of bark is taken off the stock. With the same instrument, or with the blade of the grafting-knife, an escutcheon or plate of bark, having a vigorous eye in its centre, is taken off a young shoot of the tree to be propagated. It must

be exactly of the same size as the wound made in the stock, in order to fill it with the greatest precision. When it is properly fixed, it is supported by means of grafting-wax or soft wax. This method is excellent for budding old trees, the thick and rugged bark of which is not suitable for the ordinary modes.

8. *Escutcheon Budding; with the Eye turned downwards; Greffe en E'cusson a Rebours.*—The escutcheon is cut in such a manner that the point of the eye, when placed on the stock, is turned downwards, whether the incision in the stock is made in the usual manner, or like a T reversed, thus, . By this method, the buds are forced to grow in a direction opposite to that which they would have taken naturally; but they soon resume their usual position; and the desired end, viz., that of increasing the size of the fruit by stagnating the returning sap, is thus by no means attained.

9. *Reversed Escutcheon Budding; Greffe en E'cusson renverse, (fig. 7.)*—The escutcheon is prepared in the form of a triangle; but, instead of bringing it to a point under the eye, it is pointed above it. It will be perceived that the incision in the bark of the stock must be also reversed; that is to say, instead of being in the form of an upright T, it must be like a T turned upside down, as in the figure. To effect this, the longitudinal incision is made above the transversal one, instead of making it below it. It is finished with ligaments and

grafting-wax, as the preceding modes. In comparatively cool and moist climates, like that of Britain, the grafting-wax may be dispensed with in such cases as this and the three or four preceding ones. This manner of budding is almost the only one used in the south of Europe, particularly at Genoa and at Hieres, to multiply orange trees. It is also suitable for the propagation of trees having abundant and gummy sap; and it might probably be advantageously employed to secure the success of buds on resinous trees.

10. *Budding resinous Trees; Greffe en E'cusson d' Arbres resineux, (fig. 8.)*—An incision is made in the form of T, as if for an ordinary bud, in the bark of the stock.

A double incision is then made obliquely, about two lines or two lines and a half from the upper part of the T: this incision should penetrate the bark to the thickness of nearly a line, or so as to reach the soft wood. This mode of budding succeeds not only on resinous trees, but also on all those that have a gummy and very abundant sap.

11. *Covered Budding; Greffe en E'cusson couvert, (fig. 9.)*—The bud is prepared as usual; but, when it is inserted in the stock, instead of a ligature, the lines of junction are covered with grafting-wax: a piece of bark is then taken from another tree, and, a small hole being made in the middle of it, it is placed on the escutcheon, so as to cover the whole of it except the bud, which appears through the hole, as in the figure. A bandage is then put over the

ther. This mode of budding is rather too intricate for ordinary purposes; but it may be worth adopting for rare and delicate trees.

12. *Budding with a square Escutcheon; Greffe en E'cusson carre.*—Three incisions are made in the stock, one transversal, and the two others longitudinal, beginning on each side of the horizontal one, and descending perpendicularly four or five lines. They are to be four or five lines apart, and to represent a long square, the bottom line of which is wanting. This square strip or plate is raised and turned down. A square escutcheon, provided with a good eye, is then cut from a branch of the tree which is to be propagated, exactly of the same size as the plate stripped down the stock; and it is applied to the incision, which it must cover with the greatest exactness. This being done, the plate of bark, which was hanging down on the stock, is raised, and the escutcheon covered up to the eye; the line of junction is then coated with grafting-wax, and the whole is tied like other buds. It appears that this mode of budding was much used formerly, and that it succeeded perfectly; but, as it is rather tedious in the execution, it is now seldom employed.

[To be continued.]

[From the National Intelligencer.]

PEACH TREES.—This modest and beautiful tree, the parent of one of the most delicious of all fruits, is, if properly managed, perhaps the most easily cultivated and preserved of all fruit trees. To sustain these observations, I mention my own experience. On a rented farm, and on which I resided near ten years, I found but one good thriving peach tree when I took possession, and only a few stocks of that tree in any condition. Regarding it a duty which every man owes to society, to plant fruit trees if in his power, I commenced raising the peach from the stone, and persevered in that plan during nine seasons, and left a considerable number of the very finest peach trees in the highest state of health when I removed.

There is no one other fact in natural history, of the truth of which I am more convinced, than that the peach tree would, in any part of the middle or southern States, flourish, if three rules were observed:

1st—Plant the seed annually, so as to have new plants to set out annually; or, what is much better, plant the seed where the tree is to stand.

2nd—Whenever the tree commences to decay, cut it down as near the ground as possible.

3rd—Plant the peach tree in your best soil, and work the ground around where it stands.

In the public prints, we see this season, from all quarters, accounts of the destruction of the peach tree by the frosts of last winter. In some cases the body of the tree is said to be killed, while the roots are living.

The peach tree is evidently a native of a much warmer climate than that of the central United States. In Louisiana, Mississippi, and Florida, I have seen it in flower, and in leaf partially, at every winter month. It is of course in the southern section of the United States an imperfect

evergreen. In all situations and climates where I have seen it growing, from N. lat. 29 deg. to 45 deg. it is a tender tree and demands care; but with care and skill, there is no other tree which yields to man a more grateful and certain return.

Similar to all organized beings, when wounded by any adverse cause, the peach tree exerts the principles of life, or more distinctly the principles of self-preservation, and, in the very case of injury by frost, this operation of nature becomes so striking as to arrest attention from the most casual observer. In the National Intelligencer of May 28th, 1835, quoting from the Wyoming Republican, I have read the following:

"A few weeks since we mentioned that the peach trees in this neighborhood were generally killed by the coldness of the winter. Upon close examination, we find the roots of the trees are alive, and some of the limbs of many are putting out leaves; tho' in general the tops are dead."

Now, from actual experience I am fully convinced, that, if those trees, the roots of which are alive, and exerting their resources to save the branches, were relieved by amputation of the whole tree to within one, two, or three inches of the ground, that numerous fine healthy young stems would be seen rising, and which, in two, or at most three years, would be loaded with fruit. This statement is made from actual experiment, within twenty miles from your office, and never failed in a single instance. The preservation of the tree in this case is very greatly enhanced by keeping the ground loose and clear of weeds near the roots.

Let me, in conclusion, say to the Farmer, plant the seed of peach annually, keep the ground cultivated around the root, and when, by any means, the stock is found in a decaying state, cut it away, and leave the root to expend its resources on the production of new scions, and one of the most ornamental trees and most delicious fruits may be secured with almost unerring certainty. A TRAVELLER.

PROPAGATION OF THE SILK WORM.—Last year, on the 4th of July, CHARLES DYER, Esq., of this city, had four silk worms. From these four and their progeny, he had three complete crops of cocoons. There are now feeding, at the cocoonery of the Valentine Company in this city, about SEVEN HUNDRED THOUSAND worms, all the product of the four which Mr. Dyer had on the 4th of July, 1834.—[Providence Journal.]

PRICES OF RAILROAD STOCKS, At the New-York Stock and Exchange Board, JULY 11, 1835.]

	Per	Ask.	Offer.
Mohawk and Hudson.....	100	123	121
Paterson.....	95	—	—
Ithaca and Owego.....	—	—	—
Saratoga.....	—	114	110
Harlaem.....	—	117	116½
New-York and Albany....	—	—	—
Boston and Providence....	100	123	123
New-Jersey Railroad and Transportation Line...	100	116	114
Camden and Amboy.....	100	—	—
Providence and Stonington.	100	101½	100
Boston and Worcester....	—	—	—
Philadelphia and Trenton..	100	102½	101½
Utica and Schenectady....	100	126½	125½
Jamaica.....	—	114	114
Saratoga and Washington..	—	—	—
Hudson and Berkshire....	100	102	100
Long Island.....	100	102	101
Saratoga and Whitehall...	100	110	—

NEW-YORK AMERICAN.

JULY 4—JULY 10, 1835

OBITUARY.

The event which latterly has held in such deep suspense "the hopes of the good, and the fears of the wise," has at length occurred—JOHN MARSHALL, Chief Justice of the United States, is dead! We know of no form of words, whereby admiration and regret could add emphasis, to the simple enunciation of this melancholy fact.

The Chief Justice died in Philadelphia on Monday afternoon. He had gone to that city to seek medical aid—but the most eminent talent and the most assiduous care, failed to prolong a life, already protracted beyond the ordinary term of man's years—and of which the whole course, from early manhood to the day of his death, was passed in most arduous public services.

"Mr. Marshall," we borrow from the Philadelphia Inquirer, "was born in Virginia, on the 24th of September, 1755; and as early as the summer of 1775, received a commission as lieutenant of a company of Minute men, and was shortly after engaged in the battle of the Great Bridge, where the British troops, under Lord Dunmore, were repulsed with great gallantry. He was subsequently engaged in the memorable battles of Brandywine, Germantown, and Monmouth; and in 1780, obtained a license to practice law. He returned to the Army shortly after, and continued in the service until the termination of Arnold's invasion.

In the spring of 1783, he was elected a member of the State Legislature, and in the autumn of the same year, a member of the Executive Council, and married in 1783. In 1788 he was elected as Representative of the city of Richmond in the Legislature of Virginia, and continued to occupy that station for the years 1789, 1790, 1791, and upon the recall of Mr. Monroe, as Minister, from France, President Washington solicited Mr. Marshall to accept the appointment as his successor, but he respectfully declined. In 1799 he was elected and took his seat in Congress, and in 1800 he was appointed Secretary of War.

On the 31st of January, 1801, he became Chief Justice of the Supreme Court of the United States, which distinguished station he continued to fill with unstinted dignity and pre-eminent ability, until the close of his mortal career. His biographer eloquently observes—"What indeed strikes us as the most remarkable in his whole character, even more than his splendid talents, is the entire consistency of his public life and principles. There is nothing in either which calls for apology or concealment.—Ambition never seduced him from his principles—popular clamor never deterred him from the strict performance of his duty. Amid the extravagance of party spirit, he stood with a calm and steady inflexibility—neither bending to the pressure of adversity, nor bounding with the elasticity of success. He lived such as man should live, by and with his principles. If we were tempted to say in one word in what he excelled all other men, we would say, in wisdom; in the union of that virtue, which ripened under the hardy discipline of principles, with that knowledge, which constantly sifted and refined its old treasures, and as constantly gathered new.—The Constitution, since its adoption, owes more to him than to any other single mind, for its true interpretation and vindication. Whether it lives or perishes, his exposition of its principles will be an enduring monument to his fame, so long as solid

reasoning, profound analysis, and sober views of government shall invite the leisure, or command the attention, of statesmen and jurists."

He died calmly and tranquilly, surrounded by three of his children and many valuable friends.—The blow was not unexpected, and he was fully prepared. But a few days since he penned an inscription for his tombstone.

The subjoined sketch of this lamented individual will—now that our eyes are to look upon him no more—be read with renewed interest. It is accurately descriptive and just.

Chief Justice Marshall,

BY WILLIAM WIRT.

The Chief Justice of the United States is in his person tall, meagre, emaciated, his muscles relaxed, and his joints so loosely connected as not only to disqualify him, apparently, for any vigorous exertions of the body, but to destroy every thing like elegance and harmony in his air and movements.—Indeed in his whole appearance and demeanor,—dress, attitude and gestures—sitting, standing or walking—he is as far removed from the idolizing graces of Lord Chesterfield, as any other gentleman on earth. To continue the portrait: his head and face are small in proportion to his height; his complexion swarthy; the muscles of his face being relaxed, gives him the appearance of a man of 80 years of age, nor can he be much younger. His countenance has a faithful expression of great good humor and hilarity; while his black eyes, the unerring index—possess an irradiating spirit, which proclaims the imperial power of the mind that sits enthroned within.

This extraordinary man, without the aid of fancy, without the advantage of person, voice, attitude, gesture, or any of the ornaments of an orator, deserves to be considered as one of the most eloquent men in the world; if eloquence may be said to consist in the power of seizing the attention with irresistible force, and never permitting it to elude the grasp, until the hearer has received the conviction which the speaker intends.

As to his person, it has already been described. His voice is dry and hard, his attitude in his most effective orations was often extremely awkward, as it was not unusual for him to stand with his gestures proceeding from his right arm, and consisting merely in a vehement perpendicular swing of it from above the elevation of his head to the bar, behind which he was accustomed to stand.

As to fancy, if she held a seat in his mind at all, which I very much doubt, his gigantic genius tramples with disdain on all her flower decked plants and blooming parterres. How, then, will you ask, with a look of incredulous curiosity—how is it possible that such a man can hold the attention of an audience enchained through a speech of an ordinary length? I will tell you.

He possesses one original and almost supernatural faculty, of developing the subject by a single glance of his mind, and detecting at once the very point on which the controversy depends. No matter what the question, though ten times more knotty than the "gnarled oak," the lightning of heaven is not more resistless than his astonishing penetration. Nor does the exercise of it seem to cost him an effort. On the contrary, it is as easy as a vision. I am persuaded that his eyes do not fly over a landscape and take in its various objects with more promptitude and faculty, than his mind embraces and analyzes the most complex subjects.

Possessing while at the bar this intellectual elevation, which enabled him to look down and comprehend the whole ground at once, he determined, immediately, and without difficulty, on which side the question might be most advantageously approached and assailed; in a bad cause, his art consisted in laying his premises so remotely from the point directly in debate, or else in terms so generous and specious, that the hearer seeing no consequences which could be drawn from them, was just as willing to admit as not; but his premises once admitted, the demonstration, however distant, followed as certainly, as cogently, and as inevitably, as any demonstration in Euclid.

All his eloquence consists in the apparently deep self-conviction and emphatic earnestness of his manner; the correspondent simplicity and energy of his style; the close and logical connection of his thoughts, and the easy gradations by which he opens his lights on the attentive minds of his hearers.

The courts and the bar in Philadelphia are making preparations to do honor to the memory of this great Jurist—and in this State, as in every other, we presume, as the respective courts meet, there will, it cannot be doubted, be a spontaneous and earnest expression of respect, and admiration, for so brilliant and so useful a career as that just closed.

To John Marshall belongs, and will belong perennially, the glory of having giving form, and fashion, and precise interpretation, and fixed and definite applicability, to the general provisions of that most perfect of human instruments, the Constitution of the U. S. Living with, and sharing the councils, as in the revolutionary struggle he had shared the perils of, the wise and patriotic men who framed it, and fitted by early studies, by practical experience in public life, and above all, by the rare endowment of an analytical and honest mind, which knew how to seek out truth, and which nothing other than truth would satisfy—to comprehend, to elucidate, and to establish the great views and aims of that Constitution—he has, by his decisions and opinions as Chief Justice, made plain what seemed confused, unravelled what was intricate, and—without seeking to extend, or consenting unduly to limit, the authority and jurisdiction of the Court over which he presided, but by carrying out unambitiously yet unflinchingly, the purposes of its organization—he has shown it to be the safest, the wisest, and the most efficient bulwark, alike of State rights and of rightful Federal authority.

At any moment, the loss of such a man would be deplored; but at this moment, when the possible successors of such a name, and to such a station occur to the mind, regret is indeed unmitigated by aught of hope.

U. S. Military Academy.

Report of the Board of Visitors invited by the Secretary of War to attend the General Examination of the Cadets of the United States Military Academy.

Hon. Lewis Cass, Secretary of War.

SIR:—The undersigned, having attended the General examination of the Cadets of the United States Military Academy, as a Board of Visitors, submit the following Report as the result of their observations.

The Board directed their inquiries to the course of instruction, both military and scientific, to the internal police, discipline, and fiscal concerns of the Institution. In making these inquiries, every facility was afforded by the Superintendent and members of the Academic Staff. In order that these inquiries might be prosecuted with greater advantage, Committees were appointed by the Board, with instructions to inquire especially into the portion of the foregoing subjects referred to them respectively, and to report the result of their observations.

The reports of those Committees, which are herewith transmitted, will convey to you much information in detail, which could not conveniently be embodied in this report.

As this is professedly a Military Institution, the attention of the Board was first directed to the course of military instruction. Although this branch embraces a wide field, it is intended to speak of it as limited to Engineering, Artillery, and Infantry Tactics.

Engineering is divided into two branches; Civil and Military; and in connection with the latter, is taught the Science of War, so far as it relates to the attack and defence of military positions, and the providing of defensive means for an army operating in the field.

In the course of Civil Engineering, is taught the properties, preparations, and use of materials of construction; elementary parts of buildings, and the art of construction generally, including decorative architecture; the manner of laying out and constructing roads, the construction of the various kinds of bridges, the general principles which regulate the removal of obstructions that impede the navigation of rivers; the survey, location and con-

struction of canals and railroads; and the formation of artificial, and the improvement of natural harbors. This branch is taught to the first, or graduating class, by lectures, and a series of drawings and notes, prepared by the Professor from the best authorities, and lithographed at the press belonging to the Institution, under the title of "Outlines of the Course of Civil Engineering." Drawings, illustrative of the prominent parts of the subject, are executed by the Cadets; and these exhibit great neatness of execution, as well as much precision in detail.

Next in order is the course of Military Engineering.

This comprises Field and Permanent Fortification. In the first, are taught to the same class, the principles which regulate the construction of field intrenchments; the different kinds of lines; batteries for the various kinds of ordnance; the armament of intrenchments, with reference to the attack and defence, enclosed and detached works; defence of posts; and the construction of military bridges; permanent fortification, including a complete description of the bastion front; the attack and defence of the same; a critical examination of the principal systems of fortifications; the construction and armament of a fortress; the hydraulic works used in the defence of military positions; mining; the principles of defilement, and their application to works constructed for inland and maritime defence. Military Engineering is taught from a text book, and from notes prepared with judgment and skill, by the Professor; the whole being amply illustrated by drawings, executed by the students, under the immediate supervision of instructors.

To the professional ability of the Professor to whom this department is confided, the very able and satisfactory manner in which his pupils acquitted themselves in the various parts of their course at the black board, in presence of the Visitors, afforded the most pleasing and ample testimony.

No changes, either in the course of study or organization, are at present contemplated, nor are any deemed necessary. The Board, however, would recommend the continuance of small appropriations of money, by Congress, for the purpose of providing the department with such works and models as the Professors may from time to time require.

Instructors are given to the Cadets of the first class in Artillery Tactics, during the encampment, which usually commences in June and terminates on the first of September following. During this time, they are required to recite upon a system of Field Artillery, at the same time that they are taught a course of Pyrotechny, Mortar exercises and Target practice, with guns of various calibre, as well as mortars and howitzers. Cadets of the other classes are also taught the drill of Field Artillery during the suspension of the other academic studies.

It is thought by the officer at the head of the Department, that the time allowed for recitation is insufficient, and that much which ought to be studied thoroughly is necessarily passed over rapidly.

In our country there is no establishment provided by law especially for instruction in Artillery. All the education our officers receive in this branch of study is, with the exception of the mere drill of an artillery garrison, obtained at this place. This deficiency would seem to suggest the importance of placing this department of the Academy upon a more enlarged and permanent basis.

It is the opinion of the Board, that it would be greatly to the advantage of this course of instruction, if a permanent assistant were attached to it, instead of the mode now in use of detailing Cadets from the graduating class.

In connexion with this subject, the Board would remark, that the moving of ordnance on the field, by the bodily exertions of the Cadets alone, is a requisition upon them of great severity, and is at the same time obnoxious to the objection, that it keeps the Cadets entirely unskilled in the only mode of using the field piece employed in actual service. The Board would, therefore, suggest the propriety of procuring a number of horses sufficient for Artillery exercise, and also for instruction in Cavalry tactics.

The same horses would be used for both purposes, and the number required would not exceed forty.

Cavalry Tactics have never been taught at the

Academy. Cavalry, as an arm of national defence, is confessedly of great importance. It is submitted whether instructions in that branch might not be advantageously added to the course of instruction at this Institution.

The Ordnance Stores furnished for the year, are good in quality and sufficient in quantity. Some field pieces and guns of different calibre are wanted to render this department complete, which are particularly detailed in the report of the Committee on this subject.

On drill, and in firing in the field, the Cadets exhibited a thorough knowledge of the manoeuvres and evolutions in this important arm of service; and in their drawings and mathematical demonstrations at the black board, they evinced high proficiencies in the theory and practice of gunnery. Their target firing and accuracy of throwing shells, are very commendable, and afford unequivocal evidence of great zeal and ability on the part of the instructor, for which he is entitled to much credit.

The corps of Cadets, organized as a battalion of infantry, exhibits on the field a perfect knowledge of infantry tactics, and performs all the evolutions of the line and of the battalion with facility and accuracy. Their appearance in dress, in the condition of their arms and accoutrements, as well as in soldier-like bearing, is highly gratifying, and deserves much commendation, whilst it reflects much credit on the experienced officer who commands them.

With regard to the course of study in the other branches which are taught, agreeably to the regulations of the institution, the Board was well satisfied with the abilities and zeal of the professors and their assistants.

Besides the branches already mentioned, the Cadets of the first, or graduating class, were examined on Moral and Political Science, and on Mineralogy and Geology, on all of which they exhibited attainments that could only be the result of much attention on their part, aided by skill and perseverance on the part of the Professors and their Assistants.

In Moral and Political Science, the first class was subjected to a satisfactory examination. The familiarity they evinced with the several systems of ethics propounded by distinguished masters at different periods, showed that their minds had been effectually directed to the distinguishing characteristics of those systems, and their relative merits closely compared by them and familiarly understood. The examination on the subject of Government and Constitutional Law, were highly gratifying, with room, it is true, for slight shades of difference in opinion; on the latter topic, the discussions and replies of the class were such as showed a just comprehension of the nature and objects of civil government in general, of the peculiar and unique and happy system under which they live; qualifying them at once for participation in the pursuits of civil and political life, and teaching them duly to appreciate the blessings of those institutions, which, as soldiers, they may be called upon to defend.

The second class was examined on Natural and Experimental Philosophy, on Chemistry, and Drawing. On these branches, the proficiency of the Cadets was quite creditable to themselves and to their instructors. The knowledge which the pupils seem to have acquired in the important branch of Chemistry, not only of its general principles, but of their application in detail was gratifying. The specimens of Drawing by the Cadets, exhibited to the Board, showed a practical acquaintance with this branch, which demonstrated that they are fitted at once to apply their acquirements to purposes of practical utility.

The third class was examined in Mathematics, in the French Language, and Drawing.

The fourth class in Mathematics and the French Language.

It has often been remarked, that in no school is the mathematics more thoroughly taught than at this Institution. The correctness of this remark was quite manifest during the present examination, whenever mathematics or any other branch dependent on that science was under consideration.

The examinations on the French language were very satisfactory. To those acquainted with the language, there appeared, by the course of instruction, to be imparted to the student a thorough knowledge of the principles of the language.

Some of the members of the Board had an op-

portunity of witnessing the proficiency of the Cadets under the instructions of the Sword Master. It was thought to be quite creditable. Whilst the instructions of the Sword Master secure to the officer and soldier the best means of personal defence, the exercise connected with them is well fitted to improve the health, and to impart to the muscular system tone and vigor.

As connected with the course of study, the Board has thought proper to remark, that a good Library, a Chemical and Philosophical Apparatus, are essential aids in imparting scientific instruction. It is believed an important benefit would be conferred on the institution, by adding to the library some of the periodical works which contain the earliest, and, at the same time, the most learned dissertations upon the improvements of the day.

The situation of the Professorship of Chemistry, it is thought, might be placed on a better footing. At present it is subsidiary in every respect. It is recommended that it be placed on an equality with the independent professorships, and that there be two assistants, one of whom should be the Professor of Mineralogy. The whole course of study as conducted, it is believed, is well fitted to create a fund of information which cannot fail to be of inestimable value to our country in a civil as well as military point of view.

The attention of the Board was directed to the course of Religious instruction. This course is necessarily of vital importance. During the present visitation, the Chaplain to whom this department is entrusted, has been under arrest. There was, therefore, no opportunity of witnessing the manner in which the duties belonging to this department are performed. The importance of the duties to be performed by the Chaplain, has induced the Board of Visitors to recommend that the Secretary of War institute an inquiry into the causes which have led to a suspension of the performance of those duties.

With regard to the Internal Police it is entitled to high approbation. The condition of the hospital is fully suited to the object of securing to the Cadets all the comforts and all medical aid that they can require in ordinary cases of indisposition. Clean, well ventilated, and properly attended by nurses, nothing need be added on these heads; recent circumstances, however, have suggested the propriety of enlarging the number of surgical instruments.

The South Barrack, which is the oldest building of the kind at this post, is badly constructed. The rooms are too small, and they are injudiciously disposed. It is recommended that they be rebuilt.

Both barracks present an air of cleanliness and order that reflects credit on all concerned.

The Steward's Hall, where the Cadets mess in common, was visited. It was found that the Cadets are supplied with good and wholesome food.

A building for a Chapel has been commenced; and it is thought will be completed this year.

The Store House is an old and very insecure building, and altogether unfit for the use to which it is applied; a new one is recommended for the safe keeping of the stores deposited here.

The fiscal concerns of the institution were brought to the notice of the Board. The disbursements are found to be made in accordance with the appropriations made, and a system of order and economy prevails. A building for military and other exercises, so requisite for the successful prosecution of military knowledge during the inclement season of the year and to the health of the Cadets, has been commenced under the appropriation for that purpose.

An improvement is recommended in the apartments appropriated to the use of the Chemical Laboratory, Library and Philosophical Apparatus. They are too small and exposed to danger in making chemical experiments.

The teacher of Drawing is entirely destitute of the convenience necessary to the practice, study, and of course improvement in his profession. The building of an apartment for that purpose is recommended, the estimate expense whereof will not exceed eight hundred dollars.

In the accounts of the Treasurer and Quartermaster the expenditure appears to be rigidly confined within the appropriation. The whole fiscal arrangement meets the entire approbation of the Board. The attention that is paid to economy in all the details of the Institution is very satisfactory. There remains in the Treasury an unexpended

balance of the appropriation of last year of eight thousand dollars.

Upon the whole the Board is of opinion that the Institution is well conducted; that the objects to be attained by its continuance are of very great importance to the community. Knowledge is obtained by means of this Institution which is indispensable to the successful conduct of military affairs. Not only is the knowledge imparted to those educated here, valuable in time of war, but should a state of war be looked upon as remote, the knowledge acquired is scarcely less valuable in time of peace, when applied to the prosecution of the various improvements which are so rapidly developing and enlarging the resources of our country. But the hope that peace shall be perpetual should not be indulged to our detriment. The means most essential to the resistance of aggression should always be within our reach. The humiliating disasters, the waste of life and treasure, that marked the commencement of the late war, for want of a knowledge of what should be deemed the elementary principles in the science of war, are still fresh in the recollection of many. This Institution, it is believed, is well fitted to obviate the recurrence of such calamities, from the same cause. At an expense less than is requisite to keep in commission a frigate of the largest class, knowledge of the science of war, in principle and in practical detail, is imparted to a sufficient number of citizens of our own country, to enable us, in any emergency, to conduct our military operations on a footing of equality with the most skillful enemy.—When it is considered that success in war is slightly dependent on either the numbers or courage of the parties, but is most generally the result of the scientific and skilful combinations of causes, the effect of which is foreseen and calculated almost with the precision of a mathematical problem, it would be a source of the most painful reflection, that a country, justly proud of its freedom and liberal institutions, should, for want of appreciating the knowledge necessary to the defence of that freedom and those institutions, permit itself to be placed at the mercy of the enemies of all liberty and liberal institutions. It cannot be denied that those governments most hostile to liberty at the present day, are most ready to appreciate, and to appropriate all the aids that can be derived from science, and applied to the art of war. How important that those countries blessed with freedom should keep themselves on a footing of equality, not in the largeness of their armies, but in the knowledge necessary to the formation of armies, and to direct them, when formed, with efficiency. The knowledge imparted at this institution to the children of our own citizens, selected from every part of the country, is so indispensable to our security, that to dissolve it without providing a substitute possessed of advantages equal or preferable, would seem like retrograding from civilization towards barbarism; and well calculated to endanger our national independence.

(Signed.) P. V. DANIEL,
President of the Board of Visitors.

E. S. DAVIS, South Carolina.
PETER MARTIN, Alabama.
JOHN HUNTER, Westchester, N. Y.
JOHN BRAGG, North Carolina.
JONATHAN COGSWELL, Connecticut.
JOHN A. GRAHAM, New York.
WM. J. LEIPER, Pennsylvania.
WM. C. FRASER, Penn.
THOMAS J. PEW, Kentucky.
WM. C. LYMAN, Georgia.
EDWARD H. CARMICHAEL, Va.
CHARLES C. FERRIS, New York.
CALVIN BLYTHE, Pennsylvania.
WM. T. ROGERS, Penn.
H. ATKINSON, Brig. General U. S. A.

SUMMARY.

The venerable JAMES GIBSON, the hero of Stony Point, the respected and honored of all parties, expired at his residence in Richmond, Virginia, on Wednesday morning last, after a lingering illness.

We understand that the President of the United States left this City yesterday, in the Steamboat Columbia, for the Rip-rap, (Fort Calhoun,) where he proposes to recreate and recruit his health for a week or two.—[Nat. Intel.]

A letter writer from the White Sulphur Springs of Virginia, states that Major Barry, the Post Mas-

ter General, was a visitor there on the 23d of June, and that he was in very feeble health.

The Norfolk Beacon states that orders have been received at the Navy Yard, Gosport, for the immediate fitting out of the North-Carolina 74.

[From the Globe.]
OFFICIAL.

NAVY DEPARTMENT, 3d July, 1835.
The Board of Examination recently convened at Baltimore, composed of Captains—

HENRY E. BALLARD, President.
A. J. Dallas,
Wm. Compton Bolton, } Members.
Alex. Claxton, and
Laurence Kearney,

has closed its duties.

The following is a list of the Midshipmen who passed, arranged in the order assigned them by the Board:

Class 1827.
M. G. L. Claiborne.

Class 1829.

1 Oliver H. Perry,	16 George Wycke,
2 Charles W. Morris,	17 Octavius Fairfax,
3 Joshua Humphreys,	18 T. A. M. Craven,
4 Richard Bache,	19 Dominick Lynch,
5 Francis E. Barry,	20 Francis B. Renshaw,
6 Joseph Underwood,	21 Addison R. Taliaferro,
7 John B. Dale,	22 Horace N. Harrison,
8 Stephen Decatur,	23 James H. North,
9 William L. Maury,	24 Robert B. Pegram,
10 David D. Porter,	25 Edward C. Ward,
11 Edw. C. Bowers,	26 Richard G. Cogdell,
12 Montfort S. Stokes,	27 Matthew S. Pitcher,
13 Nathaniel G. Bay,	28 James Anderson,
14 Thomas Budd,	29 Charles Thomas.
15 And. F. V. Gray,	

FINANCES OF CONNECTICUT.—According to the annual account of the Comptroller of the State of Connecticut, the whole expenditure of the Commonwealth, including Legislature, Judges, State Prison, &c. was last year \$74,015—and the receipts (excluding a balance in the treasury of \$13,443) were \$78,258. The public funds of the State (exclusive of its very large School Fund) are about \$400,000 in bank stock; its public debt about seven hundred dollars!

The Detroit Journal of June 30th, says—It is cheering to state, for the information of our distant friends, that the general health of our city has rarely been surpassed: and never have our streets presented a more gratifying exhibition of business, enterprise, and progressive improvements, than at the present moment.

DIVIDENDS.—The following Marine and Fire Insurance offices made their semi-annual dividends yesterday:

Neptune office	7 per cent.
Ocean " "	6 per cent.
New York " "	5 per cent.
Union " "	3 per cent.
Howard " "	4 per cent.

EFFECTS OF COMBINATIONS.—The Miners Journal states that since the turn out of the Boatmen, we understand that several of the largest shippers of Coal in this region, are making arrangements to have built a sufficient number of boats to carry their own Coal to market.

ROYAL AND NOBLE TRAFFICKERS.—In a recent book of travels, or rather book for travellers, published in England, "The Road-book from London to Naples," the following statements are made:

Near Cumæ is the Lake of Fusaro, where the pleasure of the excursion, to some travellers, finishes with a feast of oysters, for which this lake is famous. It belongs to a very distinguished oyster-monger—the King of the two Sicilies—whose agents open the fish and supply the visitors.

They do strange things in this way in Italy. At Rome, the Cardinal Doria used to be the milkman to those who chose to send to his palace for this necessary article to the tea-drinking English; and at Naples, the only good buttermilk is his majesty; and those who wish to have this article genuine send to court for it, whence it is issued impressed with the royal arms. His majesty is also the chief, or only dealer in gunpowder, salt, tobacco, &c. &c. &c.

THE LITERARY SOUVENIR FOR 1835, by Maria J. Watts, of which the usual supply was despatched to this country in the packet ship Sovereign, and shipwrecked, has since been received by Wiley & Long—at least a few copies of it. The engravings, the paper, and getting up of the book—so far as the eye is concerned—and we have had no opportunity for any other examination, are exceedingly attractive.

PROGRESS OF THE ARTS.—The National Academy closed its exhibition of original pictures, by native artists, on the 4th inst.; and it is with satisfaction we learn and record the two encouraging facts—that the receipts from this exhibition exceeded by a thousand dollars those of any previous one—and that, with very few exceptions, every picture that was on sale, was bought at the artist's own prices. Among them were three by Mount—the *Sleepy Hollow*, by Cole—and several others. This result is both gratifying and encouraging.

In an account of the present exhibition at Somerset House, we find these notices of two pictures, which may be called American. The one from its subject *Columbus*, the other from its artist *Leslie*.

"Christopher Columbus explaining the project of his intended voyage for the discovery of the New World, in the convent of La Rabida." D. Wilkie, R. A.

"A stranger travelling on foot, accompanied by a young boy, stopped one day at the gate of a convent of Franciscan friars, dedicated to Santa Maria de Rabida, and asked of the porter a little bread and water for his child: while receiving this humble refreshment, the guardian of the convent, friar Juan Perez de Marchena, happening to pass by, was struck with the appearance of the stranger, and observing from his air and accent that he was a foreigner, entered into conversation with him." That stranger was Columbus.

"The conference which followed was remarkable for opening a brighter prospect in the fortunes of Columbus, and forms the subject of the picture in which he is represented seated at the convent table, with the prior on his right, to whom he is explaining, on a chart, the theory upon which his long contemplated discovery is founded. At his left is his son Diego, with a small Italian greyhound at his feet, supposed to have accompanied them in their voyage from Genoa.

"At the other side of the picture, resting on the table, is the physician of Palos, Garcia Fernandez, who from scientific knowledge, approved of the enterprise, and whose testimony has recorded this event. Behind him, with the telescope in hand, is Martin Alonso Pinzona, one of the most intelligent sea captains of his day."

Such is the subject of the picture, and it may be considered the triumph of Wilkie's in the present exhibition, and one that ranks very high in art.—The expression of Columbus is truly noble and intelligent, dignity and mildness are in every lineament. At the left of Columbus is his son Diego, holding a small Italian greyhound, which reclines at his feet. In the back ground is introduced the head of Pinzona, whose expressive eye denotes the suppressed jealousy lurking in his bosom, at the same time giving a reluctant approbation to the plan of the great navigator. The other characters are all in accordance with the subject, and as far as conception in color and composition extend, this picture may rank among the grand historical, and be classed among the finest productions of the British school.

"Gulliver's Introduction to the Queen of Brobdingnag." C. R. Leslie, R. A.—This picture represents the point of time when the little Gulliver is presented to the gigantic Queen of the Brobdingnagians, surrounded by her maids of honor. The captain in the back ground is receiving the money which the Queen pays for the purchase of the diminutive curiosity. Gulliver is on the table embracing with fervent devotion the tip of her Majesty's little finger. We think the whole of this picture is a misconception. The artist has not conquered the difficulty with which the subject evidently labors, namely, to make the women Brobdingnagians without making a Lillipution of Gulliver. As a painting it has the usual superior style of this artist's masterly touch and freedom of execution.

cution, with great harmony of coloring—but still we must confess the representing Gulliver among the Brobdingnagians is quite a failure.

ROYAL ASSOCIATE IN THE TEMPERANCE CAUSE.—We find it stated in the Paris papers of 8th May, that *Bernadotte*, king of Sweden, had become a member of the Temperance Society at Stockholm. According to the regulations of that Society, when a man becomes a sot, his name is posted up at the church doors, and prayers are offered up by the congregation for his reform.

Should not the N. Y. State Temperance Society—that "moral colossus," as we have seen it happily called—elect this King who thus, the first of his order, lends the influence of high name and station to such a cause, an honorary member?

The Nashville papers state that the United States Bank has ordered the office in that place to collect its old debts by the 4th day of March next, and to close its new business, founded on bills to be drawn on New Orleans, in anticipation of the growing crop, within six months from the first day of November next, thereby to enable the Parent Bank to withdraw its office from Nashville by the first day of May.

The committee appointed to ascertain the damage done by the Tornado in the village of Piscataway, New Jersey, report the amount at five thousand and fifty dollars. This is a very heavy loss for such a place.

[From the *Lynchburg Virginian* of Thursday last.]

THE STORM.—It is impossible to give any thing like a minute and detailed account of the ravages of the furious and destructive storm, with which we were visited on Saturday afternoon, 27th June. Our information from the country is entirely too partial and limited to admit of it. We have learned, however, that its first traces are discernible on the farms near the base of the Peaks of Otter, in Bedford county, (some 18 or 20 miles west of this place,) though in that immediate neighborhood the damage is comparatively trivial. Progressing eastwardly, with occasional deviations from a direct line, and gathering violence as they rolled onward, the clouds poured forth, from apparently inexhaustible magazines, showers of hail stones—or, more properly speaking, masses of ice,—stripping the orchards of their fruits, and the gardens of their vegetables—beating down the promising fields of corn level with the earth, the stalks mashed into a jelly and the fodder torn into shreds—sweeping off the wheat, rye and oats, as if the scythe of the reaper had passed over the fields, and scattering abroad the nearly ripened grain, as if the processes of curing and threshing had been a simultaneous work. In one word, the entire strip of country which was within the track of the storm—supposed to be a mile and a half in width, and probably from fifty to sixty miles in length—exhibits a most distressing scene of desolation and ruin.

In Lynchburg, all were sufferers, more or less. The gardens, many of which were highly cultivated, are entirely destroyed, with the exception of the few vegetables,—potatoes, onions and beets,—which were in a measure screened from the fury of the tempest by their subterranean mode of cultivation. Nearly every house in town lost a portion of its window glass.—It is supposed that not less than from 15 to 20,000 panes were shattered. A few chimneys were blown down, several dilapidated out-buildings prostrated, and many trees uprooted. Fortunately, however, no lives were lost, though several persons received severe contusions and bruises. Thousands of birds and domestic fowls were killed, and the trees in the forests and yards, in which the feathered tribe sought shelter, were divested of the greater portion of their foliage, and even their bark peeled off, as though they had been subjected to a moderate cannonade. The amount of damage done in this place and its immediate neighborhood cannot, of course, be at present estimated, with any thing like precision. It may, however, be safely stated at \$100,000—and we should not deem double that sum an extravagant estimate.

We can truly say that we never before beheld a

scene so awfully sublime and terrific as that presented by this storm, both in its approach and in its progress. There was but little thunder or lightning, but the descent of the hail was preceded, for several minutes, by a monotonous rumbling sound, resembling the bass tones of distant thunder, or the deep roll of the muffled drum—and reminding us of the ominous notes which precede the earthquake, apprising the unhappy victims of approaching death, too late to enable them to avail themselves of the warning. The clouds wore an unnatural aspect, tinged with a greenish hue, and rolling and pitching in the "void immense" with startling velocity and fury. Luckily, however, the wind was comparatively mild, except for a very brief space, when it exhibited that angry whirl, in which its tremendous power is most fearfully displayed. During that brief space the "war of the elements" so completely wrapped the largest objects in obscurity, that a house, within a few paces, was totally lost to sight.

JOICE HETH.—A negro slave is now exhibiting in this city, at the Washington Coffee House, who has attained the extraordinary age of 161 years. A visit which we paid her yesterday, has removed whatever doubts we may have previously entertained as to the facts confirmatory of this extraordinary instance of longevity—and of which we expressed our doubts some weeks since, when we saw the fact mentioned in a Cincinnati paper. She is certainly a curiosity, and is what we hardly supposed ourselves, a very agreeable and interesting sight. And what is very remarkable, she retains a vivid recollection of the scenes of her youth. As the proprietor is on his way to Philadelphia, his stay here will be short, consequently those who wish to avail themselves of the sight of a being who was living more than one hundred years previous to the revolution, should do so immediately. The proprietor is very attentive, and renders to the visitors every satisfaction.—[Pittsburg Adv.]

TRINITY CHURCH, RICHMOND.—The citizens of Richmond, Va., have already subscribed nine thousand dollars towards rebuilding Trinity Church, recently destroyed by fire in that town.

BANK NOTE ENGRAVING.—We have before us, a note designed for the Union Bank of this city, from a plate engraved by Messrs. *Carleer, Durand, Burton & Edmonds*, of this city, which strikes us as of the highest finish and execution. The female figures on the sides, and the lettering in the body of the note, are capital.

* There are six India Rubber Manufacturing Companies chartered by the Legislature of Massachusetts—capitals from \$50,000 to \$100,000.

[From the *Boston Atlas* of Yesterday.]

The elegant steam packet *Independence*, destined for the Eastern route, arrived yesterday at 10 o'clock, in 30 hours from New York. Her burthen is 473 tons, and her accommodations for passengers, and furniture, are of the first quality. We are informed she will commence running to Bangor on Tuesday next. She can take out fourteen hundred people with safety.

ISLAND OF CUBA.—We have extracted from Havana papers the following official statement showing the imports, exports, and revenue of the Island of Cuba in the year 1834.

Imports,	\$18,563,300
Exports,	14,467,955
Imports from the U. States both in Spanish and American bottoms,	3,240,680
Exports to the U. States,	4,694,364

The number of Spanish and foreign vessels which visited the ports of the Island in 1832, amounted to 2026—797 of which were Spanish, 945 from the United States, 113 English, 58 French, and the remainder belonged to various European nations.

The tonnage of all these vessels amounted to 300,000 tons.

Revenue of the Island.	
Duties on imported and exported goods,	\$5,200,000
Taxes and other sources of revenue,	4,965,000

Total revenue, \$10,165,000

The Treasury of Havana, after meeting all the expenses of the civil list, providing for the mainte-

nance of an army of 20,000 men, and sending two millions and odd dollars to the mother country, had, on the 1st of January last, a balance on hand of \$644,000.

It is expected that the enlightened views of the present Spanish Government with regard to the free trade of the Island, and the suppression of various burthens which now check the progress of agriculture, will contribute towards developing still more the great natural resources of this Island.—[Cour. & Enq.]

FROM MEXICO.—The New Orleans True American of the 18th ult. contains the following:

The news from Mexico was brought yesterday by the brig *Bebie*, from Vera Cruz. The dates she brings from the city of Mexico, are up to the 30th May. Peace has been re-established throughout the states. Rejoicings and festivals are taking place in every town of the whole Mexican Union in honor of the late Triumph of Santa Anna. The Mexican Congress of the 23d, decreed to that successful chief, the title of "*Saviour of the Nation*." A monument is also to be erected in honor to him on the field of his victory. His next title will probably be that of Emperor, and the next gift made to him—a crown!

FROM CANTON.—By an arrival at Boston we have Canton papers to February 17. Later marine advices have been received via Philadelphia. The following are extracts from the papers:—

Destruction of St. Paul's Church at Macao.—On the night of the 26th inst., this ancient and superb edifice was totally destroyed by fire. From its conspicuous situation, standing on almost the highest ground within the walls of Macao, the grand and awful sight of the blazing pile was visible to the whole city. The fire originated in the guard house, which was a part of the building, and occupied by soldiers. The church was built by the jesuits in 1602. We hope to see a full account of this melancholy event in the next *Chronica de Macao*.

[From the *Daily Advertiser*.]

NEWS FROM THE OTHER SIDE OF THE GLOBE.—We have received very copious files of papers from Sydney, in New South Wales, better known by Botany Bay. We have been exceedingly amused and instructed at the contents of these journals.—One of the files, "*The Sydney Gazette*," has been established thirty-two years, and its number is 2448, in size and workmanship in no way inferior to the largest New York journals, and the talent with which it is conducted is of a high order. We have made a synopsis of the intelligence, which, although not late and important which usually graces the head of a foreign arrival, is nevertheless quite interesting.

No less than 14 vessels are now loading for London and Liverpool, in this port, and two at the Hunter. The cargoes will, of course, consist of colonial produce, and principally wool and oil.—[Ed. Syd. Gaz.]

A mechanic, of some experience, is preparing a Diorama for exhibition, in Sydney. It will embrace a view from Botany Bay to the Heads, the harbor of Port Jackson, and the principal parts of the town.

On Saturday last, seven or eight publicans were fined at the Police Office, the sum of 40s. and costs, for selling liquors in their houses on Sundays.

A meeting of the friends of Chaulker, the Champion, and Tom Crawley, took place at the Custom-House Inn, last evening, when 700l. a-side was made good. Time and place in due season.

Yesterday, being St. Catherine's day, the ropemakers in Sydney showed their respect to their patron Saint, by abstaining from work; indeed, towards the latter part of the day, some of them were in a state not quite consonant with the rules of the Temperance Society.

The Cape Packet, (Captain Hindson,) which returned from the whaling grounds on Sunday last, with a full cargo of sperm oil, may be counted one of the most, if not the most, fortunate vessels that ever left Sydney—having been absent only sixteen months. On her previous voyage, under the command of the same gentleman,

she was still more fortunate, having returned to port as full as an egg, only twelve months out; during which time she never once dropped her anchor. The Cape Packet has also had the good fortune to obtain a considerable quantity of ambergris, which is so precious at home.

Mr. John T. Wilson, with a view (we are persuaded) to advance the interests of Australia, more than from any motive of personal aggrandizement has ordered a superb steam vessel of 300 horse power, which is to ply between this and Robert Town, and she may be expected to arrive in the waters of Port Jackson within three months of this date.

We understand that a large quantity of wool will be sold this season at Mr. Lyons's wool mart, in George street. A number of the settlers, it seems, prefer disposing of their clip in the colony, to taking the risk of shipping it, and awaiting the necessary delay before they can obtain returns. In our opinion it must be a very great advantage to those with whom cash in an immediate object, to be enabled to avail themselves of the very liberal terms upon which Mr. Lyons undertakes to receive wools for sale; and we are, therefore, not surprised to learn that the supplies of that article are likely to be very abundant. Although we may expect that the wool of this colony will always continue to maintain a high character in the English market, yet we do not think that the prices of one year should be taken as the standard of another. Like the price of every other article of commerce, that of wool may be expected occasionally to fluctuate, from various causes; and we do not consider it at all unlikely that the holders of wool may, now and then obtain higher prices here than the same article will afterwards realize at home.

A small quantity of gooseberries were on sale at the Market on Tuesday, at one shilling and sixpence per quart; some cherries at 3s. per lb. were also on sale. This is the first year, we believe, that gooseberries have been exposed for sale in the Market. Upwards of three thousand bushels of maize were exported to Hobart Town last week, by the ships New York Packet and Ellen.

The Henry Porcher was about to sail for Sydney with male prisoners.

The Isabella will proceed forthwith to Norfolk Island with prisoners and stores.

The steamboat Tamar is nearly fitted up. We understand that she will make an experiment trip to George Town, and immediately afterwards be sent to Sydney for sale, where it is expected she will bring a good price. It is said that 1500 pounds a year has been offered the proprietors, by persons there, for the hire of this vessel.

George Reynolds, publican, was fined 40s. and costs, for suffering persons to sit and drink in his house on Sunday last, against the act.

Thomas Smidmore was fined 40s. and costs for the same, and several other cases of the like nature were decided.

Mary Ann Clark exhibited in the stocks two hours this morning, for being drunk and not being prepared with the needful.

We understand that the Polish gentleman lately arrived in Sydney, intends giving a series of concerts.—A meeting of the share holders have unanimously appointed Mr. W. T. Cape, as conductor of the Sydney College.

On Monday last there were thirteen wool teams between the Sydney turnpike and the fifth mile stone. Other thirteen teams were counted between that place and Liverpool. Thirteen, it is well known, is the Devil's dozen; but in this case that old gentleman had no reason to say as he said when shaving the pig—"more cry than wool."—A Mr. Benjamin Kirby was fined on Friday last, in the sum of 4s., on a charge of furiously riding through Cumberland street.

The "British Sovereign" took in her last bale of wool on Saturday, and expected to clear out for London this day.—Thirty prisoners of the crown, principally cattle stealers, were forwarded to Norfolk Island, per sch. Isabella.

THE GREAT NATION.—We apprehend the United States may now be called the "Great Nation;" and as the people of that rapidly rising republic are the descendants of Britain, speaking the same language, and governed upon principles so truly congenial to Britons, we consider the arrival of an American ship here at all times a subject of gratulation.

[From the Southern Patriot.]

Shipwreck of the Children of Henry the 1st, of England.

MR. EDITOR,—The details of the following interesting narrative are given we believe for the first time, in an English dress to the public. It is compiled in part from an old Chronicle contemporaneous with the period of which it treats, and from an ancient record deposited in the Abby of Fontevault. History is silent as to these details, it merely relates the fact, that the Children of Henry the 1st, with a considerable body of the most illustrious persons of the realm, were lost on the passage from Normandy to England. We are therefore indebted to the industry of the Ancient Chroniclers for the relation of an event full of incidents of a most affecting and interesting character. The translation is from the pen of one of the young ladies at Madame Hery's Institution, who has upon more occasions than the present, introduced to the lovers of literature, gems of rare merit, and given exercise in this manner to powers of mind, which erst might have remained unknown, even to their fair possessor.

"The close of the year 1120, also saw the close of a long and sanguinary war, which was waged between Henry the 1st, King of England, and Louis Le Gros of France. The peace which the Belligerents then concluded, guaranteed to the English Monarch the undisputed possession of the fertile Duchy of Normandy, while on the other hand, a marriage which his son William, the heir of his throne, consummated with the beautiful Matilda of Anjou, also secured to him this rich and populous province. Thus his power was augmented, and ambition itself seemed satisfied. He saw himself master of England, and he gave law to a large portion of France. He was in the zenith of his power and glory, and he made preparation to return to Albion, surrounded with such symbols of splendor and glory, as were indeed well calculated to exhibit the march of the conqueror, and the triumphs worthy of a king.

He was accompanied in his journey from the interior to the coast of France by his family, and a numerous host of his chivalry having arrived at Barfleur in Normandy, he found several vessels, all anxious for the honor of conveying him to his paternal dominions.

When about to embark, he was accosted by a Mariner by name Thomas, who having approached the King presented him with a handsome gift, and thus addressed him: "Sire, my name is Thomas the pilot, and my father Stephen also followed the same occupation; he has served your Majesty well and long. When William the Conqueror sailed from this port, it was he who conducted the ship which bore your illustrious father across the sea; he fought under his banner; he aided him in the conflict, and under the blessing of heaven helped to achieve the victory. Permit me then, oh gracious King, to have the same post, which the good King William bestowed upon my father. I have at your royal service a brave ship, she is stout, newly built, and manned by fifty vigorous and expert seamen." The King answered him, "Friend, I have already chosen a ship and cannot change it; but in order to testify our sense of your loyalty, and of the fidelity of your family to our royal house, we will confide to you the charge of transporting to our kingdom, our two sons William and Richard, and our dearest daughter Adèle. Guard them as you would ourselves; they are dearer to us than our life! You will likewise have a number of our principal Nobility and Courtiers, and the bulk of my treasure; go now, be vigilant and be careful!"

The gallant bark, which carried the Monarch of Britain, shortly after got under weigh. She is soon out of sight, and reached Northampton in safety early next morning.

The *Le Blanche Nef*, unhappily remained behind, the sailors overjoyed at their good fortune, in having so rich a freight, gave themselves up to all kinds of merriment and to expressions of extravagant joy, unfortunately a large quantity of Wine was distributed amongst them. They surround the young Princes, and testify their attachment and their pleasure, by dancing and singing. At length the Princes retire to rest, but the revelry and mirth continued on deck for some time after.

The signal for departure is given, and the ill-fated vessel is seen at last to sail. She shoots like an arrow through the water. She grows less and less distinct, and is lost at length in the receding dis-

tance. Besides the two Princes and their sister Adèle, she had likewise on board as passengers 18 ladies of the Court, the wives or daughters of the most considerable of the Nobles, and learned men, and other distinguished persons, 104 Barons and Chevaliers, the flower of the armies of Normandy and England, in all about 300 persons.

There were many, however, more provident and wise, who absolutely refused to embark in the *Le Blanche Nef*—they would not consent to commit their lives to the keeping of men, who were either insensible to the calls of duty, and seemed deprived of their reason—who, said the historian, instead of attending to the adjusting of the sails and the trimming of the ship, listlessly lolled upon the benches or took possession of the coffers that incumbered the deck.

At the given signal she starts with ardor from the quay,—the *La Blanche Nef* recedes rapidly from the shore, amidst the acclamations of the people; but in the moment of entering the bay of Catte, now Gatteville, whilst the rowers, in a state of complete intoxication, employed all their strength to overtake the King, (which they made it a point of honor to do,) the left side of their ship struck against a rock with such force, that the sea immediately entered, and covered a great part thereof. The rock was called Quilleboeu, the summit of it was round, and white, and could be seen at the ebbing of the tide. A cry of distress was uttered at the same moment from all the passengers. It rose over the waters, it was heard on the shore—but no succor came; because none could divine its cause. Dismay took possession of every mind, the stoutest heart was appalled, darkness brooded over the scene, and the utmost confusion prevailed on board. Thomas the Pilot, the ill-starred author of this great disaster, sought for the Princes;—he hurries them into a boat, he is about to hasten from the scene of distress, when the young Adèle standing on the deck, perceiving them, cries out, "oh! my brothers will you abandon me," at these words Prince WILLIAM forgetful of the danger of venturing with a small launch to a vessel crowded with so many persons, held out his trembling arms towards his sister, and approached her! On the instant, the whole crew precipitate themselves into his frail bark, and it sunk with the ship—all disappeared with the bark!—but two men, one a young Knight, son of Geoffrey de le Aigle, the other a Butcher of Rouen named Berold—these kept themselves above the water by holding on to one of the masts. THOMAS the Pilot re-appeared for a moment above the water, he sees these two persons, his strength and reason appeared renewed, "Are the King's sons safe?" "They are lost with the others" was the answer he received. Oh woe! is me cried the Pilot, and he sunk forever beneath the waves. It was one of those dreary, dark and cold nights of November—when the weather was calm, and the sea was serene. Scarcely a ripple disturbed the bright, the deep and awful solitude that now brooded over its bosom, the moon shone forth in cloudless splendor and revealed to the sufferers the full extent of their danger; they gave up all hopes of safety and committed themselves to the care of God! In vain they cast their eyes to the shore; in vain they lift their voices for assistance, the one is lost in immeasurable space, the other is drowned amidst the deep murmurs of a boundless ocean.—Mysterious Providence! unsearchable are thy ways! how different was the fate that awaited these unhappy men. By a strange destiny made equals in misfortune, they for some time bravely combat with their fate; companions in peril, they encourage each other by the most kind and affectionate words; united by the ties of calamity, the Butcher is now engaged in cheering on his fainting friend, and again the young Count, with the heroism becoming his blood essays the like kind offices to his humble but faithful attendant. But who can resist the power of fate. The youthful heir of Geoffrey is seen to sink, he yields to the pressure of woe: his constitution being more delicate, and his limbs less vigorous than those of the peasant Berold, become exhausted; his strength fails him, his hands are benumbed with cold, and letting go that wood which he is no longer able to grasp, he abandons himself to the sea. With a prayer to God for the salvation of his soul, and for the safety of his companion, he sinks beneath the water, one sigh from the victim, one single murmur from the passing wave, and all was over for the high hopes of a devoted mother.

The Butcher of Rouen, of all that lofty and gallant host alone, escaped—to relate these details to

the Chroniclers of Fontervault, for the information of posterity. Some fishermen passing that way, clad in sheep skins, the dress at that time of their class and country, heard his moans and came to his assistance. They brought him to land, and resuscitated him with cordials and by their hospitality. On the next day, the sea cast on the coast of Barfleur, the bodies of the shipwrecked passengers.

In the mean time Henry, ignorant of the events of that terrible night, waited impatiently for their arrival. He was alternately the subject of hope, and the victim of anxiety and expectation, the fatal news was spread by evening. But who would undertake to inform the miserable King, the wretched Father, of the frightful affliction? Who would break to him the revelation of a catastrophe, that must for ever plunge him into the dark abyss of suffering and of woe? All those around him, were partners in his grief; each had to mourn over a dear relation or a cherished friend. They employed a child, who, casting itself at the feet of the Sovereign, told him all. Ah! who now can tell the father's grief? who now will paint the parent's heart? Henry fell to the earth pierced with anguish. His gallant sons dead! his beauteous Adèle no more! He turned in disgust from glory, his hopes were blighted, the sunshine of his life was gone, and a dark night of gloom closed over him for ever. His children were snatched from him by the tyrant in the very hour of happiness, of triumph, and of honor. He shed not a tear for many days; he abandoned himself to despair; he called upon his children by name, and he would chide them for their delay. He would then awaken to his loss; tears came to his relief, and in this mood he would find an alleviation of his pain in dwelling upon their virtues and their many good qualities. He would frequently recur, also, to the brave men who perished with them, and seemed to experience a melancholy pleasure in recounting their heroic deeds, and in the relation of acts of valor which made his Knights the flower of Chivalry, and illustrious before the armies of Europe. From that terrible day, continues the ancient MS., Henry the First of England, one of the greatest monarchs in Christendom, was never seen to smile.

Prince William was 16 years of age when he married Matilda, heiress of Anjou. She was then about 14, lovely and endowed with a mind, cultivated with care by the good monks, who followed a life of piety and letters under the protection of her father. She was in the vessel with the king, her father-in-law, and thus escaped the misfortunes of her husband. They had been married but a few days.

The young Princess was pierced with grief that was inconsolable when she heard of her husband's death. She mourned over his fate and refused to be comforted; they were so lovely, so united and so young. Alas! she was indeed an object of compassion and tender pity. In a very short time after these events took place, Matilda returned to her father, but the seductions of a Court had no charms for a wounded spirit, and finding that the brilliant circles of the gay and the refined, only increased the bitterness of her regrets, he consented at length to her entering into the Abbey of Fontervault, where she spent the rest of her days, if not happy, at least tranquil and resigned; her time was employed in acts of usefulness, of virtue, and in prayer. After due season she took the veil, and became the second Abbess of that celebrated institution, and by the gentle charities which she diffused around her, and the odour arising from a life of sanctity and good example, by innumerable acts of benevolence and humanity, and by the performance of other good works, she was so esteemed, so revered, and so beloved, that to the poor of her neighborhood she became indeed a second mother, and was regarded in the light of a Guardian Angel.

"The Countess de Provence to her Husband.—Chanson
 Vos ge m'asemblatz del corals amadors.

I fain would think thou hast a heart,
 Although it thus its thoughts conceal,
 Which well could bear a tender part
 In all the fondness that I feel!
 Alas! that thou wouldst let me know,
 And end at once my doubts and woe!

It might be well that once I seem'd
 To check the love I prized so dear,
 But now my coldness is redeem'd,
 And what is left for thee to fear?
 Thou dost to both a cruel wrong,
 Should dread in mutual love be known?
 Why let my heart lament so long,
 And fail to claim what is thine own?"

La Gantille Marguerite, the unhappy wife of Louis the Eleventh, when dying broken-hearted, in consequence of the cruel treatment of her husband, on being comforted by one of her attendants, who spoke of hope and life, exclaimed, as she turned away in despair, 'Fi de la vie—ne m'en parlez plus,'—and expired.

The following lines are in illustration of the exclamation of that beautiful and wretched queen:—

Oh! speak to me of life no more!
 Its lurid star will soon decline,
 Soon will its miseries be o'er,
 Its pleasures never have been mine.

Out upon life! oh, if to live,
 As I so long have done,
 Is all this niggard world can give,
 'Tis well my sand is run.

Why should I shrink, or why delay?
 The future cannot show
 Ought that can charm my soul to stay,
 Or bid me sigh to go.

Out upon life! it might have given
 A lot from sorrow free—
 It might have shone with hues of heaven,
 But they were not for me!

This heart was fond, this heart was true,
 But wither'd, torn, oppress'd,
 It could not now its pulse renew,
 Or warm this tortured breast.

What has it now with life to do,
 So changed from what it was of yore!
 The world is fading from my view,
 Oh! speak to me of life no more!

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-17

RAILROAD IRON.

500 Tons Railroad Iron, 2 inch by 1/2, with Spikes and Splicing Plates to match, for sale by

WM. G. BULL & CO.
 25-3p 74 Wall-st.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. BRASTUS CORNING & CO., Albany, or to THOMASTUNER, at the Factory, Troy, N. Y. sep.12-1y

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 8 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.
 Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Waterstreet, New-York; A. M. Jones, Philadelphia; T. J. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

132am H. BURDEN.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad,

No. 264 Elizabethstreet, near Bloecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J361f

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 14 to 15 feet, counter sunk holes, endcut at an angle of 45 degrees, with splicing plates and nails to suit.

250 do. of Edge Rail of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 24 1/2, 3, 3 1/2, and 3 3/4 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mewr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughtons, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
 Mathematical Instrument Maker,
 No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to the inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

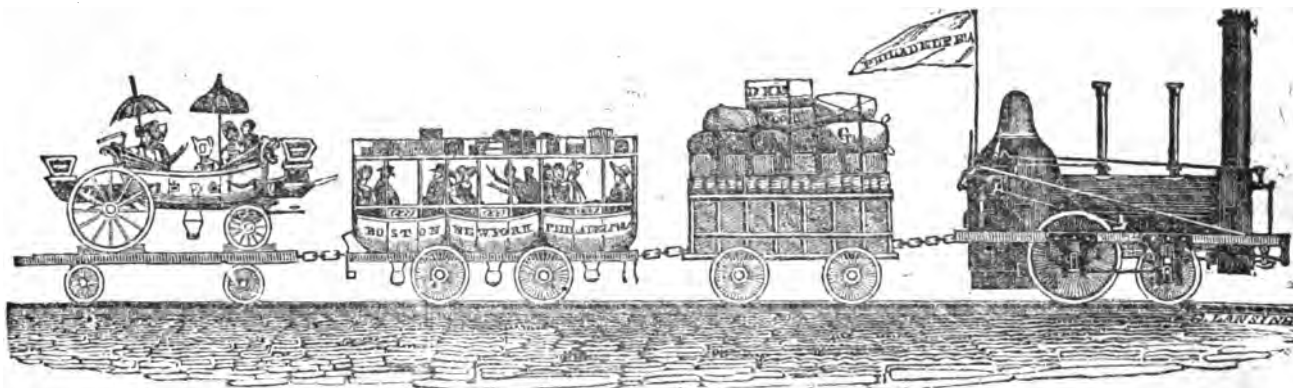
Respectfully thy friend,
 JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833. Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. H. OILL, Civil Engineer.

Germantown, February, 1833. For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad., Germantown, and Norristown Railroad.



AMERICAN RAILROAD JOURNAL, A ND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, JULY 18, 1835.

[VOLUME IV.—No. 28.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JULY 18, 1835.

TO BOSTON BY DAYLIGHT.—We understand that the Stonington and Providence Railroad is progressing rapidly. The route is a very level one, and one fourth of it, and that the most difficult, is already graded.

It is expected that the road will be ready for use next season, when all who travel for pleasure will be enabled to leave New-York in the morning in the Stonington steamboat, avoiding all the horrors of Point Judith and open sea navigation, and arrive at Boston in good time, by the Stonington and Providence and Boston and Providence Railroads, the same evening.

Those who travel for business, may, by the same route, leave New-York at night, and be in Boston the next morning; transact business during business hours, and be in New-York to breakfast the next morning; being absent from New-York but one day, and spending that day in Boston: thereby bringing us as near to Boston, in a business point of view, as we now are to Albany.

Another most important advantage which this route has is, that it is always open, as the Stonington harbor never freezes, and was not, as we are informed, even for an hour, the last, the coldest of all winters; and the serious interruption to the intercourse which occurs in winter cannot happen after this road is finished.

The saving of time, the pleasantness of the steamboat passage (it being all within the Sound), and the certainty of uninterrupted communication, will be of immense importance to New-York, Boston, and Providence, and will doubtless greatly increase the already immense travel between them,

[From the Baltimore American.]

CANAL FROM COLUMBIA TO THE CHESAPEAKE.—The organization of the Susquehanna Canal Company took place on the 8th inst. at Columbia, in conformity with the requisitions of the Act of Incorporation passed at the last session of the Pennsylvania Legislature. A President, twelve Managers and a Treasurer, were chosen by the stockholders present, who represented for themselves and their friends about nine-tenths of the whole stock. Shortly after the election was terminated, the Board elect entered upon the duties of their appointment, and on that and the following day transacted all the business which could be disposed of at the first meeting. In the selection of Chief Engineer the Board were unanimously in favor of Edward F. Gay, Esq. a gentleman enjoying a very high reputation for professional talent and experience, and who has for some years past occupied a responsible station as Engineer on the Pennsylvania State works. Among the measures adopted by the Board was one directing the necessary steps for the opening of stock transfer books in Baltimore, Philadelphia, New York and Boston. We are truly gratified to be able to add that, in reference to the question of the speedy completion of the canal, there is but one opinion entertained by its friends;—the sentiment is as strong as it is unanimous, that the work should be finished at the earliest possible period. The interests of the people of Pennsylvania and those on the tide water are one and the same in regard to this important question, and their mutual co-operation will be faithfully and energetically directed to the successful attainment of their common object. We cannot conclude this paragraph without congratulating our fellow citizens on the auspicious aspect which the affairs of the Company present at the commencement of an undertaking whose accomplishment identifies the interests and prosperity of our city closely and forever with those of the flourishing State of Pennsylvania.

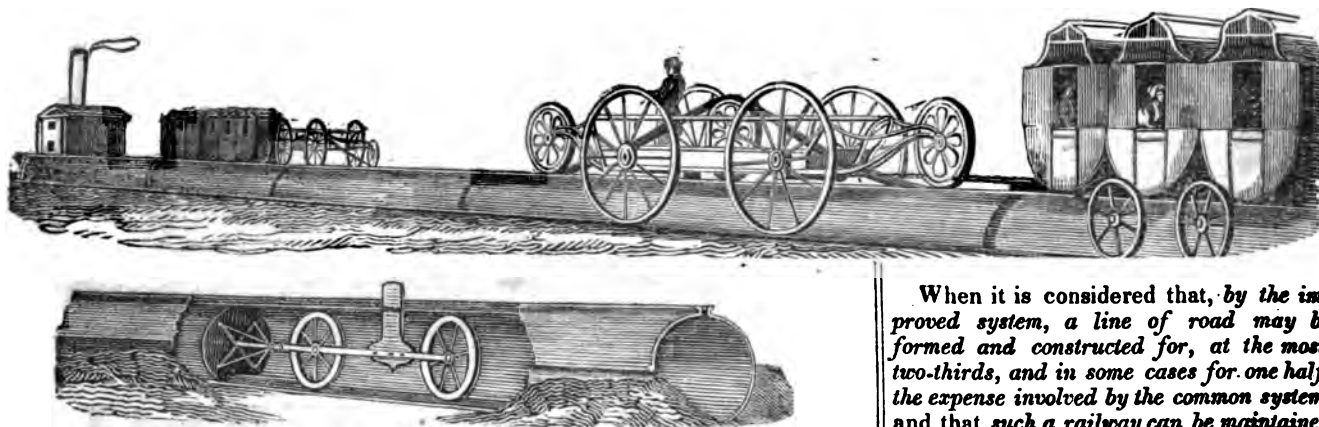
A LITTLE TOO FAST.—Under the head of "Progress of Steam Travelling in the United States," we find the following in the London Literary Gazette, of 23d May. It evidently refers to Burden's boat, the catastrophe of which appears to have been unknown.

PROGRESS OF STEAM TRAVELLING IN THE UNITED STATES.—In addition to the numerous steam-vessels navigating the Hudson, between New York and Albany, one is now making the trip there and back daily, a distance of 290 miles, in thirteen hours. This vessel is 300 feet in length by 40 broad, formed of two enormously long canoes, sharp pointed at each end, and connected together by a platform, leaving a certain space between them, in which the machinery acts. Upon the platform are built the cabins and other necessary erections. This steamer is for the accommodation of passengers only.

PNEUMATIC RAILWAYS.—We have been favored by a friend in London with the following communication on a new, called *Pneumatic*, system of railways. It must, we think, be considered as one of the visions of the day; yet that is no affair of ours, as we aim to give our readers an account of whatever pertains to the subject of internal improvements, be it ever so visionary—if we imagine that any new idea may be gained from it which will, or may, benefit the great cause; and it is for the purpose of eliciting discussion that we lay this communication, and the opinion of Dr. Lardner and Faraday, (published in No. 25 of the Railroad Journal,) before our readers.

That the adoption of railroads as the means of inland transit has become a subject of deep interest to the community, and that their vast advantages are duly appreciated, is evinced not only by the ready support which is given by the public to the spirited efforts now making for their extensive application, but also by the sanction which has been accorded them by the Legislature. Indeed, at the present moment, an almost incalculable amount of capital is actually pledged to the institution of a general system of railway throughout the kingdom.

But notwithstanding the admitted advantages of railroads, as at present constructed, worked as they are by the locomotive steam engine, over the old system of transit, that splendid experiment, the Liverpool and Manchester line itself,—to the projectors and managers of which the nation is so greatly indebted for the stimulus it has given to improvements in inland transit and consequent benefit to commerce, the extent of which, indeed, are not yet fully developed,—has at the same time disclosed the inefficiency of the construction by its utter inability to withstand the violent action and tremendous concussions of the ponderous engine, which is also destroyed by its own



The first figure represents a Pneumatic Railway in operation, with trains on a double track, approaching each other, one having just passed a stationary engine. This was designed to represent two trains passing a station, but by mistake the station was misplaced by the engraver.

The second figure represents a sectional view of the railway cylinder, showing the internal arrangement.

force, and the imperfections of the locomotive system by the incompetency of the engine to work with advantage except upon a level. Hence the wear and tear of the railways in that line has amounted to not less than £500 per mile per annum, whilst the locomotive engines, of which not less than thirty* are employed upon the road, besides nearly half that number more which come upon it from branch lines, are worked and maintained at the enormous cost of more than £2,000 per annum each.

The immense expenditure of capital required in the formation and construction of the common railroad, owing in a great measure to the necessity of obtaining a nearly perfect level, and the great cost of maintaining and working the ways when they are formed, will necessarily induce the public readily to adopt any improvement which shall have the effect of increasing the stability of the railway at a diminished cost; and especially if it combine with it greater security, efficiency, and economy in the working.

The invention, which is the basis of the improvement now submitted to the public, consists in the means of applying the elastic and forcing power of the atmosphere, obtained by rarefaction within a hollow cylinder of from thirty to forty inches in diameter, to carriages and cars running upon rails on its outer surface; the action being produced and transferred by means of pneumatic machinery worked by sufficiently powerful fixed or local steam engines.

Steam power, used as a first mover, admits of no application so economical as that by means of fixed engines;† and thus motive power will be obtained at one quarter the expense of that yielded by the locomotive engine. The fixed engine gives also the advantage which the locomotive does not possess, that the intensity of its force can be greatly varied to suit the exigencies of the road, and thus it may be rendered available according to the nature of the slope, or steepness of

the acclivity to be overcome, the weight to be moved, and the degree of rapidity required. Unlike that of the locomotive engine, the power of the fixed engine is, by the improved system, communicated with no indirect expenditure to the load or train of carriages; whilst the power of the locomotive is first applied to bear along its own ponderous bulk, which is of about ten tons weight, or fully one fourth of its usual load, and, as before remarked, it destroys both railway and engine by its violent action and concussive force.

The power of surmounting acclivities renders the most direct lines of communication available, and thus shortens the distances between places, and avoids the necessity of circuitous routes in search of levels. Moreover, the improved system of railway permits of roads being laid through a marsh as well as over a common or down, and with no greater expense, thus affording the means, in many cases, of avoiding the annoyance, inconvenience, and expense, of running roads through parks, and over arable lands. It may be remarked, too, that the great expense involved in the formation and construction of a railroad upon the common system, is totally sunk in cutting down or in tunnelling through hills, and in building across or embanking over valleys; whereas the main expense involved in the formation of a road on the improved system, is in common iron castings, which being almost indestructible, and possessing an intrinsic value, little or no loss can accrue upon them.

Not only does the improved system present a firmer construction of the railway, and a highly economical application of power, but it affords also greater protection to life and property, in the security of the carriages and cars for the conveyance of passengers and goods, since these are so placed upon the rails, and so connected with the railway itself, that they cannot by any possibility be thrown off or overturned. In consequence of this advantage, whatever objection may exist in the public mind to travelling upon railways, because of the danger connected with the common system, will be entirely removed, and a great improvement may be confidently calculated upon in the important item of passenger traffic.

When it is considered that, by the improved system, a line of road may be formed and constructed for, at the most, two-thirds, and in some cases for one half, the expense involved by the common system, and that such a railway can be maintained and worked with far greater speed, and infinitely greater safety, for three-fourths less than the common system costs, and that therefore passengers and goods may be conveyed at one half the price which the common system demands, and then yield a far greater profit, competition with the Association will be wholly out of the question.

As any degree of speed can be obtained by the improved system, with the most perfect safety, and without the disadvantage, not to say danger, arising from great velocity on the common method, a single line, on the new system, can be made, by the reciprocating plan proposed, to effect as much transit as can be effected by the use of a double line on the former, while the cost will thereby be lessened nearly one half. Hence, communications that may not warrant the expense of a double line of railway, may be advantageously occupied with a single line; numberless lines are in this manner open to the application of the new system, which the common method will not permit of being attempted.

As the invention affords the means of applying the power to the common railway, the proprietors of such must soon be found anxious to avail themselves of its advantages; and thus all the railroads in the country may soon become tributary to the Association, while the interests of the various concerns themselves will be materially improved by the adoption of the improvement.

As many millions are actually invested in this country in canals, and that species of property may be much deteriorated by the general application of railways, unless this improvement which affords them the means of increased speed is adopted by the respective canal proprietaries, the Association may fairly calculate upon rendering all these interests likewise tributary, in exchange for the advantages to be derived from the licence to apply their improved system.

In addition to affording the means of transit upon railways, whether upon the improved or with the common system, the power may in like manner be applied to effect rapid transit, with great economy, upon canals.

The practicability of the improvement, and the efficiency of the application, are proved by experimental operation, and confirmed by the opinion of the most eminent scientific men in the kingdom.

* This number, at least, is possessed by the Company, though not more than half of them are at any time in working condition; the other half are always in hospital to be repaired.

† A fixed steam engine will last twenty-five years, and the depreciation will not be more than 11 per cent. per annum.

The following communication in relation to Pneumatic Railways has been several days in hand. The writer who had only read the article in No. 25 of the Journal, will now have seen more in relation to it in this number.

[For the American Railroad Journal.]

MR. MINOR.—When will common sense be the order of the day? When shall we again be able to look upon a new scheme as one likely to prove practically useful? This is truly the age of invention and originality; but unfortunately we are still wandering in the green fields of imagination. The *Age of Reason* appears to be yet far distant. But who but a man of original mind could have invented either of the three plans which have been lately presented to us through the papers, as marvellously practicable, and calculated to produce a new era in the moving power of the world. I refer first to the invention, *by somebody*, (my bump of individuality is too small to enable me to remember all the names connected with these things,) of laying rails on the tow-path of canals, thereby incurring the expense of a road over and above the common expense of a canal, for the purpose of substituting a power upon it which can never be used.

Next comes the invention of Mr. Heron, called a "Water Power Railway:" a scheme which, besides costing at least three times as much as Mr. Heron's estimate for it, is as wanting in practical application as the former.

Lastly comes an invention from over the water, fathered also by an American, and backed by the learning of the Rev. Dion. Lardner, Mr. Faraday, &c. This is the "Pneumatic Railway," whereon we are to be impelled by the "thin air."

This is something philosophical! it is worth reasoning about! It appears that after the railroad proper is finished, which of course must be as good, if not better, than those made at present, and consequently will cost as much, then the moving power is to be added.

According to the plan of the patentee, this is to consist of a tunnel provided with a piston, to which the cars are to be attached. The tunnel being exhausted of air by means of air pumps, worked by stationary steam engines, the piston, and consequently the cars attached to it, will be impelled by the pressure of the outward air. Suppose, with the patentee, that six stationary engines be placed between Liverpool and Manchester, they will be five miles apart. Now, when but one train of cars can be put in motion at the same time between the engines, and after a train has passed, the five miles of tunnel will have to be re-exhausted before another train can take its place, it appears to me that either more than superhuman power must be exercised in the management of the road, or that there will be very great delay in passing over it. But admitting all this to be arranged, and supposing also that there will be no insurmountable difficulty in laying down and

securing the tunnel in so exact a manner as it must be, in order to be effective, let us look a little to the expense of the project.

I have no information relative to the material which the patentee intends using in the construction of his tunnel, but take it for granted that it must be of cast iron. The quantity of metal contained in a cast iron tunnel 40 inches diameter, in clear, and one inch thick, will be about 401.67 pounds for every lineal foot, or about 946.7 tons per mile.

The whole cost of the tunnel and its appendages may be estimated as follows:

Naked tunnel per mile, 946.7 tons of cast iron, at \$80,	\$37,868 00
Suppose the above to be cast in lengths of 5 feet; then, allowing the usual quantity of metal at the joints, this item will amount per mile,	
to 140 tons, at \$40,	4,160 00
Chairs, 159 tons, at \$40,	6,360 00
Stone sleepers,	2,500 00
Bolts, spikes, &c.,	500 00
Workmanship,	5,000 00

Total cost for a single track, \$56,388 00
Do. double track, \$112,776 00

To this is to be added the cost of the railroad proper, and the stationary power to work the tunnels—say for the whole \$160,000 per mile. A truly economical affair!!

Now, my dear sir, having treated the scheme of others somewhat familiarly, let me exhibit to you a plan of my own, towards which I invite the investigation of scientific men.

I propose making the whole railroad into a tunnel, either by boring the hills, or building upon the surface. Into this a piston must be fitted, to which the cars are to be attached. The *modus operandi* will of course be the same as for Mr. Perkins' tunnel. The difference between Mr. Perkins' and my own scheme is this: Mr. P. first grades his road, and then places his tunnel upon it. It is thereby insecure in the first instance, and liable to derangement ever afterwards; but by my plan, the tunnel and road are one and the same thing. In making the road, the tunnel is made also. Then, as to power; instead of a piston of 9 feet surface, we have one of 144 feet. The stationary engines I propose having outside of the tunnel over the air-shafts.

The expense of a railway of this kind will be about \$175,000 per mile, or a little more than one upon Mr. Perkins' plan.

ENGINEER.

June 29, 1835.

[From the London Mechanics' Magazine.]

SAFETY APPENDAGE TO RAILWAY-CARRIAGES.—Sir: Of the various accidents which occasionally happen on railways, those caused by waggons being thrown off the rails by sticks or stones laying across or on the rails, are the most numerous. Being on the Stockton and Darlington railway a few weeks ago, I saw an instance of the kind, but fortunately no harm ensued.

A train of waggons, heavily laden, was proceeding at the rate of about sixteen miles an hour, when one of the wheels of the foremost of the train came in contact with a piece of coal, which happened to be laying on the plate, and such was the force of meeting, that the waggon leapt two or three inches high. Fortunately, however, it alighted in its proper position on the rails; for, had it gone off the way, such was the velocity of the other waggons, that they must have been inevitably dashed to pieces, and the person attending them either killed or severely wounded. As it was, no further damage was experienced than a slight concussion, which was felt to the end of the train; owing to the first waggon losing time by leaping, and the rest overtaking and striking against it. Being an eye-witness of this almost catastrophe, it naturally made me try to devise some plan to remedy the possibility of accident on that head, and the following was the result of my cogitations. On each side of the first waggon of the train, I would have a kind of shovel fixed, so hung as just to clear the rail, that it may cause no unnecessary friction. Now, were a stone, stick, or any thing else, laying on or across the way, it would be an utter impossibility for the waggon to run over it, as it would not come in contact with the wheel. The shovel would either throw it off the rails or push it forward. Even if a man should fall across the road, as sometimes happens, instead of having his legs cut off, he would be thrown on one side, and be but little if at all hurt. This shovel might be hung by an adjusting chain, and in cases of severe frost, or a slight fall of snow over-night, might be let down upon the rail, when it would prepare it for the progress of the vehicle.

I am, Sir, yours respectfully,

WM. PEARSON.

Bishop-Auckland, Nov. 4, 1834.

[Since the date of the preceding communication from Mr. Pearson, we have received another letter from him, in which he says: "About two days after I had sent you my proposed Safety Appendage for Railway-carriages, an accident happened on the Stockton and Darlington railway, which I feel assured could not have happened had the plan there proposed been in use. The misfortune alluded to befel as follows: an engine, with a train of waggons, proceeding down the way at a rapid rate, came in contact with an old brake, which was laying across the rails, and by the concussion the engine was thrown off the road—the engine-man (James Cleasby) was killed, his brains being dashed out against the water-tank, and much damage was done besides. The proprietors of the railway were so convinced that the brake had been designedly laid across the way, that they offered a reward of twenty pounds on the conviction of the miscreant who did it; but, unhappily for the cause of justice and humanity, the 'foul deed' has not yet been brought to light. On hearing how the accident occurred, I felt convinced that the appendage I have proposed would have prevented it. It must either have pushed the brake before the engine, till the engineer became aware of the impediment, or have eventually shoved it off the road! The wheel could not possibly have come in contact with it, and therefore the engine could not have been thrown off the road!" Two plans for the prevention of such accidents, very similar to that of Mr. Pearson, were proposed by Sir George Cayley, Bart., and Mr. Suddington.—Ed. London Mechanics' Magazine.]

The following notice, from the U. States (Phila.) Gazette, of Mr. Young's apparatus for preventing fire from locomotive engines, is well worthy of attention. It is very important that measures should be adopted on all railroads to prevent accidents by fire. We earnestly recommend Mr. Young's improvement to the attention of those interested in railroads—"an ounce of prevention, &c." Every person understands this old adage.

YOUNG'S PATENT SPARK CATCHER FOR LOCOMOTIVE ENGINES.

Mr. Editor: At a time like the present, when the extension of railroads throughout our country is becoming so general, and the employment of locomotive engines has become a matter of course, I deem it important that all persons connected with the management of railroads should be made acquainted with the fact, that a complete remedy exists for the greatest nuisance to which this mode of travelling is liable, viz: the emission of sparks from the engine. That remedy is to be found in the contrivance with the name of which this article is headed, and the patentee is prepared to dispose of the right of using it, either at a reasonable rate for each engine, or at a gross sum, to be paid for the privilege by each company that may be desirous of availing itself of his invention.

It is now upwards of two years since the Spark Catcher of Mr. Young* has been in use on the New-Castle and Frenchtown railroad, since which period no instance has occurred on that road of a single garment having had a hole burnt in it by a spark from a locomotive engine. Of the tens of thousands of persons who have travelled the New-Castle road during the period named, not one can be found to gainsay the above statement.

Is there a single person, who has travelled on any other road in the United States, on which locomotives are used, with wood for fuel, that has not been annoyed, and either had his flesh or clothing burnt during his journey, by the means I have mentioned? I do not believe there is one to be found.

Is the Camden and Amboy road free from the intolerable and dangerous annoyance? No!—Baggage cars have been burnt, passenger cars have been on fire, and ladies almost denuded.

Is the great thoroughfare of Pennsylvania, the Columbia railroad, free from it? No! Barns, wood, crops of grain, and fences, have fallen beneath the flames in turn.

Are the Philadelphia and Trenton, the Philadelphia and Germantown,—in a word, are any of our railroads in the whole country, from Maine to Louisiana, provided against the inconvenience and danger of which I am speaking? No! not one.

We have arrived then at this point; the greatest drawback to the pleasure and safety of travelling on railroads with locomotive engines, is fire emitted from the chimnies of the engines, and against this a perfect preventive exists, the right to use which may be obtained by any Company that see proper to purchase it, at a reasonable price. One Company only in the United States has availed itself of it. The question for the public to decide is, whether they will suffer this sort of carelessness or false economy to prevail in Railroad Boards any longer, and

* Mr. Young is the Engineer of locomotive power on the New-Castle and Frenchtown road, and resides at New-Castle.

allow their own property and lives, and those of their wives and children, to be jeopardized, or whether they will resolve with one accord to prosecute in all cases of damage the Company that undertakes to convey them safely without taking the proper precautions to do so.

The writer of this article is as ardently attached to the-railroad system as any man in the country. He has long looked on the monstrous abuse, he is now noticing, in silence, but a solemn sense of duty, quickened by a recent signal illustration of the danger to which life is subjected by neglect in guarding against the particular evil of fire, has at length urged him to break his silence.

And I hope that this brief notice may induce a general attention to the subject, which is one, in my humble judgment, of paramount importance both to the corporations alluded to, and the public.

One word more. The assertion is distinctly made, and all contradiction of it denied, that Young's Spark Catchers are a perfect preventive to the emission of sparks from the chimnies of locomotive engines when in use. I believe it might be asserted with equal safety, that no other contrivance has been found to answer at all.

June 16th.

L.

[From the Farmers' Register.]

On Price—the Causes and Effects of the Fluctuations considered, and the Principles maintained applied to the Present Rage for Speculation. By THOMAS R. DEW, Professor of Political Economy, &c., in the College of William and Mary.

[The following communication was intended by its author to appear anonymously—and it may be observed that its form still accords with that intention—though we have obtained permission to give the author's name. This mark of its origin was desirable, not only for reasons which are sufficiently obvious, but also because the facts treated of are in some degree effects of the causes considered by the same writer in his "Essay on Usury," in Vol. II. of Farmers' Register—and the reasoning of the two communications have a corresponding connexion.]

The exhibition of the principles which constitute price in general, and the investigation of the causes of unfounded and ruinous fluctuations, may be serviceable to the agricultural community at this time, when there is every indication of the approach of one of those fits of national delusion or madness, such as occurred in the time of non-specie paying banks in this country, and such as every commercial country is sometimes liable to suffer from.

In addition to the close connexion of this and many other subjects of political economy with agricultural interests, we find ground for especial approbation of Professor Dew's manner of inculcating his doctrines, by showing their bearing on current events, and offering tests of their truth, in accessible and striking practical proofs. Without resort to some such mode of attracting attention to what is generally (though incorrectly) deemed a dry and repulsive study, the abstract truths of political economy will continue unknown to governments and to nations, long after having been established and undoubted in the opinions of reading men. Thus Adam Smith's exposure of the restrictive (or 'commercial') system of Europe had delighted and convinced the learned and literary community for half a century before it had any effect on the action

of the British government, and his admirable work had long been a text book in the colleges in the United States, while our legislators still continued to act in defiance of its truths, on questions of national policy, and in accordance with the notions on trade of the past ages of darkness and ignorance.

Having thus expressed general approbation of the author's views, it is proper to mention an exception—which expression of dissent would otherwise be uncalled for, and unnecessary. It relates to the effects anticipated to Virginia from the present high price of slaves. That such consequences, whether immediate or remote, will follow, we have not been convinced by the author's argument.—ED. FARM. REG.]

But a little while since, as we all but too well remember, the country was plunged into the utmost distress from want of money, lowness of prices, and failure of credit every where; now we seem to be fast rushing into the opposite extreme—money is becoming very plentiful, prices have almost doubled, and commercial credit seems every where re-established. A speculating mania has been generated in our large commercial cities, and seems rapidly spreading itself through our country. If then this be a season of prosperity, it is one of hazard likewise. Now is the time for the exertion of that prudent foresight and calm deliberation, which alone can carry the man of wealth safely through those great and sometimes rapid fluctuations of prices, always attendant on the rage for speculation. I propose briefly in this communication to point out the operation of those causes which are calculated to make money plentiful or scarce, (as it is commonly termed,) and to show their operation on prices at this moment. This investigation cannot, I think, fail to be interesting at this time, and I hope will call forth the speculations of others much more competent to do justice to the subject than myself.

Circulating Medium.—The first subject, undoubtedly, to which we must turn our attention in an investigation of this kind, is to the currency. What is the currency? What are the items which compose it? Every thing which passes from hand to hand, and will perform the function of money, must be regarded as currency. First then come the gold and silver coins, and bank paper; these of course form a part of the circulating medium, but not the only, or even the greatest or most important portion. Bonds, promissory notes, scrip notes, bills of exchange, stocks of every description, form likewise a portion of the circulating medium. All of these pass from hand to hand, and represent value, and therefore perform the functions of money. For example, I buy a tract of land, for which I give \$10,000, and pay for it by passing to the seller ten bonds of a thousand dollars each. Now this exchange is effected without a single dollar of real money, merely by the agency of credit: in the same way I might have paid for it in stocks, or by giving bills of exchange, &c. But although these are to be looked on as circulating medium, it is evident that equal quantities of them will not perform as many exchanges as money; for the value of money is well ascertained—it bears no interest whilst in our hands, and therefore it circulates rapidly and effects many exchanges: whereas the value of bonds, promissory notes, bills of exchange, stocks, &c., have a value more indefinite; and most of this species of paper, too, bears an interest while in our hands. Its circulation is there-

fore comparatively sluggish, in consequence, first, of the difficulty of fixing its value; and second, because we make a profit on it whilst lying in our hands, and therefore are in no hurry, generally, to get rid of it. But although this portion of the circulating medium be greatly inferior to money in the performance of the functions of circulation, yet it much more than makes up for this deficiency, by the vast amount of it which is in circulation. In England, for example, it has been computed that the bills of exchange alone in circulation are ten times more in amount than the whole money in the country: while the latter is estimated at £40,000,000, the former reaches the enormous aggregate of £400,000,000. In our country, the Bank of the United States alone does a business in exchange amounting in the year to more than \$250,000,000; while its own paper in circulation has never reached one capital, or \$35,000,000. Now, the bonds or promissory notes of individuals may be looked on as rising, in amount, infinitely beyond the aggregate of the bills of exchange and money together. Comparing then all the items of the circulating medium, *exclusive* of money, with the money, we shall be astonished to see how insignificant in quantity the latter is, when compared with the former. The fact is, money performs but few of the exchanges of society, by actual passage from hand to hand. "In England," says Mr. Wade, "by the use of bills of exchange, bills of lading, checks, scrip notes, clearing houses, and a variety of other contrivances, aided by a vast fabric of credit taken and given in open account, money (in its common acceptation) hardly ever enters into mercantile affairs; it is the substance really meant and shadowed forth; but it rarely, as one may say, bodily passes from hand to hand." In our own country, every one, too, must have observed how rarely the exchange of large masses of property are effected by the intervention of money. In the great majority of cases, the property is paid for by the passage of bonds, bills of exchange, stocks, &c. and but a small portion by actual money. Hence what are called cash sales, if too frequent all of a sudden, in a particular neighborhood, even in times of great prosperity, will cause the property to be sold at a sacrifice, because of the great difficulty of commanding the actual money to make the purchase.

Effect of Rapidity of Circulation.—Having thus explained my notion of the components of the circulating medium, and shown that money is vastly inferior in amount to all the other items combined, let us now look a moment to the effect produced on the circulating medium by a rapid or sluggish circulation. And it is very evident, that while the quantity of the currency remains the same, its apparent amount and real efficacy may be either increased or diminished, merely by an increase or diminution of the rapidity of circulation. For example, \$10 passing through ten hands, in the course of the day, will accumulate as much property as \$100 passing only once from hand to hand. Now, supposing the whole circulating medium to remain stationary in amount, but that the rapidity of its circulation is suddenly doubled throughout the whole country, then its *apparent* amount and its *real* efficacy would be doubled likewise. With the help of these incontrovertible principles, let us now proceed to examine into the effect of the late money pressure in the United States; 1st, On the rapidity of the circulation—and 2ndly, On the amount of the circulating medium.

1st. Effect on Circulation.—I shall not pretend to enter into an investigation of the causes which produced the late pressure in the money market. The nation has already been fully and completely enlightened upon this subject, by men whose minds can compare with any which the world can furnish. Moreover, it would require me to enter more fully into the field of politics, than would be agreeable to myself, or suitable to an agricultural journal. Suffice it to say that the pressure did every where take place; that a general difficulty of procuring money existed throughout the country; that prices, for a season, fell every where; and that confidence and credit for a short time, in the great commercial towns, were almost entirely destroyed. First let us see the effects of all this on the exchanges in society, and then on the rapidity of circulation in the currency.

During a pressure of the kind just spoken of, the loss of confidence and fall of prices force a great deal of real and other property in the market, to be sold for payment of debts, which ordinarily remains stationary in the hands of its owners. Lands, houses, negroes, stocks of goods, &c., are thus forced to change hands, and of course increase the exchanges. Perhaps the sinking of prices generally may have a tendency to diminish the sales of the annual products of the soil, such as corn, wheat, tobacco, and sugar; but not of cotton, for the foreign market is the regulator of the price of this very important article. Hence it may be said, that a money pressure at first has a tendency, by the great quantity of property forced into the market for sale, rather to increase, than diminish the number of exchanges. Whilst, however, the number of exchanges increase, the circulating medium suddenly becomes much more sluggish, taking the whole aggregate, in performing the functions of circulation. The great capitalists who are in the habit of purchasing produce with a view to sell with a profit, when prices are falling, rather keep aloof from the purchase of raw produce, lest a further fall may injure them—their capital then circulates more slowly, and in consequence of it, the annual productions of the country are not distributed with that regularity, and adaptation to the various wants of the community, as under ordinary circumstances. The body politic, in this situation, is like a patient suffering congestion in one part of the system, while there is a depletion almost to the loss of vitality in another.

Again: bonds, bills of exchange, &c., ordinarily performing the larger portion of the circulation of every country, have now a much slower circulation, and consequently less efficacy in effecting the exchanges; because as there is a general loss of confidence and credit, A, who has sold to B, is distrustful of his bonds, his bills, in fine of credit in every shape—he wants money. Money too has generally a sluggish circulation on such occasions, for every one getting possession of it, is disposed to hold it as long as possible—hard money seems to be almost the only true friend which one can get hold of in such times as those, and is consequently held with a miserly grasp. Persons will not venture it out without the best security, and on high rate of interest, obtained either directly or indirectly.*

* An inconvertible bank paper is never hoarded in this manner. It is like fire in each man's hands, he wants to get rid of it as speedily as possible, lest it may be caught on him at a still lower point of depreciation. Hence the inconvertible paper of the Bank of England, in 1797, soon relieved the money pressure, but only to bring on evils greater still, as an inconvertible paper always will do.

Thus we find, first, that the number of exchanges has a tendency to increase during the first operation of a money pressure; and second, that the whole circulating medium of the country suddenly, from the very same cause, diminishes in the rapidity of its circulation, and therefore becomes less efficacious, as I have already proved.

2nd. Effect of money pressure on actual amount of circulating medium.—Let us now examine into the state of the circulating medium, and see whether, during a money pressure, it has any tendency to increase in quantity, so as to counteract the operation of the causes above specified. It is evident, first, that the money has no tendency to increase in quantity; because, first, the banks are distrustful of the credit of individuals, and of one another; the curtailment forced on one communicates to another, and finally all are obliged to curtail their accommodations and issues—hence a decided diminution in bank paper. Secondly, gold and silver in actual circulation diminishes in amount, because of the universal disposition to hoard, in consequence of loss of confidence. Thirdly, bonds and bills of exchange will generally diminish in amount, because these depend on credit altogether, and the first effect of the pressure is the destruction of confidence, and the ruin of the whole fabric of credit. Fourthly, stocks of every description diminish in value, or are entirely destroyed, by the disastrous operation of the times. Money, and not stocks, is what the times call for. And thus do we see, that while the exchanges increase, the circulation of the currency grows sluggish, and the quantity in actual circulation rapidly diminishes.

Combined effect of these causes.—What then, let me ask, is the effect of the combined operation of an increase in the number of exchanges, greater sluggishness in the circulation, and diminution of the whole circulating medium? Most undoubtedly, a continued fall in prices, until certain causes are thrown into operation, which will counteract this downward motion. Mr. Hume, in his History of England, says there is a point in the depression of nations, in the scale of circulation, below which they cannot sink. Amelioration will then spring out of the very disorder itself. So I would say in the disasters of trade and agriculture, there is a certain point of depression below which they cannot go. The self-sustaining energies of commerce are called into play, and apply the healing balm without the interference of government. Thus the causes, whose operation I have just been considering, gave a downward motion to prices in our country, until they reached that point which made this one of the worst markets in the world to sell in, and one of the best to sell from. The effect of this on foreign exchange will readily be perceived. More commodities were exported than imported. A money balance was created in favor of the nation. Hence a rapid and full current of the metals was soon seen flowing steadily into the country, and supplying the vast deficit in the circulating medium, occasioned by sluggishness of circulation, and diminution of the quantity from general destruction of confidence and credit. We all very well recollect, that a short time since, almost every paper announced the fresh arrivals of cargoes of gold and silver—and we know that, at this moment, we have more foreign coins in circulation than have been seen in the country for years past. The banks too seem generally to have drawn to their vaults large portions of the precious metals.

(To be continued.)

[From the Journal of the Franklin Institute.]

Report to the Board of Directors of Bridges, Public Roads, and Mines, upon the Use of Heated Air in the Iron Works of Scotland and England. By M. DUFRENOY, Engineer of Mines. Paris, 1834.

(Continued.)

ENVIRONS OF DERBY.

The coal basin of Derby, a prolongation of that of Sheffield, contains many large iron works; three of them, the Butterly, Codnor Park, and Alpdon works, have adopted the hot air blast. I visited the first two, under the charge of Mr. Jessop, one of the most intelligent iron masters in the kingdom. The heating apparatus of all these differ from those I have described, and, in some essential respects, from each other. For this reason, I have deemed it proper to describe them in detail, though the results which they give are not so favorable as those obtained at the Calder works.

Butterly Iron Works contains three smelting furnaces. The iron there made is intended for castings, either of first or second runnings. One furnace only was in blast when I visited Derbyshire. The air for the blast was heated by an apparatus at each tuyere; this apparatus was composed of the large pipes, A B C, (figs. 11 and 12,) 27 inches diameter in the clear, placed horizontally one over the other, and separated by arched plates, *m n, m' n'*. These pipes are connected in pairs, by elbow pipes, *d e, d' e'*. The air from the blast engine enters by the pipe *c*, and makes its exit at *g*, after having passed the length of the three pipes successively. The joints are placed on the outside of the furnace proper; but to prevent the air being cooled in traversing the elbows, they are cased in brick-work.

The elbows connecting the long pipes are in plates, connected by bolts and nuts, passing through lugs, or flanges. The pipes are one and a half inches thick, and rest upon fire lumps, *t t*, placed at proper distances upon the arch plates, *m n, m' n'*. This disposition allows the flame to envelope them on all sides.

The first pipe, A, is not exposed directly to the action of the fire; it is separated from the grate by an arch of brick, extending the whole length of the furnace, which allows the flame to pass by the flues, *v v*. The partitions, *m* and *n*, have openings, *p* and *q*, placed at the opposite ends of the furnace, so as to compel the flame to traverse the whole length, without escaping from one story to another. All the arches are of fire brick, one brick thick. The expenditure of this apparatus is 62 cwt. for each ton of casting made. The air is raised to 360° Fahr. Notwithstanding the feeble temperature, a great economy of fuel is effected, as indicated below.

Consumption and products during the first week in July, 1830, from furnace No. 2, worked with cold air; 159 tons 5 cwt. of coke,—corresponding to 218 tons 10 cwt. of coal, 109 tons 17 cwt. of ore, and 35 tons of flux,—produced 83 tons metal.

Consumption and products of furnace

No. 2, on the 17th of July, 1833, heated air being used: The furnace received forty-one charges, each composed of 9 cwt. crude coal, 9 cwt. ore roasted, and 3 cwt. flux. The average of the first fortnight in July had been forty charges per day, and the iron produced seven tons.

Upon comparing, from these data, the consumption of the two periods, one ton of iron required as follows:

1830. Cold air and coke—Coal, 5 tons 16 cwt.; ore, 3 tons; flux, 1 ton.

1833. Heated air and coal—Coal, 2 tons 18 cwt., including fuel to heat the air; ore, 2 tons 11 cwt.; flux, 1 ton.

To know the whole expense of fuel, that used by the blast engine must be added, for which I have no precise data; but this expense must necessarily diminish in proportion to the increased yield of the furnace.

At Butterly, therefore, a saving of one half the fuel has been effected by the introduction of the new plan. The quantity of flux remains the same, because the sulphurous nature of the coal requires a large proportion of lime.

The blast engine, which served but two furnaces, now works three; but to obtain this increase, a larger cylinder was put in. Formerly, the cylinder was seventy inches in diameter, and eight feet stroke, working thirteen revolutions; now, the cylinder is eighty inches, the length of stroke and number of revolutions remaining the same.

The quantity of air expended, which was 2,500 cubic feet per minute, is now reduced to 2,160 feet; but the pressure, two and a half pounds to the inch, has undergone no variation. The opening at the mouth of the tuyere has been reduced from two and a half to three inches; the iron produced is intended for castings.

Codnor Park Works.—This work consists of three furnaces, three refineries, and a sufficient number of puddling furnaces to work up all the metal. These furnaces have worked for the past year with heated air and crude coal. The substitution of heated air has produced a saving of fuel similar to that stated for Butterly; 2 tons 9 cwt. being now sufficient to obtain one ton of metal, which formerly required five tons. It should be remarked, that the expense of coal has always been less at Codnor Park than at Butterly, on account of the difference in the quality of iron produced. This difference would be much more sensible, if the same quality of coal was used at both works; but at Codnor Park the soft coal is used, while at the other a variety called cherry coal is used, which better resists the action of the blast.

Consumption for one ton, using cold blast: Butterly, 5 tons 16 cwt.; Codnor Park, 5 tons.

Same with hot air—Butterly, for smelting 2 tons 12 cwt., apparatus 6 cwt., total 2 tons 18 cwt.; Codnor Park, for smelting 2 tons 9 cwt., apparatus 6 cwt., total 2 tons 15 cwt.

The apparatus employed at Codnor Park, for heating the blast, is composed of two

pipes, A and B (figs. 13 and 14,) placed one above the other, in which are inserted small pipes, *a b*, having the same centres as the large pipes, A and B. These pipes are connected by elbows, so that the air, in passing from the blast engine, through the interior pipe, *b*, spreads itself over the circular space, *c d*, between the pipes B and *b*; passing then into the second interior pipe, *a* is transmitted to the furnace by traversing the second circular space, A. This disposition of double pipes, one within the other, was adopted to remedy a serious inconvenience experienced at Butterly,—an inconvenience incident to pipes of large diameter, in which the air being heated unequally, a current of cool air passes along the centre of the pipe, and renders it impossible to raise the temperature sufficiently.

The pipes, A B, are of cast-iron, thirty inches diameter outside, and one and a half inches thick; the small pipes, *a* and *b*, are of boiler iron, six-tenths of an inch thick, and eighteen inches diameter in the clear. The construction of the furnace is the same as at Butterly—figs. 13 and 14 giving an exact idea of it. The air is heated, by means of this apparatus, to 400° Fahr., with a consumption of 6 cwt. coal.

We have already stated that all the metal made at Codnor Park is made into malleable iron; * this iron is used in the machine shops of Mr. Jessop. It serves equally well for boiler iron for steam engines, which requires the very best metal.

ENVIRONS OF BIRMINGHAM.

The introduction of the hot air blast has scarcely commenced in the Staffordshire iron district, the opinion being still prevalent that the quality of the iron is deteriorated by its use, has retarded the trial of it until within a year past. One work only, near Wednesbury, belonging to Messrs. Lloyd, Forster & Co., uses the heated air. The success attending this experiment determined the proprietors of the other works to make similar trials.

The apparatus employed here is placed above the trunnel head of the furnace, and is the only one at which such an arrangement has been effected in England. It is composed of a solid pyramidal ring, (figs. 15 and 16,) A B C D, and a series of small tubes, *t*, which penetrate into the furnace.

The interior surface of the ring, *a b c d*, is a cast iron cylinder, four feet in diameter, and twelve feet in height, in place of the chimney which usually surmounts the trunnel head of the furnace. The exterior surface of the pyramid is octagonal, and made of boiler plates, riveted together like a steam boiler, its diameter at the middle being six feet; a space is left between the surfaces of one foot on all sides; to protect the outer surface from the cooling action of the air, it is encased in brick-work.

The air, passing from the blast engine, is carried to the top of the furnace, circulates through the pipe, *e e e*, on a level with the top of the furnace, then divides

* This is an error, as large quantities of pipes are cast at this work for the London market.—[Trans.]

Fig. 6.

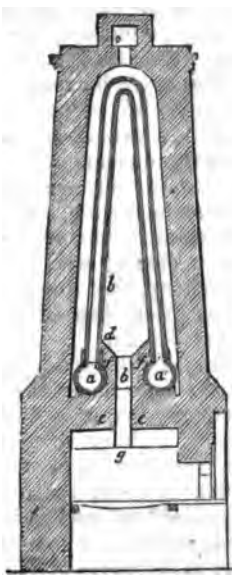


Fig. 7.

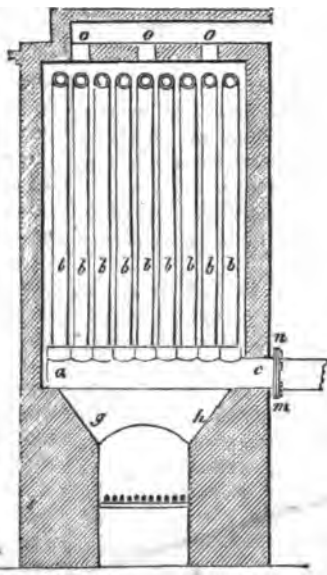


Fig. 8.

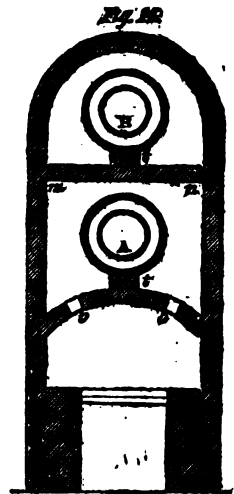
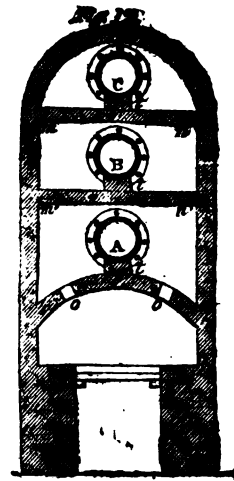
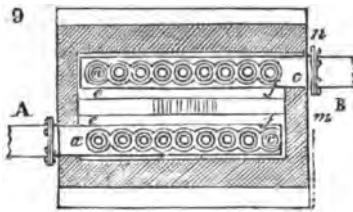
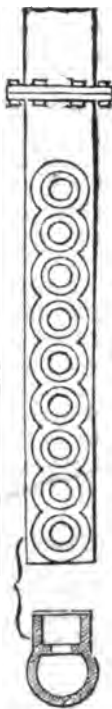


Fig. 11.

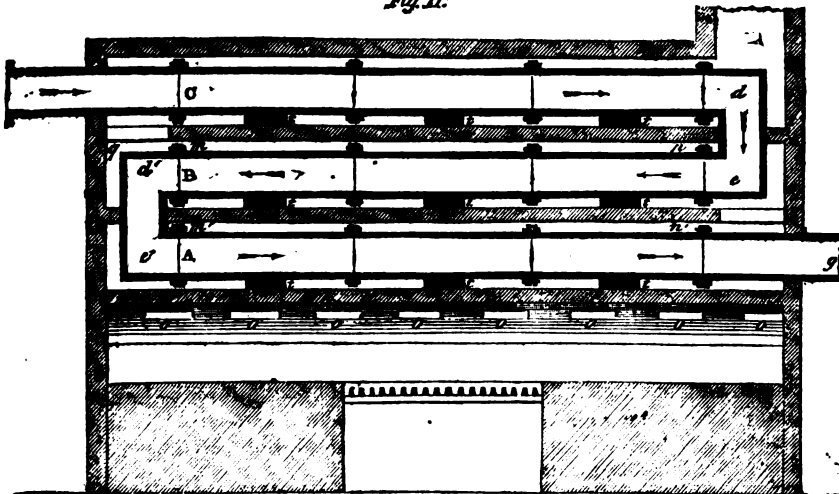


Fig. 12.

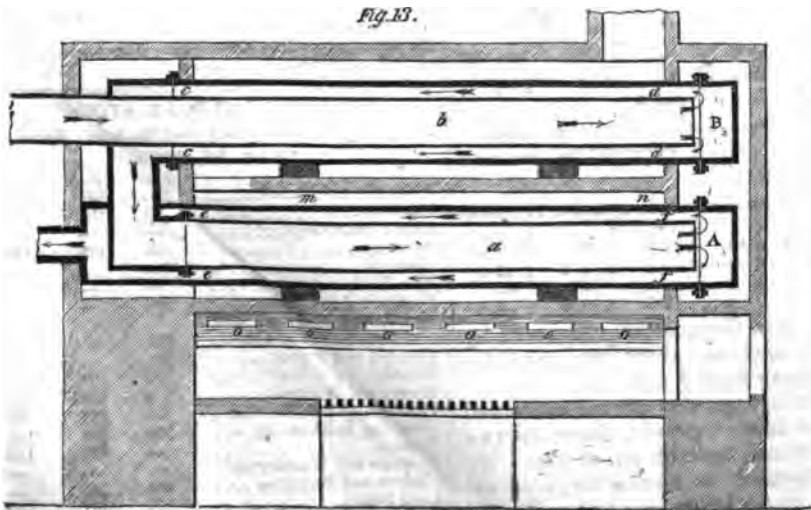


Fig. 13.

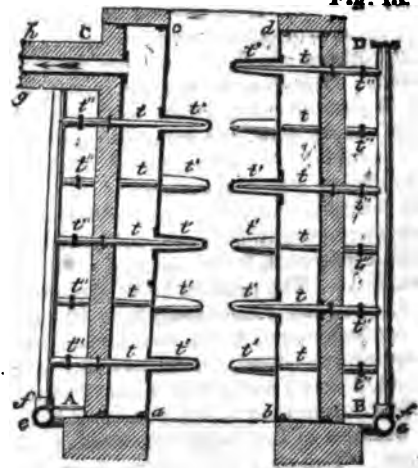
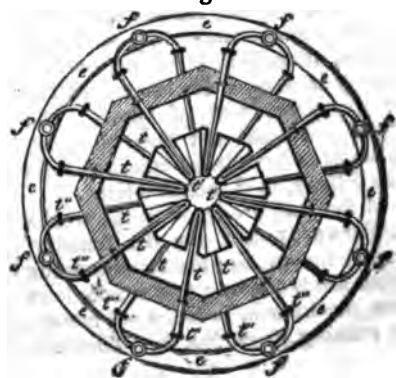


Fig. 14.



itself among the eight vertical pipes, *f g*, placed round the outer surface of the casing, which are connected with the circular pipe; each of these vertical tubes communicates with the interior of the case, or pyramid, by six small tubes, which pass into projections within the interior of the furnace.

The part of the tubes, *t*, enters into the pipes, *t*, closed at the extremity; so that the air, in moving, is forced to spread itself over the surface of the heater. These tubes, *t*, are all of cast iron, and are connected with the distributing pipes, *f g*, by leather sleeves, *t'*.

The air, after being heated in the tubes, *t*, and in the circular heater, A B C D, *t'*, re-ascends to the tuyeres by the opening, *v*. To prevent the air from cooling during the transit, the conductor is placed in the chimney of the steam boiler, twelve or fifteen feet distant; a kind of brick-work connects the furnace with this chimney.

With all these precautions, the temperature of the blast cannot be raised higher than to 360° Fahr., and they are obliged to heat it again in a furnace, within a few feet of the embrasure of the furnace.

The consumption of this fire is nearly 4 cwt. of coal to the ton of iron.

This apparatus is very costly, and requires frequent repairs; the little saving of fuel effected by it, (about 3 cwt. of coal per ton of iron,) is more than compensated for by the expense of construction and repairs, and, above all, by the numerous interruptions which take place in consequence of repairs required almost daily.

The introduction of hot air has effected, in these works, the same economy as in the others cited, where this plan is adopted. One ton of iron required, in 1831, 3 tons of coke, equal to 5 tons 9 cwt. of coal; now, the same quantity of iron consumes 2 tons 14 cwt. of coal, as the following statement shows:

On the 20th July, there passed through the furnace twenty charges, composed of 10 cwt. crude coal, 9 cwt. roasted ore, and 6 cwt. flux. The product being 8 tons of metal, each ton consumed 2 tons 10 cwt. coal for fusion, and 4 cwt. coal for heating the apparatus—total, 2 tons 14 cwt.; ore roasted, 2 tons 5 cwt.; flux, 1 ton 10 cwt.

The consumption in flux was considerable, because of the sulphurous nature of the ore. The slag which came from the furnace was crystalline, and gave off very strong sulphurous odors. Before the introduction of hot air, the daily production of the furnace was only six tons. They have, therefore, obtained, besides an economy in fuel, a diminution of the general expenses, and of labor. The quantity of blast has not been changed, but the tuyeres have been enlarged from 2 inches 9 lines, to 3 inches 6 lines.

Part of the iron produced at the works of Mr. Forster is used for the foundry, and part for fine metal; the same running gives both kinds of iron; that which flows first from the hearth, is No. 1 pig metal; the last running gives No. 2. They dis-

tinguish the two kinds of iron by the manner in which they run from the furnace, and by the furrows produced on the surface when it cools.

WALES.

There are in Wales but two works using the heated air—that of *Warteg*, and *Blaen-Avon*, ten miles from *Abergavenny*. None of the *Merthyr-tidvyl* works have introduced it, though the *Dowlais* and *Penn-y-danau* have made experiments thereon.

The abandonment of heated air in so extensive an iron country, and in which improvements are sought after with care, has led many to doubt the reality of the advantages claimed for it. Some have thought that, while so much saving was effected by the use of this plan in the furnaces of Scotland, where the metal was destined for the foundry, it could not be employed by other works, the product of which is converted into bar, or malleable, iron.

The examples furnished by the *Newcastle*, *Codnor Park*, and *Wednesbury* works, in which they make bar iron of very good quality, prove that this opinion is not well founded. The partial abandonment of the plan in Wales should, in part, be attributed to the bad construction of their heating apparatus, but more especially to the diminished saving which would result to them, since the employment of crude coal has been effected; a saving which the cost of the patent would almost balance. To appreciate these reasons, it is necessary to enter into some details upon the expense of making iron in that country.

From all the information gained upon the experiments made at *Dowlais*, or *Penn-y-danau*, it appears that, the apparatus being of bad construction, the temperature of the air could not be raised to more than 300° Fahr. Notwithstanding this, they attempted, with success, the substitution of crude coal for coke. An accident happening to the apparatus, obliged them to suspend the use of hot air for several days, and showed them that, without difficulty, the crude coal could be worked even with cold air. The saving which resulted from this substitution was such, that the proprietors did not deem it worth while to repair the heating apparatus, and thenceforth abandoned it. Since that period, most of the Welsh furnaces use the crude coal, but some employ a mixture of coal and coke.

The following table shows the quantity of fuel and material required to produce one ton of metal.

	Penn-y-danau.		Dowlais.		Cyfartha.		Plymouth.	
	t.	c.	t.	c.	t.	c.	t.	c.
Coal, . . .	2	9	2	14	2	13	2	13
Ore roasted, 2	4	0	2	9	2	6	2	16
Ashes, . . .	2	2						
Flux, . . .	19	2	13	0	16	0		

Add to this, the quantity consumed by the blast engines, about the same for each, varying from 5 to 6 cwt.

The average quantity of coal consumed in each of these works is, therefore, two and a half tons for each ton of iron. By the employment of heated air, it is not probable that a saving would be effected

over this expense of more than 33½ per cent., or 17 cwt. of coal for each ton of iron; deduct from this, the fuel consumed to heat the apparatus, estimated at 6 cwt., and the actual saving would be reduced to 11 cwt., costing, at 3s. 7d., or 86 cents per ton, at the works, 44 cents; and as the patent right is charged at one half, or 24 cents per ton of iron, the saving would be diminished to 20 cents per ton. This economy, itself very small, would scarcely be appreciated in a district where all the materials are so cheap, that iron may be produced at a less price than in any other district in Great Britain.

I believe, therefore, that the non-adoption of this plan in Wales, is no evidence that it does not effect any saving in fuel; but, on the contrary, it leads me to think that there would be economy, as in other works where the plan is used; but it is evident that, the expense* of coal being very small in Wales, the economy would not be as marked as in the works of Scotland.

The *Warteg Iron Works*, which have been named at the beginning of this section, sustain this opinion. In this establishment, the heating apparatus is composed of a very short development of pipes, so that the air cannot acquire a temperature of more than 400° Fahr. The coal, which is very bituminous, and loses 55° per 100 in the coking, cannot be employed crude in the furnace, with the air at so low a temperature; it results from these circumstances, that the saving obtained is not so great as at the furnaces of Scotland, but is to be compared to the saving in those works where the apparatus is not so perfect, and where coke is still used. Nevertheless, the diminution in the cost is very marked: before the introduction of heated air, one ton of iron required a consumption of two tons of coke; the produce of four tons, three cwt. of coal. The consumption of coke is still about the same, but, as there is no necessity for carbonizing it so completely, it is now produced by only three tons of coal.

The yield of the furnace has been augmented from six to eight tons of iron, each, in twenty-four hours.

* The author should have attributed this difference, in a great degree, to the superior quality of the Taff Vale coal over the Scotch, the former yielding more than 75 per cent. of carbon, while the proportion in the latter is less than 65 per cent.; some varieties even as little as 51 per cent.—(Trans.)

PRICES OF RAILROAD STOCKS, At the New-York Stock and Exchange Board, JULY 16, 1835.

	Per.	Ask.	Offer.
Mohawk and Hudson.	100	121	120
Paterson.	95	106	106
Ithaca and Owego.	—	—	—
Saratoga.	—	110	110
Harlem.	—	—	—
New-York and Albany.	—	—	—
Boston and Providence.	100	—	—
New-Jersey Railroad and Transportation Line.	100	—	—
Camden and Amboy.	100	—	—
Providence and Stonington.	100	100	99½
Boston and Worcester.	—	104½	104½
Philadelphia and Trenton.	100	103	102
Utica and Schenectady.	100	124	124
Jamaica.	—	114	113
Saratoga and Washington.	—	—	—
Hudson and Berkshire.	100	101	—
Long Island.	100	101	100
Saratoga and Whitehall.	100	106	—

AGRICULTURE, &c.

On Budding Trees and Shrubs. By the CONDUCTORS. To which is added, the different modes of Budding; and of Herbaceous, or Summer Grafting, extracted from Loudon's Gardener's Magazine.

(Continued from our last number.)

13. *Escutcheon Budding, with a Portion of Terminal Buds; Greffe en Ecusson par Portion d'Yeux terminaux, (fig. 10).*—A piece, measuring six or eight lines in length, cut from the top of a branch, is split in two, dividing the terminal bud exactly in the middle. An incision is then made in the stock in the form of a T, and the half bud is inserted into it in the usual manner. In case of need, the terminal eye might be divided into four equal parts. The growing bud ought to be used to insure success, though this mode will sometimes succeed with a dormant bud. This method may be very useful, if the tree to be propagated

has no young side shoots strong enough to admit of a bud being taken from them. It is particularly suitable for rare trees, with scaly buds and opposite branches.

14. *Annular Flute Budding; Greffe en Flute en Anneau, (fig. 11).*—A branch is chosen on the tree which is to be propagated, as thick as, or thicker than, the stock, and a ring of bark, including an eye, is cut from it, and detached by splitting it perpendicularly on one side, and then separating it from the wood by inserting under it the spatula-like handle of the budding-knife. A similar operation is then performed on the stock; that is to say, a ring of bark, exactly of the same size, is detached from the stem in the same manner, but without caring whether there are buds on it or not. In its place is put the ring taken from the branch to be propagated, with the precaution of making the inner barks join together exactly both at top and bottom. No binding is applied; but the whole is covered with grafting-clay (*onguent de St. Fiacre*) or grafting-wax. Neither the branches nor the head of the stock are to be cut down till the bud has taken. The two periods most favorable for this sort of budding are, the time of the greatest movement of the sap in the spring, and at the end of its greatest movement in August. This mode of budding has the advantage of never mutilating the stock; because, if it does not take, the bark of the ring supplies the place of that taken away. It is not only suitable for the propagation of walnut trees, but also for the increase of all rare trees with hard wood, such as the American oaks and chesnuts.

15. *Split Flute Budding; Greffe en Flute fendue.*—The only difference between this and the preceding mode is, that, if the ring of bark containing the bud is larger than the space prepared for it on the stock, a piece must be taken from it longitudinally, so as to make it fit exactly.

16. *Flute Budding by close Contact, Tube Budding; Greffe en Flute par juxtaposition, ou en Sifflet.*—The head of the stock being cut off, a ring of bark, 2 in. or 3 in. long, is removed. A shoot is then taken from the tree to be increased, of exactly the same thickness as the stock, and a ring or tube of bark is taken off the thick end, without being split longitudinally, not

quite so long as the piece of bark taken off the stock, but provided with two or three good eyes. The tube thus formed is placed upon the stock in the room of the one taken away, and care is taken to make the two edges of bark join below. The part of the stock which projects over the ring of bark is next split into shreds, and brought down over it all round, so as, when secured by grafting-clay, to keep it in its place. This mode of budding is chiefly employed in the south of France for propagating walnuts, chesnuts, figs, mulberries; and other trees with thick bark and abundant pith.

17. *Common Flute Budding; Greffe en Flute ordinaire, (fig. 12).*—The head of the stock is cut off; but, instead of removing a ring of bark, as in the preceding mode, it is cut longitudinally into four or five strips, each 2 in. or 3 inches long, and turned down as in the figure, being left still attached to the tree. From a shoot of the tree to be propagated, a tube of bark is taken, furnished with four or five eyes, rather shorter than the strips, though longer than in tube budding. When the tube of the scion is slipped on the stock, the strips of bark are raised over it, and fastened at the top by a ligature. This method of budding is in very general use both in France and Germany.

18. *Flute Budding in Shreds, with the Stock cut obliquely; Greffe en Flute et en Lanier.*—This is nothing more than the mode above described, with the end of the stock cut obliquely, as shown at a in fig. 12, instead of being left to be afterwards cut into shreds and turned down over the tube of bark, as in tube budding, No. 16.

II. HERBACEOUS GRAFTING. *Greffe Herbacee.*

1. *Grafting upon fleshy or tuberculous Roots; Greffe sur Racines charnues ou tuberculeuses, (fig. 13).*—It not unfrequently happens that a tubercle of a georgina root is found without eyes; and, when this is the case, notwithstanding all the care of the cultivator, it may remain in the ground one or two years without budding, till at last it rots. This imperfection is easily discovered if the neck of the tuber is looked at attentively, for it is always there that the buds are found. In this case, as soon as a georgina bud upon some other tuber has begun to germinate, it is picked out with the point of the grafting-knife, and is taken away with a small piece of the tubercle adhering to it. On the neck of the barren tubercle a small hole is made, in which the bud is inserted, but in such a manner as that the base of the bud shall be perfectly on a level with the surface of the tubercle; and it is cemented with grafting-wax. The tubercle is then planted in a pot, taking care not to cover the neck on which the graft is, and the pot is plunged in a hot-bed, under glass. When the graft has taken properly, the plant is turned out into the open border.

2. *Herbaceous Furrow-Grafting for vertical Shoots; Greffe herbacee en Rainure pour les Omnitiges, (fig. 14).*—A bud with a triangular slice of bark and wood, when in a soft or herbaceous state, is cut out of the

scion, and inserted in a corresponding groove made in the stock, as shown in the figure; a ligature is applied, and afterwards grafting-wax. This mode of grafting succeeds both with the young wood of trees and with herbaceous plants, whether perennials or annual. M. Tschoudy gave the arbitrary name of *omnitiges* to those plants, the shoots of which have an equal tendency upwards, and which, of course, are equally suitable to graft upon.

3. *Herbaceous Grafting for Shoots with opposite Leaves; Greffe herbacee pour les Bourgeons a Feuilles opposees, (fig. 15).*—In the middle of the stem, between two opposite eyes, an angular and longitudinal incision is made, traversing the stem from one side to the other. The graft is cut angularly at its top and bottom, and it is inserted as in the figure. The binding, &c., is then put on as usual. This mode of grafting is suitable for those species of trees, and

annual or perennial plants, the buds of which are opposite on the stem, which happens most frequently on the central shoots of plants. M. Tschoudy gives the name of *multitiges* to those plants, the central shoots of which have a tendency to rise more vertically than the lateral ones, and which have consequently more vigor; it is upon these central shoots that the grafts ought to be made.

4. *Grafting on the Stem of Annual or Perennial Plants; Greffe sur Tige de Plantes Annuelles ou Vivaces, (fig. 16).*—The period chosen for this mode of grafting is that of the greatest vigor of the plant, that is, some days before its going into flower. The stem of the stock is cut through above a leaf, as near as possible to its petiole, and a slit downwards is made in the section. A shoot is then taken off near the root of the plant to be increased, the end of which is cut into a wedge shape, and is

inserted in the slit made in the stock, taking great care of the leaf on the latter; for it is that which must nourish the scion until it has taken thoroughly, by keeping up the circulation of the sap. A bandage is applied, and the junction covered with grafting-wax, as before. When the graft has taken, which is ascertained by its growth, the ligature is removed, and the old leaf, and the shoots from the stock below the graft, are removed. M. Tschoudy grafted in this manner artichokes upon cardoons, and other plants on their congeners.

5. *Grafting on Succulents; Greffe des Plantes Grasses, (fig. 17).*—Take a young shoot or leaf of a succulent plant, (i. e., of a cactus or opuntia,) and, cutting its base to a point or wedge, insert it in a hole or slit made in the stem or leaf of another species, but of the same genus.



6. *Grafting the Melon; Grafte du Melon*, (fig. 18.)—On the stem of a cucumber, or any other plant of the family of Cucurbitaceæ, but having some analogy with the melon, choose a vigorous part of a shoot having a well-developed leaf. In the axil



of this leaf an oblique cut is made, of half its thickness. The point of a melon shoot, so far developed as to have its fruit quite formed, is then cut off, and pointed at its end, 2 inches below the fruit. It is inserted in the cleft made in the stock, always taking care to spare the leaf until the scion has taken. The remaining part of the operation is performed in the usual manner, with ligatures and grafting-wax. This mode of grafting succeeds pretty well; but it has not hitherto been applied to any useful end. Tomatoes may be grafted in this manner on potatoes, and it is said that potato plants thus treated produce good crops both of potatoes and tomatoes.

Grafting-wax may be formed with turpentine, bees' wax, resin, and a little tallow, melted together. It may either be put on in the same manner as grafting-clay, but not more than a quarter of an inch in thickness; or it may be very thinly spread upon cotton cloth, and used in shreds like sticking-plaster. In this last state it serves both as a ligature for retaining the esutocheon or scion in its place, and as a covering for excluding the air. In very delicate budding and grafting, fine moss and cotton wool are frequently used as substitutes for grafting-clay or grafting-wax; the moss or cotton being tied firmly on with thread or strands of bast matting.

[Extract from the Massachusetts Agricultural Repository, &c.]

List of the Forest Trees of America, described in the work of M. Andre F. Michaux.

[The botanical name of each tree is first given, followed by the most common American name. The vulgar names used in various parts of the United States, or Canada, next follow.]

Pinus rubra, Red pine.—Red pine, only name given to this tree in Canada; often used in Nova Scotia and New Brunswick, and in Maine. Norway pine, name more generally in use for this tree than the above, in the district of Maine, New-Hampshire, and Vermont, but less proper. It is not the Norway pine, says Michaux. Yellow pine, name sometimes given to it in Nova Scotia. Pin rouge, or red pine in Canada. Michaux prefers red pine, as being more characteristic and distinct.

Pinus rupestris, Gray pine.—Gray pine, in Canada, by the French and English. Scrub pine, in Nova Scotia and Maine. Uncommon and ordinary. Michaux.

Pinus mitis, Yellow pine.—Yellow pine, general name in all the middle states. Short-leaved pine, in the southern states. Spruce pine, a secondary name in these last mentioned states.

This is described by Michaux as a pretty valuable tree, ranking after the red pine, which is again put far behind the long-leaved or pitch pine of the south, and the white pine of the north.

Pinus inops, Jersey pine.—Jersey pine, general name in New-Jersey, where it abounds. Scrub pine, the name given to it in Virginia, and in those parts of Pennsylvania where it is found.

Pinus pungens, Table-mountain pine.—Table-mountain pine, the only name given to it in the neighborhood of that mountain, in North Carolina.

Pinus australis, Long-leaved pine.—Yellow pine. Long-leaved pine. Pitch pine, (not the pitch pine of the north.) Broom pine. All which names are more or less used in the lower parts of the southern states, where alone this tree grows. Southern pine and red pine, are the names given to it in the middle and northern states, by those who use it. Georgia pitch pine, name given to it in the West Indies, and in England.

Pinus serotina, Pond pine.—Pond pine, name given by M. Michaux to this pine, which has none given to it in the southern states, where he found it.

Pinus rigida, Pitch pine.—Pitch pine, general name in all the northern and middle states. This is the true pitch pine of New-England, but very different from the pitch pine of the south.

Pinus taeda, Loblolly pine.—Loblolly pine, only name in the southern states. White pine, sometimes so called in the neighborhood of Petersburg, Virginia.

Pinus strobus, White pine.—White pine, only name given to this tree in the greater part of the United States, and in Nova Scotia and New-Brunswick. Pumpkin pine and sapling pine, names sometimes given to it in Vermont, New-Hampshire, and Maine, in reference to the quality of its wood. Pin blanc, or white pine, by the Canadians. Weymouth pine, in England.

Abies nigra, Black spruce, (double spruce).—Black, or double spruce, name used in the northern states, in Maine, and Nova Scotia. Red spruce, in the same countries, having regard, however, to trees of larger size than usual, or to certain places of growth. *Epinette noire*, in Canada. *Sapinette noire*, in France.

Abies alba, White spruce.—White, or single spruce, names applied in the northern states, and in Nova Scotia. *Epinette blanche*, in Canada. *Sapinette blanche*, in France.

Abies canadensis, Hemlock spruce.—Hemlock, or hemlock spruce, only denomination in use in all parts of the United States, where this tree is found. *Perusse*, by the Canadians.

Abies balsamifera, Silver fir.—Silver fir. Fir balsam. Balm of Gilead. All names equally applied to this tree in the northern parts of the United States.

Juglans nigra, Black walnut.—Black walnut, only name in the southern and western states. *Noyer noir*, by the French of Canada and Louisiana.

Juglans cathartica, Butter nut.—Butter nut, only name in New-York, and Virginia, and often applied in the northern states. White walnut, name much in use in Pennsylvania and Maryland. Oil nut, name applied in New-Hampshire, Massachusetts, Vermont, and Connecticut.

Juglans olivæ-formis, Pacane nut.—Pacane nut, or pacanier, name given to this

tree by the French of Louisiana, and adopted by the Americans.

Juglans amara, Bitter nut hickory.—Bitter nut hickory, only name applied to it in New-York and New-Jersey. White hickory, general name in Pennsylvania. *Noyer amer*, Canadian name.

Juglans aquatica, Water bitter nut hickory.—Water bitter nut, name given to it by Michaux. It has no name in the southern states, where it grows.

Juglans tomentosa, Mockernut hickory.—Mockernut hickory, general name in New-York and New-Jersey. Whiteheart hickory, name sometimes applied in those states. Common hickory, applied in Pennsylvania, Maryland, and other southern states. *Noyer dur*, by the French of the Illinois country.

Juglans squamosa, Shellbark hickory.—Shellbark hickory, name in most common use in the United States. Shagbark hickory, name sometimes applied to the north of Connecticut river. *Kisky Thomas*, by the Dutch of New-Jersey. *Noyer tendre*, by the French of Illinois.

We think M. Michaux mistaken on this point. It is the common walnut of our tables, and is almost universally called shagbark. In all the northern states, we know this tree by the name of walnut, and not hickory, which is a southern name.

Juglans laciniata, Thick shellbark hickory.—Thick shellbark hickory, name given to this tree in the western states, where it is confounded with the true shell, or shagbark. Gloucester-nut hickory, known under this name only in that part of Virginia. Springfield hickory, another name given to this tree in the vicinity of Philadelphia.

Juglans porcina, Pignut hickory.—Pignut hickory, most common name in all parts of the United States. Hognut hickory, more usual name in some districts of Pennsylvania.

Juglans myristicæformis, Nutmeg hickory-nut.—Nutmeg hickory-nut, name given to it by M. Michaux, it having no name in the southern states.

Quercus alba, White oak.—White oak, general and unique name throughout the United States. *Cheneblanc*, by the Canadians.

Quercus mucosa, Mossy cup oak.—Mossy cup oak, name given by M. Michaux to a species found in the Genessee country, and near Albany.

Quercus macrocarpa, Overcup white oak.—Overcup white oak, general name given to it in Kentucky and Tennessee.

Quercus obtusiloba, Post oak.—Post oak, general name in both Carolinas, Georgia, and Tennessee. Iron oak, secondary name in those countries. Box oak and box white oak, name given to it in Maryland, and the parts of Virginia bordering on it.

Quercus lyrata, Overcup oak.—Overcup oak and swamp-post oak, names equally used in the lower parts of the southern states. Water white oak, secondary name in the same places.

Quercus prinus discolor, Swamp white oak.—Swamp white oak, most common name in the northern and middle states. Water-chestnut oak, Pennsylvania name.

Quercus prinus alutris, Chestnut white oak.—Chestnut white oak, name applied in the lower parts of Georgia, and the Carolinas. White oak, peculiarly so called on the Savannah river. Swamp-chestnut oak, secondary name in the same places.

Quercus prinus monticola, Rock-chestnut oak.—Rock-chestnut oak, only name given to this tree in New-York and Vermont. Rock and rocky oak, second name in the same countries. Chestnut oak, in Pennsylvania and Virginia.

Quercus prinus acuminata, Yellow oak.—Yellow oak, name given to this tree in the county of Lancaster, Pennsylvania. No particular name given to it in other parts of the United States.

Quercus prinus chinquapin, Chinquapin oak.—Chinquapin oak, name employed in the upper parts of Georgia and the Carolinas. Small-chestnut oak, in New-York and Pennsylvania.

Quercus virens, Live oak.—Live oak, only name in all the southern states; and also in the northern states, where the wood is only seen, but the tree is never found.

Quercus phellos, Willow oak.—Willow oak, only name in the southern states, and in Pennsylvania.

Quercus imbricaria, Laurel oak.—Laurel oak, secondary name in the states west of the Allegany mountains. Black-jack oak, more common, but less proper name, because it is applied to another, for which it is kept distinct. Chene a latte, by the Illinois French.

Quercus cinerea, Upland willow oak.—Barren's willow oak, name given in the lower parts of the southern states.

Quercus pumila, Running oak.—Running oak, in the lower parts of the southern states.

Quercus heterophylla, Bartram's oak.—Bartram's oak, name given to an oak on the Schuylkill, near Philadelphia.

Quercus aquatica, Water oak.—Water oak, general name in Virginia, and in the southern states.

Quercus ferruginea, Black-jack oak.—Black-jack oak, name in use in the southern states. Barren's oak, name employed in Pennsylvania, New-Jersey, and Delaware.

Quercus banisteri, Bear oak.—Bear oak, name in New-Jersey and New-York. Black scrub oak, name used in the north of Connecticut river. Scrub oak, in some parts of Pennsylvania and Virginia.

Quercus catisbei, Barren's scrub oak.—Barren's scrub oak, in the lower parts of the two Carolinas and Georgia.

Quercus falcata, Spanish oak.—Spanish oak, only name in use in Pennsylvania, Maryland, and Virginia. Red oak, in the lower parts of the southern states.

Quercus tinctoria, Black oak.—Black oak, only name in the forests of the middle, western, and southern states. Quercitron oak, name in commerce. Chene noir, by the Illinois French.

Quercus coccinea, Scarlet oak.—Scarlet oak, name given by M. Michaux to a tree, which, in the middle states, bears the name of red oak, being confounded with a species hereafter mentioned.

Quercus ambigua, Gray oak.—Gray oak, only name given to this species in

New-Hampshire and Vermont, as well as in the district of Maine, New-Brunswick, and Nova Scotia.

Quercus palustris, Pine oak.—Pine oak, name given to this species in New-York and New-Jersey. Swamp Spanish oak, in Pennsylvania and Maryland.

Quercus rubra, Red oak.—Red oak, name given to this oak in all the northern and middle states.

In all 27 species of oaks.

Betula papyracea, Canoe birch.—Canoe and paper birch, names equally used in New-Hampshire, Vermont, district of Maine, Nova Scotia, and further north. White birch, name also equally applied in the same countries. Bouleau a canot, by the French in Canada.

Betula populifolia, White birch.—White birch, general name in the northern and middle states. Old-field birch.

Betula rubra, Red birch.—Red birch, so called in New-Jersey and some parts of Pennsylvania. Broom birch, secondary name in Pennsylvania. Birch, in the southern states.

Betula lenta, Black birch.—Black birch, denomination applied to it in the northern and middle states. Cherry birch, secondary name in some parts of the northern states. Sweet birch, in the middle states. Mountain mahogany, in a part of Virginia. Cherry birch. Bouleau cerisier, by the Canadians.

Betula lutea, Yellow birch.—Yellow birch, name given to this species in Vermont and New-Hampshire, as well as in Maine and New-Brunswick.

Castanea vesca, Chestnut.—Chestnut, only name given to it in all parts of the United States where it grows.

Castanea pumila, Chincapin.—Chincapin, only denomination given to it in the middle, southern, and western states.

Fagus sylvestris, White beech.—Beech, in the middle and southern states. White beech, in the northern states and district of Maine.

Fagus ferruginea, Red beech.—Red beech, in the northern states, and district of Maine.

Chamærops palmeto, Cabbage tree.—Cabbage tree, or palmetto, in the southern states. This tree is extensively used in the construction of wharves in Charleston, South Carolina, being free from the ravages of the worms.

Ilex opaca, American holly.—American holly, so called in all the parts of the United States where it grows.

Diospiros virginiana, Persimmon tree.—Persimmon, only name in those parts of the United States where it is found, being in the middle and southern states. Plaque-minier, by the Louisianians.

Acer eriocarpum, White maple.—White maple, only name on the borders of the Ohio, and the rivers which fall into it. Soft maple, in the Atlantic states, where it is often confounded with the scarlet maple. Sir wager maple, name applied to it in England, where it has been introduced.

Acer rubrum, Red-flowering maple.—Red-flowering maple, Swamp maple, Soft maple, denominations in the Atlantic states. Scarlet-flowering maple, principally in Virginia, and soft maple in New-York and

New-Jersey. Maple tree, in Pennsylvania, Virginia, and Ohio, to the west of the Allegany mountains. Erable plains, by the Canadians.

Acer saccharinum, Sugar maple.—Sugar maple, general name, which, however, prevails only in the middle states, to the east of the mountains. Rock maple, name which prevails to the north of the Hudson river. Hard maple, another name in the northern states. Erable sucre, Canadian name.

Acer nigrum, Black sugar maple.—Sugar tree, general name in the country on the Ohio, and the Rivers which fall into it; and often applied also there to the last mentioned species. Black sugar tree, name sometimes applied, and to be preferred.

Acer negundo, Box elder.—Box elder, only name in the western states where the tree is most known. Ash-leaved maple, name given sometimes in the Atlantic states. Erable a giguiere, by the Illinois French.

Acer striatum, Moose wood.—Moose wood, common name in all the northern states, in New-Brunswick, and Nova Scotia. Striped maple, by some persons in the middle states.

Nyssa grandidentata, Large tupelo.—Large tupelo, most general name in the southern states. Water tupelo, secondary name in the same states.

Nyssa capitata, Sour tupelo.—Sour tupelo, in Georgia.

Nyssa sylvatica, Black gum.—Black gum tree, in all the states to the south of the Delaware. Sour gum, secondary name in the same states. Peperidge, by the Dutch of New-Jersey.

Gymnocladus dioica, Coffee tree.—Coffee tree, only name given in the western states. Chicot, by the Canadians. By some botanists called guilandina dioica.

Pinckneya pubens, Georgia bark.—Georgia bark tree, name given by M. Michaux; it is known by no name in that country.

Cupressus disticha, Cypress.—Cypress, general name in the United States. It is not known at all in the northern states, except in modern plantations, and there called deciduous cypress. Bald cypress, name less used. Black or white cypress, having regard to the color of the wood.

Cupressus thuyoides, White cedar.—White cedar, only name in the states of New-York, New-Jersey, Delaware, and Pennsylvania. Juniper, in Maryland, Virginia, and North Carolina.

Thuja occidentalis, Arbor vitæ.—Arbor vitæ, secondary name in the District of Maine. White cedar, name more used in Maine, Vermont, and New-Hampshire. Cedreblanc, by the Canadians.

Larix americana, American larch.—American larch, general name given to this tree in all parts of the United States where it grows. Hackmatack, more used in the north, and in the district of Maine. Tamarach, by the Dutch of New-Jersey.

N. B.—This tree is very seldom called by the name of larch in New-England, and in some districts it is called Juniper.

(To be continued.)

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JULY 11—17, 1835.

LITERARY NOTICES.

THE PRIMITIVE CHURCH compared with the Protestant Episcopal Church of the present day, &c. &c. By JOHN HENRY HOPKINS, D. D., Bishop of Vermont. 1 vol. Burlington—Smith & Harrington.

Episcopalians will receive this book with gratitude, for it ably and clearly vindicates the doctrine, worship and government of the Episcopal Church in this country, and satisfactorily meets, and refutes; the popular objections against it.

To Bishop Hopkin's book must be conceded, we apprehend, the merit of a clear and popular style, of an earnest spirit, of close argument, and, as it strikes us, of clear demonstration.

DANGER OF BEING OVERWISE, a Sermon preached 7th June, 1835, in the Second Presbyterian Church of Albany, by WM. B. SPRAGUE, D. D.: Albany PACKARD & VAN BENTHUSEN.—This is a bold sermon—an odd epithet it may be said to apply to a discourse from the pulpit—yet in this instance a just one. It is an act of great moral courage, under the circumstances in which we live, for a clergyman of the Presbyterian Church especially, thus to come forth, and breast the intemperate zeal, with which the good and noble cause of temperance is sometimes urged on. Mr. Sprague, however, under a strong sense of duty, and let us add under an act, as we have heard it related, of great provocation, has done this, and done it well.

BELFORD REGIS, or sketches of a county town by MARY RUSSELL MITFORD; 2 vols: Phila., CAREY, LEA & BLANCHARD.

Miss Mitford in this new work has enlarged her sphere of action, and passed from "our village" to a busy bustling market and county town—with all its characters, and peculiarities, and memories. She loses nothing of freshness or force in this series, as the following extract may in part testify. It is of past times—when the plague was desolating London, and *Belford Regis*, and its neighboring villages had caught the infection from city fugitives. "Master Anthony"—had brought up *Rosamond* with doating fondness, which she had requited, by running off against his will, with a young Court gallant, and no intercourse had taken place between them until the moment of the scene we quote, when "Master Anthony" after exhausting himself in attending upon the deserted and the dying, is, in his own hour of need and danger, robbed and abandoned.

THE MONIKINS: edited by the author of the "SPY"—2 vols: Phila., CAREY, LEA & BLANCHARD.—Of the multitude of persons into whose hands this new work of Mr. Cooper may fall, we doubt if more than one in fifty will achieve what we have, the actual perusal of the two mortal volumes. We have as a matter of duty and conscience, read page by page their some 500 pp. with all attention—save when failing nature gave way under the effort, and words upon words passed before the eye, but reached not the understanding. A more lamentable failure than this book—from the hand of an established and practised writer—the annals of literature do not, we apprehend record.

So far as we can comprehend the scope of the story, it is to ridicule and satirize mankind at large, by a clumsy contrivance of a monkey land, and monkey inhabitants, where, and among whom, the vices, pretensions, prejudices and follies which disturb and degrade man, are in full operation.

After the travels of Capt Lemuel Gulliver, this were a dangerous experiment, even to a writer em-

inently gifted with humor, but of this gift the author of the *Spy*, has but little share, and instead, therefore, of the fine irony, and sparkling satire, and strong and admirable contrasts to be found in the pages of Swift, we have dull and prosing dissertations about theogony, cosmogony, law, politics, education, paper currency, the removal of the deposits, aristocracy, democracy, the Godlike, &c. &c., with a sprinkling of nastiness (in that alone, resembling Swift,) about monkey's tails, and the place where men should have them—which altogether defy criticism, and will, we think, very thoroughly and soon disenchanted all readers.

The story, so far as there is one, is shortly this. A rich old stock-broker dying, leaves as the sole heir to his immense wealth, a foundling, whom he had adopted and called his own—a goodly block-head, who sets forth in the world immediately, to give pledges to fortune as Bacon has it, not by marrying the woman of his affection, for that, our philosopher argues, would be idolatry, but by taking an interest in all the pursuits of all mankind.—Wandering about with this chimerical design, he meets in Paris, Capt *Noah Poke*, of Stonington, a Yankee Sealer. They become sworn friends, rescue four monkeys, exhibiting by some Savoyards, and are rewarded for their humanity, by learning from the gravest and eldest of the interesting beings they had emancipated, that he is a learned Doctor from the Academy of Monikinia, in Monkey land, travelling with two young nobles of his nation, who are betrothed to each other, that his female companion is the young lady's duenna, and that they had all been ingloriously kidnapped, and forced to dance for their living. All this being communicated in good French—though spoken with a slight Russian accent—a great intimacy ensues between the parties, which results in the English *Golden Calf*, fitting out a ship under the command of Capt. *Poke*, to re-convey these ill treated innocents of the genus *Simiar*, to their native land.—Thither, too, goes *Golden Calf*, and after innumerable perils and difficulties in penetrating the ice, around the southern pole, they reach the desired land, and there occur the wonderful dissertations to which we have alluded.

MATTHIAS AND HIS IMPOSTURES, or the Progress of Fanaticism, &c. &c., by WM. L. STONE, 1 vol. N. Y., HARPER & BROTHERS.

Poor human nature! What a picture does this very curious, and as we do not doubt authentic, volume, present of the boasted intellect of man; what a stinging satire does it hold forth, of the vaunted advance of education, of sound and liberal views, of the progress of reason, and of the growth of genuine religion. A miserable, ignorant, brutal, selfish, and overbearing impostor subjects to his will, whole families of educated people, and lords it over them in sickness and in health, with unbridled insolence, giving himself out as God, and as such received!

But the imposture of Matthias is not the only one here recorded, for it was preceded and prepared, it seems, by fanatical meetings and assemblages held constantly for many preceding years—where all sorts of delusions prevailed. If only as a warning against fanaticism, this book should be generally read.

THE COMPLETE POETICAL WORKS OF WALTER SCOTT. 1 vol. 8vo. New York. CONNER & COOKE.—This is an exceedingly handsome and well finished volume, containing *Sir Walter's* Poems, lyrical as well as others, with copious notes and explanations. It is very creditable to the publishers, and may, we hope, be profitable.

SPECIMENS OF THE TABLE TALK OF THE LATE

SAM'L T. COLERIDGE. Two volumes in one. N. York. HARPER & BROTHERS.—We have only time to acknowledge the reception of this work, and to say, what we are sure, a future perusal of it will verify, that if it retain any portion of the spirit of the talk of the most gifted talker of the age, it must be a book of deep interest and attraction. We have read with pleasure and conviction, the well deserved castigation bestowed by the Editor, on the inconceivable base notices of Coleridge, published in Tait's Magazine, by the English opium eater.

[From the Athenæum.]

Mrs. Hemans.

Felicia Dorothea Browne was born in Liverpool, in a small quaint-looking house in St. Anne street, now standing, old fashioned and desolate, in the midst of the newer buildings by which it is surrounded. Her father was a native of Ireland, her mother a German lady—a Miss Wagner—but descended from, or connected with, some Venetian family, a circumstance which she would playfully mention, as accounting for the strong tinge of romance and poetry which pervaded her character from her earliest childhood. Our abstaining from any attempt minutely to trace her history, requires no apology—it is enough to say, that when she was very young, her family removed from Liverpool to the neighborhood of St. Asaph, in North Wales; that she married at a very early age—that her married life, after the birth of five sons, was clouded by the estrangement of her husband—that, on the death of her mother, with whom she had resided, she broke up her establishment in Wales, and removed to Waverree, in the neighborhood of Liverpool—from whence, after a residence of about three years, she again removed to Dublin,—her last resting place.

But though respect for the memory of the dead, and delicacy towards the living, enjoin us to be brief in alluding to the events of her life, we may speak freely, and at length, of the history of her mind, and of the circumstances of her literary career, in the course of which she deserved and acquired a European reputation as the first of our poetesses living, and still before the public. Few have written so much, or written so well as Mrs. Hemans; few have entwined the genuine fresh thoughts and impressions of their own minds, so intimately with their poetical fancies, as she did; few have undergone more arduous and reverential preparation for the service of song; for, from childhood, her thirst for knowledge was extreme, and her reading great and varied. Those who, while admitting the high-toned beauty of her poetry, accused it of monotony of style and subject (they could not deny to it the praise of originality, seeing that it founded a school of imitators in England, and a larger one in America) little knew to what historical research she had applied herself—how far and wide she had sought for food with which to fill her eager mind. It is true, that she only used a part of the mass of information which she had collected—for she never wrote on calculation, but from the strong impulse of the moment, and it was her nature intimately to take home to herself and appropriate only what was high-hearted, imaginative, and refined; but the writer of this hasty notice has seen manuscript collections of extracts made in the course of these youthful studies, sufficient of themselves to justify his assertion; if her poems (like those of every genuine poet) did not contain a still better record of the progress of her mind. Her knowledge of classic literature may be distinctly traced in her "Sceptic," her "Modern Greece," and a hundred later lyrics based upon what Bulwer so happily calls "the Graceful Superstition." Her study and admiration of the works of ancient Greek and Roman art, strengthened into an abiding love of the beautiful, which breathes both in the sentiment and structure of every line she wrote (for there are few of our poets more faultlessly musical in their versification); and when, subsequently, she opened for herself the treasures of Spanish and German legend and literature, how thoroughly she had imbued herself with their spirit may be seen in her "Siege of Valencia," in her glorious and chivalresque "Songs of the Cid," and in her "Lays of Many Lands," the idea of which was suggested by Herder's "Stimmen der Völker in Liedern."

But though her mind was enriched by her wide

acquaintance with the poetical and historical literature of other countries, it possessed a strong and decidedly marked character of its own, which colored all her productions—a character which, though any thing but feeble or sentimental, was essentially feminine. An eloquent modern critic (Mrs. Jameson) has rightly said, "that Mrs. Hemans' poems could not have been written by a man; their love is without selfishness, their passion without a stain of this world's coarseness, their high heroism (and to illustrate this assertion we would mention "Clotilde, the Lady of Provence," and the "Switzer's Wife.") unsullied by any grosser alloy of mean ambition. Her religion, too, is essentially womanly, fervent, clinging to belief, and, "hoping on, hoping ever," in spite of the peculiar trials appointed to her sex, so exquisitely described in the "Evening Prayer in a Girl's School:"—

— Silent tears to weep,
And patient smiles to wear through suffering's hour
And sunless riches from affection's deep
To pour on broken reeds—a wasted shower!
And to make idols, and to find them clay,
To bewail that worship—

If such was the mind of her works, the manner in which she wrought out her conceptions was equally individual and excellent. Her imagination was rich, chaste, and glowing; those who saw only its published fruits, little guessed at the extent of its variety. But it is possible that we may recur to the subject again, and this is not the time for deliberate and cold criticism.

It is difficult to enumerate the titles of her principal works. Her first childish efforts were published when she was only thirteen, and we can only speak of her subsequent poems—"Wallace," "Dartmoor," "The Restoration of the Works of Art to Italy," and her "Dramatic Scenes," from memory. These were, probably, written in the happiest period of her life, when her mind was rapidly developing itself, and its progress was aided by judicious and intelligent counsellors, among whom may be mentioned Bishop Heber. A favorable notice of one of these poems will be found in Lord Byron's Letters; and the fame of her opening talent had reached Shelley, who addressed a very singular correspondence to her. With respect to the world in general, her name began to be known by the publication of her "Welsh Melodies," of her "Siege of Valencia," and the scattered lyrics which appeared in the *New Monthly Magazine*, then under the direction of Campbell. She had previously contributed a series of prose papers on Foreign Literature, to *Constable's Edinburgh Magazine*, which, with little exception, are the only specimens of that style of writing ever attempted by her. To the "Siege of Valencia," succeeded rapidly, her "Forest Sanctuary," her "Records of Women," (the most successful of her works,) her "Songs of the Affections," (containing, perhaps, her finest poem, "The Spirit's Return,") her National Lyrics and Songs for Music, most of which have been set to music by her sister, and become popular,) and her "Scenes and Hymns of Life." We have no need to speak critically of any of these; the progress of mind and change of manner which they register have already been adverted to in our columns.—Nor need we do more than repeat our conviction that she had not as yet reached the full strength of her powers. A few words with respect to their direction in later days, may be worthily extracted from a letter of hers, which lies before us. She had been urged by a friend to undertake a prose work, and a series of "Artistic Novels," something after the manner of Tieck, and Goethe's *Kunst-Romanen*, as likely to be congenial to her own tastes and habits of mind, and to prove most acceptable to the public.

"I have now," she says, "passed through the feverish and somewhat visionary state of mind often connected with the passionate duty of art in early life; deep affections and deep sorrows seem to have solemnized my whole being, and I now feel as if bound to higher and holier tasks, which, though I may occasionally lay aside, I could not long wander from without some sense of dereliction. I hope it is no self-delusion, but I cannot help sometimes feeling as if it were my true task to enlarge the sphere of sacred poetry, and extend its influence. When you receive my volume of "Scenes and Hymns," you will see what I mean by enlarging its sphere, though my plan as yet is very imperfectly developed."

Besides the works here enumerated, we should mention her tragedy "The Vespers of Palermo,"

which, though containing many fine thoughts and magnificent bursts of poetry, was hardly fitted for the stage, and the songs which she contributed to Colonel Hodges' "Peninsular Melodies." And we cannot but once more call the attention of our readers to her last lyric, "Dependancy and Aspiration," published in *Blackwood's Magazine* for this month; it is the song of the swan—its sweetest and its last!

In private life, Mrs. Hemans had attached to herself many sincere and steadfast friends. She was remarkable for shrinking from the vulgar honors of *lionism*, with all the quiet delicacy of a gentlewoman; and at a time when she was courted by offers of friendship and service, and homages sent to her from every corner of Great Britain and America, to an extent which it is necessary to have seen to believe, she was never so happy as when she could draw her own small circle round her, and secure in the honest sympathy of its members, give full scope to the powers of conversation which were rarely exerted in general society, and their existence, therefore, hardly suspected. It will surprise many to be told, that she might, at any moment have gained herself a brilliant reputation as a wit, for her use of illustration and language was as happy and quaint, as her fancy was quick and excursive; but she was, wisely for her own peace of mind, anxious rather to conceal than to display her talent. It was this sensitiveness of mind which prevented her even visiting London after her name had become celebrated; and, in fact, she was not seldom reproached by her zealous friends for undervaluing, and refusing to enjoy the honors which were the deserved reward of her high talents, and for shutting herself up, as it were, in a corner, when she ought to have taken her place in the world of society as a leading star.—The few who knew her will long remember her eager child-like affection, and the sincere kindness with which, while she threw herself fully and frankly on their good offices, she adopted their interests as her own for the time being.

One of two traits may be further added to this imperfect sketch, though, as some further reminiscences of our friend may possibly be attempted by the writer of this notice, many things which remain to be said will be deferred to a more fitting time. It may be told, that when young, she was remarkable for personal attractions; that her talents for music and drawing (merely another form of the spirit which was the living principle of her life) were of no common order. Her health had for many years been precarious and delicate; the illness of which she died was long and complicated, but, from the first, its close was foreseen; and we know from those in close connection with her, that her spirit was placid and resolved, and that she looked forward to the approach of the last struggle without a fear. It is consolatory to add, that her dying moments were cheered by the kind offices of zealous and faithful friends: for herself, her departure from this world could only be a happy exchange. There is no fear of her being forgotten: we shall long think of her—

Kindly and gently, but as of one
For whom 'tis well to be fed and gone;
As of a bird from a chain unbound,
As of a wanderer whose home is found;—
So let it be!

SUMMARY.

RICH ARRIVAL.—The schr. Creole, arrived yesterday from Tampico, has on board one hundred and seventeen thousand, nine hundred and fifty-nine dollars.

MORE SPECIE.—The brig Montilla, arrived yesterday from Carthagena, has on board \$48,864. The Mariner, from Metamoraz, about \$25,000.

CHICAGO.—Arrived from June 27th to July 3d, 10 schooners, 1 sloop, and sundry steamboats, with merchandise and passengers. Cleared, 4 schooners.

[From the *Mohawk Courier* of July 9th.]

OUR VILLAGE, presents its usual scene of activity. Traffic seems to be in a prosperous state. Law and medicine have many dealers—we say nothing of the few they command. Printers' bills are paid and printers' duns regarded—as usual!—But it all goes well enough yet. There is a splendid variety in our manner of life; the rude artillery of blasting rocks, discourses rough music "early and late;" and the confused and continuous din of drills borne on the wings of every breeze,

gives token of the ultimate triumph over those barriers which so long held defiance to the progress of improvement. To this, and the ordinary occupations of our citizens, add the zest furnished by the occasional visits of strangers—the passing of travellers—prognosticated matches—lovers quarrels—hopes deferred—emigrant's movements—western land speculations—railroad trials—wood cock shooting, (we guess) pigeon killing—assaults and batteries—Dublin riots, and Irish weddings, and you have but a mere summary of the delights of life in Little Falls, and quite a superficial idea of our "borough scenes."

NAVAL.—The Navy Commissioners on Friday, visited the Frigate Constitution, and we understand she is ordered to the navy yard for some trifling repairs.

The report of two of our seventy fours being ordered to be got ready for immediate service is, we believe, without foundation.

And it is not true that the 110 gunship on the stocks at Philadelphia, has been ordered to be completed for launching.

The U. S. ship Delaware, Com. Patterson, is expected home in October next.—[Gaz.]

Two bucks were recently found lying dead on John's Island, near Charleston, with their horns inextricably locked. They had probably got themselves in that predicament by a furious encounter. The horns of two bucks, locked in the same way, are preserved in the Beaufort Library, taken from two bucks which were found alive, and killed in the defenceless state in which they had placed themselves.

The Tiger which was seen in Middleboro' woods, and which was afterwards decided to be a Hyena, has been killed, and turns out to be a Peacock.

THE TOWN OF NEWARK INDICTED.—We are, (says the Newark Daily), ashamed to say that this enterprising and flourishing town! was indicted at the late Sessions of the County Court for not mending its ways. The street specified in the indictment, we understand is that which leads out of Market street to South Orange. Nearly one half the streets of the town might have been included—beginning with Broad street. Shame upon us!

A bill was also found at the same time against the Morris Canal for neglecting to repair its bridges.

HEALTH OF THE CITY.—The interments during the last week, in this city, were 124, in Philadelphia they were 158; and in the corresponding week, in this city last year, they were 208.

STORM.—This city and vicinity was visited yesterday afternoon with a rain storm of unusual severity. During the progress of it, Dr. Huddleston's extensive Hotel, known as the Mansion House, situated on Washington Square, was struck with lightning. The electric fluid descended one of the chimneys on the north side of the house, but most fortunately resulted in no serious injury to the building. The shock produced by the clap of thunder which followed was tremendous. There were about one hundred persons in the Mansion House at the time, none of whom were injured.—Troy Whig.]

[From the *Cincinnati Gazette*, July 6th.]

BALLOON ASCENSION.—Mr. Clayton made his proposed balloon ascent on Saturday afternoon, July 4. He succeeded in the handsomest manner. After ascending to a great height, and hovering a short time over the city, he took his course in an easterly direction, not quite so much south as on his previous ascent. There was but little wind. The departure was a few minutes before six. At sundown the balloon was still visible, a mere speck in the Eastern horizon.

Mr. Clayton was supplied for a long voyage, and it was his determination to remain up as long as he found it practicable to do so.

A vast concourse of people witnessed the ascent. It is estimated that from 3500 to 4000 were within the enclosure. All departed much gratified, no accident having occurred to mar the general satisfaction.

P. S.—We learn by passengers that came yesterday afternoon, in the Detroit, that the balloon passed Maysville, a little to the north, at half past eight o'clock, on Saturday evening.

FUR COMPANY BOAT BURNED.—The St. Louis Herald of June 26th, says:

A flat boat belonging to the American Fur Company, of this city, arrived here last evening from

the company's post on the Yellow Stone, distant 3000 miles. She brings the news of the total loss of the company's steamboat Assiniboin, by fire. The Assiniboin was lying aground a little below the Mandan villages, where, on or about the first of June, she took fire in the ladies' cabin, and was entirely consumed. The cargo of the Assiniboin, consisting of buffalo Robes, and valued at 70 to \$80,000, was wholly destroyed.

[From the Boston Atlas.]

IMPROVED LOCK—NEW INVENTION.—A newly improved lock is now exhibiting at City Hall, the invention and manufacture of the Messrs. Cambell, leather dealers in Clinton street, and on examination it strikes us as a complete safeguard. It is a small, simple lock, requiring but one key and that without guards; not liable to get out of order, and if the checks are not wanted it can be conveniently used as a common lock. It is called the revolving check lock, and the key that belongs to it would be of no service to any one not understanding the particular combinations of the checks, as indicated by a certain scale of figures; these can be changed every day in the year, so that a man might be daily shown how to unlock it—and it could be so changed in a minute or two that he would be as little able as a stranger.

We understand that the inventors offer a reward of fifty dollars to any one who will unlock it. They intend making one on a similar plan, somewhat more secure, place it upon a trunk, depositing in the trunk \$1000 dollars against any one willing to deposit a similar sum—the condition of the deposit to be that if in the course of a twelvemonth the lock is not opened by the most experienced lock-picker that can be found, the whole sum shall be the property of the inventors; if the lock is opened, they forfeit the entire sum. The key belonging to the lock shall be given up to the person taking the offer, and the Messrs. Cambell will unlock the trunk every day during the year in his presence.

We must confess that this wears a little the aspect of the marvellous—for bolts and bars are so easily cut through by the ingenious, under all the circumstances of silence, secrecy and fear of detection—that it seems to us impossible that any mystery would be devised in the way of a lock, which, many an adroit culprit, with a fair field and no favor and three hundred and sixty-five days and nights before him, could not unriddle. But we give the fact as it was given to us, and the doubting must look for themselves.

MILTON A. PUNSTER.—Who would have thought it? Old round-head square-toes, a player upon words—a double intender! And punning in the middle of "Paradise Lost," too—the old quiz!—Turn to your book, gentle reader, and there you will find him describing the feeding of Elijah by the ravens, in these proper words:—

Him thought he by the brook of Cherith stood,
And saw the ravens with their horny beaks
Food to Elijah bringing, even and morn;
Tho' raven-ous, taught to abstain from what they brought.

Nor is this a solitary instance; for, by the help of some inquisitorial pains, we have detected the old gentleman at this curious game in several passages of his great work aforesaid. Thus, in the IXth Book, he makes our mother Eve to say—

Serpent, we might have spared our coming hither
Fruitless to me, though fruit be here to excess.

In Book Xth is another and an outrageous example of indulgence in the propensity we are illustrating:

— The blasted stars look'd wan,
And planets, planet-struck, real eclipses
Then suff'rd.

Were it not for these preceding cases of *flagrans delictum*, we might be willing to suppose that the following passage, which we extract from the XIth Book, had perhaps no punning intent; but, as it is, we can hardly acquit the offender. Mark how applicable is the description, in the second meaning, to a gentleman entering a ball room just as the usual liquid refreshment is in course of being handed round:

— Nor could his eye not ken
The empire of Negus to his utmost Port.

Reading the passage in this sense, (which will intrude itself) we cannot fail to remark the additional strength given to Negus by the bold figure of personification, as expressed in the personal pronoun.

Who shall venture to say, after this, that Mil-

ton has not made extravagant use of the poetic licence?

SUNDAY TRAVELLING IN GREAT BRITAIN.—On the discussion in the House of Commons of the Report of the Great Western Railway Bill, Mr. Miles moved the insertion of a clause to prevent travelling thereon on Sunday. After some discussion, Mr. Roebuck, the member for Dublin, rose and said, he saw no more reason why a poor man should be prevented from travelling on a Sunday, than a rich one.

A few Sundays since he was going a little way out of town, and passing along Piccadilly at twelve o'clock, and therefore in the middle of church-time, he met the Duke of Wellington riding—"Hear, hear!"—further on he observed men and horses employed in watering Hyde Park for the benefit of the fine folks—"Hear!"—at Knightsbridge the soldiers were under arms and exercising—"Hear!"—at Hammersmith Bridge he encountered the Lord Chief Justice on horseback—(Cheers and laughter)—and when he reached Hampton Court at three o'clock, whom should he see there but the right honorable Baronet the member for Tamworth. (Much laughter and cheering.) They had a perfect right to enjoy themselves in this way, but so had the poor when they could do it. The rich could go from place to place on horses and in carriages, but travelling on railroads would be chiefly for the benefit of the poor; and it ought not to be restricted. This clause seemed brought forward rather in a Pharisaical than in a Christian spirit, and he hoped it would be rejected. People meddled too much with the morals of each other; let every man take care of his own goodness, and there would be more virtue in the world, though less outward show.

A curious case has lately occupied the attention of the Court of Sessions. In Scotland it has been the custom, from time immemorial, for barbers to shave the laboring classes on Sunday mornings, between six o'clock and ten, to fit them for the church. A barber's apprentice in Dundee, however, lately refused to shave on Sundays, and was brought before the magistrates to answer to a complaint at the instance of his master for disobedience. The magistrates ordered him to shave.—The case was appealed, and came before Lord Jeffrey, sitting in the Outer House, when his lordship decided that he was not bound by law to shave on Sundays. The master presented a reclaiming note to the second division of the Court, and they have reversed Lord Jeffrey's judgment, and found that the young man is bound to crop beards on the Sunday mornings. Here the question stands at present, but it is likely to reach the House of Lords. Glasgow has long been celebrated for its orthodoxy; and the Incorporation of Barbers of that city have a rule two centuries old, that if any member shall shave on Sunday, he shall be fined.

BALL IN A MADHOUSE.—The French certainly carry their treatment of the insane to a far higher pitch of refinement than we do. The idea of giving a ball to the inmates of a lunatic asylum may startle some of our mad doctors; but what think they of the following precedent? On the 7th ult., the female patients of the Salpêtrière were treated to a grand ball. The insane ladies themselves were intrusted with the getting up of the entertainment; they adorned the ball room with festoons, garlands, and devices; and in the midst, they crowned with *immortelles* the bust of Pinel, the liberator of the insane from the old system of cruelty and terror. The dancing, it is said, went off with charming effect; the students, intern and extern, did the honors; and the festivity was kept up to an hour sufficiently advanced for the satisfaction of all the parties—who, to do them justice, were indefatigable in their exertions to please and to be pleased. It should be added, that the gay scene (which was appointed and arranged with the most serious object) has been generally attended with good effects; it served admirably to fix and amuse the minds of the patients; and several who labored under melancholia were much diverted, for the time, from their imaginary woes.—M. Esquirol some years ago, it seems, tried this method with success; but it is to M. Pariset, the physician of the Salpêtrière, that the credit is due of having so happily ventured on its repetition in the present instance.—[Medical Gaz.]

ADDUSON.—We have seen at COLMAN'S, a most beautiful print by Turner, of our great Ornithologist. It is an admirable likeness, and most spirit-edly engraved.

JACKSONVILLE, E. F., June 25.—*Skirmish with a party of Seminole Indians.*—We have been politely favored with the perusal of the following letter addressed to the Postmaster of this place, and have his permission to publish it. We shall feel under obligations to the author, or any other gentleman who will communicate any additional facts in relation to the transaction:

"*Aticonopy, June 20.*—My Dear Sir—An express has this moment arrived (as the mail is closing) from Capt. Walker, of the Spring Grove Guards, announcing, that yesterday a rencontre took place of the most unhappy and alarming character, near Mr. Samuel Gieger's, in this county, between a party of about thirty Indians and a party of white men, in which three of the latter (Mr. Giles Ellis his son Underhill Ellis, and Mr. George Rawls were severely wounded by shots from the Indian) The circumstances are not fully known, though it is understood that the Indians were detected in killing cattle.

"Capt. Walker has mustered a portion of his command, and gone in pursuit of the Indians.

"Yours in haste, G. HUMPHREYS."

The following list of Cadets will be attached to the Army Register, conformably to a regulation for the government of the Military Academy, requiring the names of the most distinguished Cadets, not exceeding five in each class, to be reported for this purpose at each examination.

1st Class.

- 1 George W. Morrell, of New York.
- 2 Charles H. Bigelow, of Massachusetts.
- 3 John H. Martindale, of New York.
- 4 Charles J. Whiting, of Maine.
- 5 George M. Legate, of Maine.

2d Class.

- 1 Montgomery C. Meigs, of Pennsylvania.
- 2 Alexander Hamilton, of New York.
- 3 George D. Welcker, of Tennessee.
- 4 James L. Mason, of Tennessee.
- 5 Fisher A. Lewis, of Virginia.

3d Class.

- 1 Edwin W. Morgan, of Pennsylvania.
- 2 Henry W. Benham, of Connecticut.
- 3 Alexander B. Dyer, of Missouri.
- 4 John W. Gunnison, of New Hampshire.
- 5 John Bratt, of New York.

4th Class.

- 1 William H. Wright, of North Carolina.
- 2 Alexander H. Dearborn, of New York.
- 3 Stephen H. Campbell, of Vermont.
- 4 P. G. T. Beauregard, of Louisiana.
- 5 John T. Metcalfe, of Mississippi.

[Navy and Army Chron.]

OFFICIAL.—[Order No. 38.]

Head Quarters of the Army.

Adjutant General's Office,

Washington, July 1st, 1835.

1. Promotions and appointments in the Army, since the publication of Order No. 24, of May 1st, 1835.

1. PROMOTIONS.

CORPS OF ENGINEERS.

Brevet Captain Cornelius A. Ogden, First Lieutenant, to be Captain, 15th May 1835, vice Blaney deceased.

Second Lieutenant Thompson S. Brown, to be First Lieutenant, 15th May, 1835, vice Ogden promoted.

Brevet Second Lieutenant, Jonathan G. Bernard, to be second Lieutenant, 15th May, 1835, vice Brown promoted, (brevet, 1st July, 1833.)

REGIMENT OF DRAGOONS.

First Lieutenant Philip St. Geo. Cooke, to be Captain, 31st May, 1835, vice Bean resigned.

Second Lieutenant James Allen, to be First Lieutenant, 31st May, 1835, vice Cooke promoted.

Second Lieutenant J. H. K. Burgwin, to be First Lieutenant, 30th June, 1835, vice Davis resigned.

Brevet Second Lieut. Gaines P. Kingsbury, to be Second Lieutenant 31st May 1835, vice Allen promoted, (brevet 1st July, 1833.)

Brevet Second Lieutenant James M. Bowman, to be Second Lieutenant, 30th June, 1835, vice Burgwin, promoted, (brevet 1st July, 1833.)

Brevet Second Lieutenant Asbury Urry, to be Second Lieutenant, 30th June, 1835, vice Watson, resigned, (brevet 1st July, 1833.)

FIRST REGIMENT OF INFANTRY.

Brevet Second Lieutenant Wm. H. Storer, to be Second Lieutenant, 30th June, 1835, vice Williams resigned, (brevet 1st July, 1832.)

THIRD REGIMENT OF INFANTRY.

Second Lieutenant Richard W. Colcock, to be First Lieutenant, 31st May, 1835, vice Harris, resigned.

Brevet Second Lieutenant, James F. Cooper, to be Second Lieutenant, 31st May, 1835, vice Colcock, promoted, (brevet 1st July, 1834.)

SIXTH REGIMENT OF INFANTRY.

Second Lieutenant Francis J. Brooke, to be First Lieutenant, 6th May, 1835, vice Nichols dismissed.

Brevet Second Lieutenant, Geo. H. Griffin, to be Second Lieutenant, 6th May, 1835, vice Brooke promoted, (brevet 1st July, 1832.)

SEVENTH REGIMENT OF INFANTRY.

First Lieutenant Joseph A. Phillips, to be Captain, 4th May, 1835, vice Cross, resigned.

First Lieut. Nicholas Tillinghast, to be Captain, 1st June, 1835, vice Wilkinson, resigned.

Second Lieut. Samuel Kinney, to be First Lieutenant, 4th May, 1835, vice Phillips, promoted.

Second Lieut. Richard H. Ross, to be First Lieutenant, 1st June, 1835, vice Tillinghast, promoted.

Brevet Second Lieut. James G. Reed, to be Second Lieutenant, 4th May, 1835, vice Kinney, promoted, (brevet 1st July, 1834.)

Brevet Second Lieut. Arnold Harris, to be Second Lieutenant, 1st June, 1835, vice Ross, promoted, (brevet 1st July, 1834.)

II. APPOINTMENTS.

STAFF.

Sohn C. Reynolds, to be Assistant Surgeon, 1st May, 1835.

SECOND REGIMENT OF ARTILLERY.

Brevet Second Lieutenant Epaphras Kibby, 1st Artillery, to be Second Lieutenant, 25th January, 1835, vice Chandler, deceased, (brevet first July, 1834.)

Brevet Second Lieutenant Chas. A. Fuller, Third Artillery, to be Second Lieutenant, 28th February, 1835, vice Wilkinson, resigned, (brevet 1st July, 1834.)

Thomas P. Ridgeley, late Lieutenant, Second Artillery, to be Second Lieutenant, 29th May, 1835.

2. The following named Cadets, constituting the 1st Class of 1835, having been adjudged by the academic Staff, at the June examination, competent to perform duty in the Army, the President of the United States has attached them as supernumerary Second Lieutenants, by brevet, to Regiments and Corps respectively, as candidates for commissions therein.

CORPS OF ENGINEERS.

RANK.

1. Cadet George W. Morrell, to be brevet Second Lieutenant, 1st July, 1835.

2. Cadet Charles H. Bigelow, to be brevet Second Lieutenant, 1st July, 1835.

REGIMENT OF DRAGOONS.

3. Cadet Jno. H. Martindale, to be brevet Second Lieutenant, 1st July, 1835.

25. Cadet Alexander S. Macomb, to be brevet Second Lieutenant, 1st July, 1835.

26. Cadet John H. Hanly, to be brevet Second Lieutenant, 1st July, 1835.

34. Cadet Philip R. Thompson, to be brevet Second Lieutenant, 1st July, 1835.

42. Cadet Jones M. Withers, to be brevet Second Lieutenant, 1st July, 1835.

61. Cadet Benj. S. Rogers, to be brevet Second Lieutenant, 1st July, 1835.

62. Cadet Wm. N. Grier, to be brevet Second Lieutenant, 1st July, 1835.

FIRST REGIMENT OF ARTILLERY.

6. Cadet Alfred Herbert, to be brevet Second Lieutenant, 1st July, 1835.

7. Cadet Arnoldus Brumby, to be brevet Second Lieutenant, 1st July, 1835.

13. Cadet James N. Ellis, to be brevet Second Lieutenant, 1st July, 1835.

21. Cadet George G. Waggaman, to be brevet Second Lieutenant, 1st July, 1835.

SECOND REGIMENT OF ARTILLERY.

4. Cadet Charles J. Whiting, to be brevet Second Lieutenant, 1st July, 1834.

8. Cadet George M. Legate, to be brevet Second Lieutenant, 1st July, 1835.

9. Cadet Horace Brooks, to be brevet Second Lieutenant, 1st July, 1835.

10. Cadet James M. Morgan, to be brevet Second Lieutenant, 1st July, 1835.

12. Cadet Richard Henderson, to be brevet Second Lieutenant, 1st July, 1835.

17. Cadet James H. Stokes, to be brevet Second Lieutenant, 1st July, 1835.

THIRD REGIMENT OF ARTILLERY.

14. Cadet John L. Keais, to be brevet Second Lieutenant, 1st July, 1835.

15. Cadet William S. Brown, to be brevet Second Lieutenant, 1st July, 1835.

19. Cadet George Meade, to be brevet Second Lieutenant, 1st July, 1835.

FOURTH REGIMENT OF ARTILLERY.

8. Cadet Joseph Roberts, to be brevet Second Lieutenant, 1st July, 1835.

11. Cadet Robert M. Renick, to be brevet Second Lieutenant, 1st July, 1835.

18. Cadet Montgomery Blair, to be brevet Second Lieutenant, 1st July, 1835.

FIRST REGIMENT OF INFANTRY.

28. Cadet Peter C. Gaillard, to be brevet Second Lieutenant, 1st July, 1835.

38. Cadet Samuel M. Plummer, to be brevet Second Lieutenant, 1st July, 1835.

39. Cadet John M. Scott, to be brevet Second Lieutenant, 1st July, 1835.

40. Cadet George W. Shaw, to be brevet Second Lieutenant, 1st July, 1835.

SECOND REGIMENT OF INFANTRY.

16. Cadet Henry L. Kendreck, to be brevet Second Lieutenant, 1st July, 1835.

36. Cadet S. T. Tibbatts, to be brevet Second Lieutenant, 1st July, 1835.

44. Cadet John W. Scott, to be brevet Second Lieutenant, 1st July, 1835.

46. Cadet R. M. Patrick, to be brevet Second Lieutenant, 1st July, 1835.

THIRD REGIMENT OF INFANTRY.

29. Cadet Herman Haupt, to be brevet Second Lieutenant, 1st July, 1835.

33. Cadet William S. Henry, to be brevet Second Lieutenant, 1st July, 1835.

41. Cadet Joseph H. Eaton, to be brevet Second Lieutenant, 1st July, 1835.

45. Cadet Larkin Smith, to be brevet Second Lieutenant, 1st July, 1835.

FOURTH REGIMENT OF INFANTRY.

31. Cadet Alexander M. Mitchell, to be brevet Second Lieutenant, 1st July, 1835.

43. Cadet Isaac Reve, to be brevet Second Lieutenant, 1st July, 1835.

FIFTH REGIMENT OF INFANTRY.

23. Cadet Henry M. Naglee, to be brevet Second Lieutenant, 1st July, 1835.

32. Cadet Alexander H. Tappen, to be brevet Second Lieutenant, 1st July, 1835.

35. Cadet W. M. D. McKissack, to be brevet Second Lieutenant, 1st July, 1835.

48. Cadet Joseph H. Whipple, to be brevet Second Lieutenant, 1st July, 1835.

50. Cadet R. A. Wainwright, to be brevet Second Lieutenant, 1st July, 1835.

SIXTH REGIMENT OF INFANTRY.

24. Cadet Archibald Campbell, to be brevet Second Lieutenant, 1st July, 1835.

33. Cadet W. H. De Forest, to be brevet Second Lieutenant, 1st July, 1835.

63. Cadet Thomas T. Brent, to be brevet Second Lieutenant, 1st July, 1835.

SEVENTH REGIMENT OF INFANTRY.

20. Cadet William H. Betts, to be brevet Second Lieutenant, 1st July, 1835.

22. Cadet W. K. Hanson, to be brevet Second Lieutenant, 1st July, 1835.

27. Cadet W. H. Griffin, to be brevet Second Lieutenant, 1st July, 1835.

37. Cadet James M. Wells, to be brevet Second Lieutenant, 1st July, 1835.

47. Cadet Thomas B. Alden, to be brevet Second Lieutenant, 1st July, 1835.

49. Cadet Lucius Bradbury, to be brevet Second Lieutenant, 1st July, 1835.

III. CASUALTIES.

RESIGNATIONS.

Captains.

James Bean, Dragoons, 31st May, 1835.

Truman Cross, 7th Infantry, 4th May, 1835.

N. G. Wilkinson, 7th Infantry, 1st June, 1835.

First Lieutenants.

Jefferson Davis, Dragoons, 30th June, 1835.

Nathaniel S. Harris, 3d Infantry, 31st May, 1835.

Second Lieutenants.

John L. Watson, Dragoons, 30th June, 1835.

Edward R. Williams, 1st Infantry, 30th June, 1835.

Brevet Second Lieutenants.

Abram G. Edwards, Dragoons, 2d May, 1835.

Eustace Robinson, 4th Infantry, 11th June 1835.

DEATH.

Brevet Major George Blaney, Capt. Corps of Engineers, 15th May, 1835.

DISMISSED.

1st Lieutenant John Nichols, 6th Infantry, 6th May, 1835.

3. The officers promoted and appointed will report accordingly, and join their proper stations and companies without delay; those on detached service, or acting under special orders and instructions, will report, by letter, to their respective Colonels.

4. The Brevet Second Lieutenants will join their respective regiments, and report in person for duty, agreeable to regulations, by the 15th day of October; and report immediately, by letter, to their respective Colonels, who will assign them to companies.

By order of ALEXANDER MACOMB,
Major General Commanding in Chief.
R. JONES, Adjutant General.

MEMORANDA.

Correction of Dates.

First Lieutenant Joseph D. Searight, 6th Infantry, to rank from 18th April, 1835, vice Richardson, deceased.

Second Lieutenant John Conrad, 6th Infantry, to rank from 18th April, 1835, vice Searight, promoted.

[FOR THE NEW-YORK AMERICAN.]

Musings.—By Flaccus, in the Country.
"When my mirth ceases to be instructive, it shall never cease to be innocent."—[ADDISON.]

THE LAMENT OF BACCHUS.

My sun is setting on degraded times,
My hopes are wreck'd, beyond the power to save;
For temperance monsters rove these fallen climes,
And threaten me, Bacchus, with a wat'ry grave.
Oh! could I weep, my grief would trickle here—
But no—a foe to scotch a tear.

For this free land, I left mine eastern home,
(Freedom with Bacchus ever is allied,)
For I had heard of old New England rum,
And for its love the ocean-waves defied;
And 'mid mint-juleps, slings, and cocktails, here
Was reigning god for many a jolly year.

Taverns, my temples—bars, my altars shone,
And high, and low would worship at my shrine;
The chrysal bottle, then the rich old own,
The honest jug, poor devil, then was thine—
Little cared we, old mates for rain or thunder,
When wine was on the board, and we were under.

Now, all is changed, and water is the cry!
Canals, presumptuous, course each tavern side,
And aqueducts, their horrid wash supply,
"Ere Philadelphia splashes with the tide—
But Gotham balked all such hydraulic ends,
For in its councils I had many friends.

Stout worthies they, who saved us that disgrace
With hydrophobic zeal, for many a year;
But they are gone—a wishy-washy race
Of vile aquatics follow in their rear
Would pour all Croton on us—horrid wish!
To deluge men with what was meant for fish.

I sink 'neath temperance's most intemperate rage—
Now Rush-ton's soda spouts its ceaseless stream—
Degenerate Niblo truckles to the age,
And sells ice-cream—ye Gods! what is ice-cream?
And Willard throws (though truest of the bunch)
A dash too much of water in his punch.

Oh! Brandy, Whiskey, Arrack, Hollands, Rum!
Distill'd perfections—alcoholic graces!
Ye glorious Wines! your mortal foes have come
And label'd "poison" on your rosy faces—
While ye are slandered, can I tamely sit?
What man of spirit, ever could submit?

Ye are allowed, our sickness to appease,
If so, then never should we cease to fill,
For life itself is but one long disease
And wine the drug for every corporal ill—
Life is a punch, whatever you profess to think—
Which, of its spirit rob'd, ah! who would drink?

Not Bacchus—death shall sooner end my cares—
And will, if longer in this watery West—
My limbs are soaked—my surgeon, too, declares,
(Terrific thought!) there's water in my chest!
Farewell, ye streams—rejoice, ye rainy skies!—
Niagara! roar, for mighty Bacchus flies.

Place me again on Egypt's burning sand,
From whence I sprang—where springs are ever dry;
Where rains and dew no more defile the land,
And water is unknown—there let me lie—
There, nobly dying, my last bottle drain,
And, in the land of spirits, live again!

No. 4.

LATER FROM FRANCE.—The following extracts are from papers received by the Courier and Enquirer per Isaac Clason, arrived yesterday from Bordeaux.

PARIS, June 12.—The question of intervention is arranged between the powers which are parties to the Quadruple Treaty, and the English journals received yesterday fully confirm what we have written on the subject. A new energy is to be given to the execution of the Treaty. The resources which will be placed at the disposal of General Valdez, will enable him probably to assume the offensive; while the active co-operation of the allies of Queen Isabel II. will give to her government a more energetic action against the factions which oppose her authority.

The English journal the Globe, which is understood to receive official communications from the Ministers, says it is not authorized to announce any particular measure adopted by the government to facilitate the enlistment of English subjects for the service of the Queen of Spain, but that it has strong reasons to believe that the provisions of the foreign enlistment bill will be modified, and that English officers will be permitted to serve as volunteers in the Peninsula without the loss of their half-pay.

BORDEAUX, June 10.—We have received by the extraordinary conveyance, news from Lisbon to the 27th of May, which announces an important change in the Ministry. On the 25th the Queen changed the Marquis de Saldanha with the formation of a new ministry, and on the 27th he formed it as follows:

Saldanha, President of the Council and Minister of War; the Duke of Palmella, Minister of Foreign Affairs; Marquis de Loule, Marine; Francisco Antonio de Campos, Finance; Juan de Sousa Pinto de Magalhães, Interior; Manuel Antonio Carvalho, Justice and Worship.

These names, known and honored in the patriotic annals of the country, have been received by the whole population with acclamations of joy.

LEONORN, May 25.—Don Miguel is awaking from his lethargy. He left Rome secretly on the 21st, and embarked at Civita Vecchia, on board the steamboat Sully, which arrived here day before yesterday, and left the same day for Genoa and Marseilles. It is said that Don Miguel was seen here habited as a servant, and that the next day he arrived at Genoa in the same dress. There is no doubt but he will go by land to Turin as a servant of some personage. It is probable he will then take the route for Geneva, and proceed to Holland, where he will find a government disposed to aid him.

NAPLES, May 23.—For some days past, a great rumbling has been heard in the interior of Vesuvius, and it has not yet ceased.

MEXICO.—In addition to the intelligence we published yesterday from this republic, we now lay before our readers, a letter received from Vera Cruz through the Post Office.

VERA CRUZ, June 22d, 1835.

To the Editors of the Courier and Enquirer:

Gentlemen—I avail myself of the departure of the Elbe to inform you that the attack of Santa Anna on the state of Zacatecas, was completely successful. The sovereignty of that state has been destroyed, and it is now in the full enjoyment of all the privileges and immunities of a military government, directed adroitly by the priesthood. The torch of rational liberty is extinguished in the Republic, save in the petty and insignificant state of Chiapas, whose worthy Governor is yet making a manly resistance to the encroachments of arbitrary power. Since the downfall of Zacatecas, all the principal cities and villages of the interior have pronounced for centralism. They have been goaded in to this expression of feeling by the military arm, which acts under the direction of the friars and priesthood. This city has not yet followed the example of her more powerful neighbors; it is thought the citizens want the gentle stimulus of bayonets in order to arouse them to a proper sense of the important advantages that will result to them by destroying the present system of government, and substituting a central government or a monarchy—the latter is the most probable.

The excesses committed by the victor Santa Anna and his troops in Zacatecas and vicinity, are without a parallel in the history of civilized nations. It appears that all strangers were exposed to their diabolical rage: the only American in the place

was basely assassinated in the presence of his wife, who was afterwards stabbed to the heart, stripped of her clothing and thrown exposed into the street. The English residents at the mines were robbed, their property wantonly destroyed, and some murdered and all menaced with extermination. The English Minister has made a peremptory demand for indemnity to his Majesty's subjects for the injuries done to their property, which he will doubtless obtain. We have no Minister at this Court to make a similar demand for the injuries done our citizens, and if made by our late Chargé des Affaires, it would doubtless be unavailing, as in all previous ones. The impropriety with which the authorities of this country have outraged both the persons and property of our citizens, renders them peculiarly obnoxious to future abuse from the authorities during their civil commotions, of which the country has been abundantly prolific for the last ten years.

The immortal, omnipotent Santa Anna, the singular hero of America, the Napoleon of this continent, (all terms of modest praise which the clergy of this country have bestowed on their favorite,) was to have made his triumphal entry yesterday into the capitol; the majesty and splendor of the scene would doubtless have rivalled that of Pompey's into Rome, and eclipsed every thing of the kind on this continent.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-15

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Coush Miners will be preferred,) 20 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

Q. The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-17

RAILROAD IRON.

500 Tons Railroad Iron, 9 inch by 1/2, with Spikes and Splicing Plates to match, for sale by

WM. G. BULL & CO. 74 Wall-st. 26-31p

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.18-1y

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J26 17

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS. Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
900 do. 2 do. do.	of 45 degrees, with splicing
500 do. 3/4 do. do.	plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, 5, and 6 inches diameter for Railway Cars and Locomotives of patent iron. The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d11meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Supt of Construction of Baltimore and Ohio Railroad.

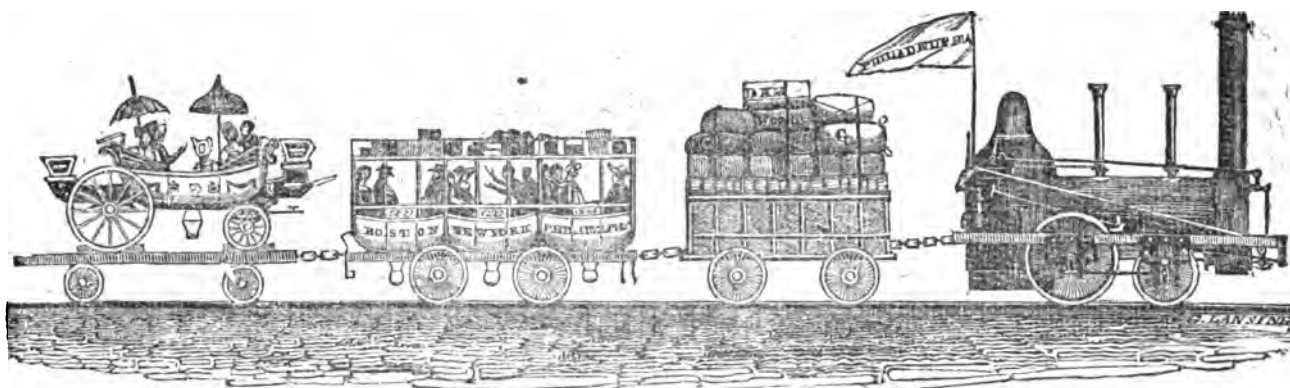
Philadelphia, February, 1833. Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Georgetown, February, 1833. For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, JULY 25, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JULY 25, 1835.

We have received, and in our next shall give some extracts from, the Report of ALEXANDER C. TWining, Esq., who has recently completed the Preliminary Surveys of the route for a Railroad from New-Haven to Hartford, Conn.

We have also on hand, and shall publish in our next, the concise Report of J. M. FESSENDEN, Esq., of his Preliminary Surveys for a continuation to Springfield, Mass., of the Boston and Worcester Railroad.

RAILROAD CONVENTION.—We are gratified to learn, as we do from the last Oneida Whig, that the citizens of Utica are about to send delegates to the Convention at Owego, on the 28th inst. From this, it would appear that the citizens do—if their late representative to the Legislature did not—appreciate the importance of this great work.

BALTIMORE AND WASHINGTON CITY RAILROAD.—All who have occasion to pass between the cities of Washington and Baltimore, will rejoice with us to learn that the railroad is completed. Cars have passed both ways each day since the 20th inst. Long may they continue to do so unobstructed.

Bituminous coal has been found in the immediate vicinity of Erie.—[Pennsylvanian.]

NEW-YORK AND ERIE, AND THE SUSQUEHANNAH AND UTICA RAILROADS.—The following article from the Oneida Whig treats the subject of the New-York and Erie Railroad in a rational and proper manner; and it is to us a matter of deep surprise and mortification, that a similar disposition has not been heretofore manifested by those highly favored towns, cities we might say, along the line of the canal, and the inhabitants in their vicinity, which are to be so greatly benefitted by this railroad and its numerous branches that will connect it with the canal. It would seem that their blindness, or want of discernment, was willful, as we cannot conceive that any person of ordinary intelligence, who would give the subject a thought, could avoid seeing the direct tendency of the work to promote the general, and of course their immediate, interest. Can any person who is familiar with the lay of the country, and the course of its principal water-courses, deny that a branch, leaving Binghampton and following for many miles the Onondaga River, will again branch and connect both with Utica and Syracuse? And is it not equally certain that another branch will reach Geneva and Rochester, thereby opening to the whole country, with very little difficulty, an easy and direct access to New-York at all seasons of the year? These are facts, and they must soon be acknowledged by all.

[From the Oneida Whig of July 14.]

NEW-YORK AND ERIE, AND UTICA AND SUSQUEHANNAH RAILROADS.—The first mentioned railroad is to connect the city of New-York with Lake Erie, and is to pass through the counties of New-York, Westchester, Rockland, Orange, Sullivan, Delaware, the southern part of Chenango, Broome, Tioga, Steuben, Allegany, Cattaraugus and Chataugue. Any person, by a glance at the map of this state, will at once discover the extent and importance of this line of communication, the wide field of territory it will open, the new sources of business and enterprise it will create, and the great number of our fellow citizens,

who are immediately interested in its prosecution. The whole south-western, southern and south-eastern tier of counties, are deeply concerned in this splendid undertaking, which they regard as indispensable to their prosperity. Throughout that whole portion of our territory, (containing a very large amount of wealth and population of the state) the public attention is aroused to this subject, and the people, almost as one man, are resolved that no effort shall be spared—no proper means left unemployed, to carry into successful execution an enterprise so essential to them and to the state at large. The spirit thus awakened will never slumber, and the day cannot be remote which will witness the completion of this great line of internal communication.

To their fellow citizens in other and more favored sections of the state, our brethren of the southern counties look, and we think justly, for countenance and aid in this undertaking, which is to open additional channels of enterprise—add greatly to the aggregate wealth and business of the state, and secure to our own citizens a great and growing trade, which our enlightened and ever watchful neighbors are striving to seize from us and appropriate to themselves. In addition to the just claims of our fellow citizens of the counties above referred to, this central section of the state has a deep and immediate interest in the contemplated work.

The Utica and Susquehanna railroad, for which a charter has already been granted, is to connect with the New-York and Erie, at or near Bettsburg, on the line between Chenango and Broome counties, about 70 miles south of Utica—and thus a railroad communication between this city and the city of New-York, as well as the southern and southwestern counties, will be established. The importance to us of such a communication cannot for a moment be doubted. A safe, direct, and speedy communication, at all seasons of the year, with our great commercial metropolis is thus obtained; and completed, (as they assuredly will be,) it is not extravagant to anticipate that the intercourse between New-York and Albany, during the suspension of river navigation, will be by way of Utica. The importance to our own county and city, of these railroads, cannot be too highly estimated. Our extensive woollen and cotton manufactur-

ing establishments on the Sadaqueda and Oriskany, and in other parts of the county; our forges and furnaces, our merchants throughout the county and vicinity, and indeed every class of our citizens engaged in the pursuits of useful and productive industry, have a direct interest in these works, and would feel the beneficent influence of their construction. We ought, then, while yet we may extend to them the aid of our countenance and influence, and give to our fellow citizens of the counties above mentioned assurances, the sincerity and utility of which they shall have no reason to doubt of our earnest desire for their success, of our co-operation in their undertaking. Thus much they expect of us, and would receive from us with feelings of gratification—gratification alike that we were willing to do them justice, and that we were sensible of our own interests. These feelings were fully expressed in a letter which we have seen from a resident of Orange, who is intimately connected with the southern railroad, and much pleasure is manifested at the proposition to send from this vicinity a delegation to their next Convention, which is to be held at Owego on the 29th inst. Our citizens should take this subject into immediate consideration, for we are persuaded that no other can be of more importance to them; and we trust a public meeting will speedily be called, for the purpose of appointing a delegation of respectable and influential citizens to meet our brethren of the southern counties in Convention, to extend to them the "right hand of fellowship," and to co-operate with them in all suitable measures to ensure the consummation of the great work so essential to them, and to us, and so useful, by means of the lateral communication that will be established to every western county.

It may be proper to add, that a large amount of the Utica and Susquehannah stock has already been subscribed for in this city, and that it is determined to commence the work, as soon as it is ascertained that the New-York and Erie Railroad will be constructed as far as Broome county.

[From the London Mechanics' Magazine.]

ANCHOR FOR RAILWAY-CARRIAGES ON INCLINED PLANES.

Sir,—Having seen, from several articles in your Journal, that an effectual method of preventing the descent of carriages on an inclined plane, in the event of the chain breaking, is a desideratum, I am induced to forward you a plan for the purpose, which appears to me likely to meet the end in view.

The plan is as follows:

Let a double line of rails be laid down, about 18 inches asunder, and secured firmly in the ground in the middle of the path of the carriage, with holes through them at intervals of a yard; and through these holes let iron bars be put, connecting these new or supplementary lines of rails, so that the rails and bars together may present the appearance of a long iron ladder lying on the ground between the rails on which the carriage runs. Upon these rails a small pair of wheels, about 2 feet in diameter, or less, are to run, connected with the upper end of the carriage by means of two bars, 6 or 7 feet long, which are to hook on and off the carriage. Over the axle of these wheels the draft-chain is to go, to raise it from the ground. The motion of the carriage will, by means of the connecting-bars, always carry these wheels along with it. Another pair of iron bars, reaching within a few inches of these wheels, are then to be hooked or fastened to the same end of

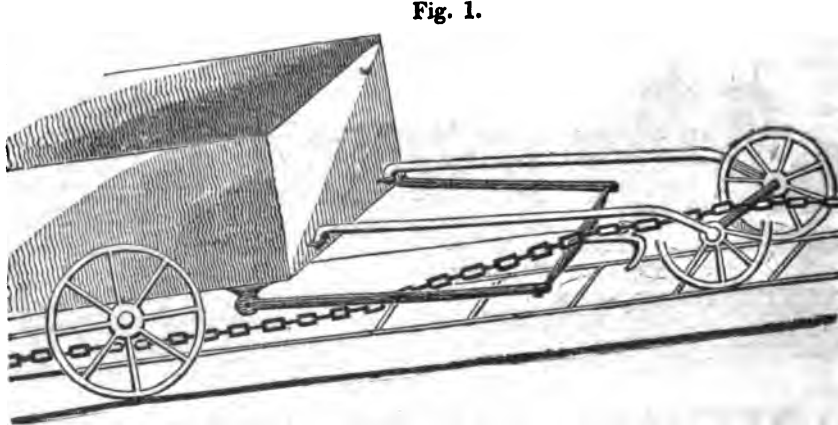


Fig. 1.

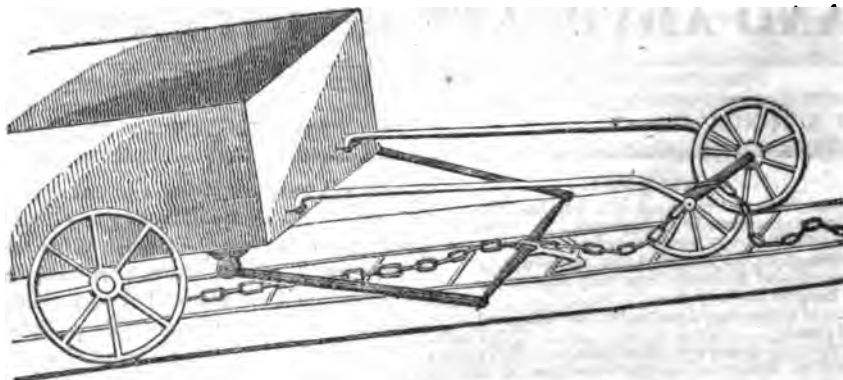


Fig. 2.

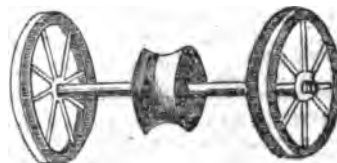


Fig. 3.

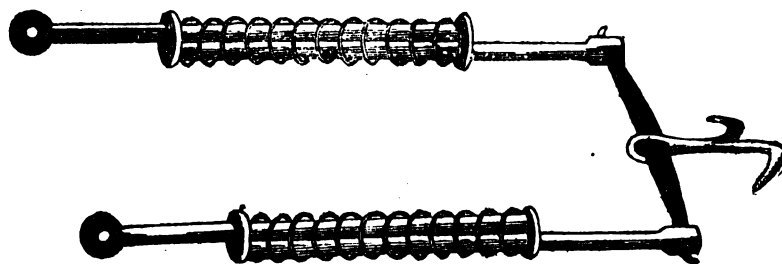


Fig. 4.

the carriage (but below the other bars), in any simple way that will insure the free descent of their outer ends when unsupported. The outer ends of these bars are to be connected to each other by a strong spring across them, sufficient to bear the sudden check in stopping the descent of the carriage; the draft-chain must go over and be hooked to this spring; and to the under side of the spring is to be fastened a strong hook, which the draft of the chain will keep off the ground, and allow it to pass freely up and down the inclined plane, without touching the cross-bars. If more elasticity is found necessary, than what the cross-spring of the drag-hook will give, the side bars of it connecting it with the carriage may be made with spiral springs, upon the principle of Salter's spring-balance; and the lower these bars are fastened on the carriage, the less quantity of upward pull there will be on the cross-bars and rails to disturb them in their bed.

Fig. 1 is a representation of a carriage,

provided with such an appendage as I have described, in the act of ascending or descending an inclined plane. The draft-chain is on the stretch, and the drag-hook supported off the ground by the strain of the chain.

Fig. 2 shows the carriage with the draft-chain broken, and the hook anchored on one of the cross-bars, having fallen for want of support from the strain of the chain.

As the draft-chain will not be stretched so tight in transporting carriages down the inclined plane, or drawing empty carriages, as it will in drawing them up, it may be useful to be able to raise the chain somewhat higher than the axle of the small wheels, to compensate for the greater bend of the chain upon those occasions; this can be effected by having a moveable sheave to fix on the middle of the axle, with a deep groove on its circumference, over which the chain is to work, as shown in fig. 3.

Fig. 4 shows the draft-hook, with the

drag-hook under it, the cross-spring and spiral-springs to the side-bars.

It is scarcely necessary to add, that after the carriages have been drawn up or let down the inclined plane, all the bars may be detached, and the rails left clear.

I am, sir, your obedient servant,
C. PUTLAND.

Dublin, Feb. 14, 1835.

Experiments on the Transverse Strength and other Properties of Malleable Iron, with Reference to its Uses for Railway Bars. By PETER BARLOW, F. R. S., Cor. Mem. Inst. of France; of the Imp. and Roy. Acad. of Petersburg and Brussels, etc.

(Continued from Number 27.)

On the Sectional Figure of greatest Resistance, the Area being given.

Having established the preceding data, I might now proceed directly to find, with a given sectional area, the figure of greatest resistance; but this would be of little advantage, for the form we should arrive at would be quite inapplicable to a railway, as it would require the metal to be principally collected in the lower table; whereas, in the railway bar, we must of necessity bestow a certain quantity, perhaps two-fifths of the whole, in forming the upper table on which the carriage runs; it is, therefore, only after this is provided for, that we are at liberty to dispose of the remaining part of the metal, and even in this distribution regard must still be had to practical convenience. Instead, therefore, of determining mathematically, the area of maximum resistance, the most useful plan will be to compute, directly, the resistance of such sectional figures as fall within the limits of practical application, and to select from them that which, under all considerations, is the best.

The three forms of rails which, under this restriction, will have to be considered, are the following:

Fig. 1.



Fig. 3.



Fig. 2.



Fig. 4.



1. The plain T shaped rail, fig. 1.
2. The H, or double T, formed rail, with a lower table, as fig. 2.

3. The Trapezoidal rail, as fig. 3. Each of which will admit of various changes of proportions, without altering the general character of the section.

The upper and the lower tables are here represented as rectangular, with sharp edges. In practice these are rounded off, the metal thus displaced furnishing a sort of bracket between the table and stem, or rib, as shown in fig. 4; but to treat of them

in this form would introduce great intricacy into the calculation, without much affecting the results. It will therefore be sufficient to consider them as rectilinear.

I would here observe, also, that some projectors have made the upper and lower tables of equal figure, upon the distant contingency, that when the upper table has been worn down, the rail may be turned, and the lower table made the upper. But this is certainly providing without foresight; for the bottom table is the most efficient for strength, and it would be a very dangerous experiment, after one side of a bar has been submitted for many years to a high compressing force, and its substance (by the hypothesis) greatly worn, to turn the rail, and expose this worn part to a still greater strain, but tensile instead of compressive, which could not fail instantly to destroy it. Instead of this, therefore, I should certainly recommend to work whatever metal is introduced into the lower table or web, into that form which is most efficient for present purposes, without regard to the contingency alluded to above.

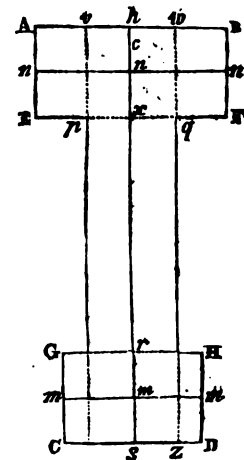
That the rail is deteriorated by exposure and wear, is undoubtedly true; although, perhaps, the amount is not yet well ascertained. Amongst the papers submitted to Messrs. Rastrick and Wood, with whom I was associated, we found it estimated at the rate of $\frac{1}{4}$ th of a pound per yard per annum; but I have since seen it stated, in a letter from Mr. Dixon to Mr. Bidder, at $\frac{1}{2}$ th of a pound per yard per annum. This was determined by taking up three rails, having them well cleaned and weighed, and then putting them in their places, and afterwards washing and reweighing them at the end of a twelvemonth, when two of them were found to have lost $\frac{1}{4}$ lb. in weight for the 5 yards length, and the third $\frac{3}{4}$ lb., which last was taken up from a particular situation where it was more exposed to friction. But even this does not prove that the whole loss of weight is in the upper face of the rail; and if it did, it would be, as I have before observed, a stronger reason for not turning the rail: and, on the other hand, should the waste not be on the upper surface, the provision alluded to is unnecessary. Mr. Rastrick informs me, that even the small fins left at the meeting of the rolls are still quite distinctly seen on the face of the upper table. And Mr. Stephenson states, that the marks of the tools left in turning the flanches of the wheels are seldom obliterated; which proves, at all events, that there is no side wear.

Mr. George Bidder, who attributes all the waste to the wear on the upper surface, estimates the annual reduction at $\frac{1}{3}$ th part of an inch; in which case the rails would not last more than thirty years before they would require to be replaced. And it then becomes a question, whether, in point of economy, it would not be better to lay an additional third of an inch upon the upper table, which would, by this reckoning, make the rail last sixty years. This increase of $\frac{1}{3}$ of an inch would call for an additional expense, to the amount of about $7\frac{1}{2}$ per cent., at compound interest, would amount to about 30 per cent. in thirty years. If, therefore, a charge of 30 per cent. at the end of thirty years, would meet the amount of re-manufacture, and supply the waste, the two accounts would be about balanced. In this case, I must consider the latter as preferable. 1st. Because the other plan would increase the weight of the bar, and the difficulty of the manufacture, and probably diminish its soundness. 2d. Because thirty years' experience may intro-

duce improvements, of which, at the end of that period, it would be desirable to take advantage. And, lastly, because I do not (judging from the opinion of different practical men) think that it has yet been clearly determined what part of the waste is due to wear on the upper face.

To return again to the subject of the best formed section, I beg to repeat, that whatever figure the above, or other considerations, may lead practical men to adopt in the upper or lower table and rib, it will be fully sufficient for the purposes of calculation, to consider them as rectilinear, which will greatly facilitate the investigation, without sensibly affecting the results.

Comparative Strength of differently-formed Parallel Rails.



Let ABCD (above figure) represent any rectangular rail with a bottom table; n its natural axis; c the centre of compression, cn being $\frac{2}{3}$ of hn . Now, the tension

of each fibre being as its distance from the neutral axis, and that of the lower fibre being given equal to t , the tension at any variable distance x will be $\frac{tx}{d}$ (d being taken

to denote the whole depth ns), and therefore the sum of all the tensions will be,

$$\frac{t}{d} \int x. dx \quad (1)$$

which, therefore, becomes known, x being taken within its proper limits, according to the figure of the section.

But as the effective resistance of each fibre is also as its depth below the line nn , the sum of all the resistances will be,

$$\frac{t}{d} \int x^2. dx \quad (2)$$

x being taken here also within its proper limits. And then to find the centre of tension, or that point into which, if all the tensions were collected, the whole resistance would be the same as in the actual case, this would be given by the formula:

$$\frac{\int x^2. dx}{\int x. dx} \quad (3)$$

which is precisely the expression for the centre of oscillation of a disc of the same figure.

We have hence the following general rule for finding the resistance or the weight which any given bar or rail will support at its middle point, within the limits of its elastic power, that is,

Calling the integral of formula (1) = A
do. do. formula (2) = B
do. do. formula (3) = D
And the distance $cn = C$

then, referring the sum of all the resistances B to the common centre of compression, we have,

$$D :: D+C :: B : \frac{B(D+C)}{D}$$

which is the whole effect.

For those who understand the integral calculus, this solution is sufficient, but as the article will probably be consulted principally by practical men, it will be more convenient to give a specific solution for a rail, embracing under one general figure all the usual forms, the only variations being in the depth, breadth, and thickness of the parts. (See preceding figure.)

Let $A B C D$ represent such a section, of which all the dimensions are given, as also the position of n the neutral axis, the point c which is the centre of compression, c being $\frac{1}{2}$ of n , and the point m which is in the centre of r s. The breadths n and m are also known. Then the resistance of the whole section referred to the common centre of compression c , may be considered to be made up of the three resistances.

1st. Of the middle rib, continued through the head and foot tables, $v t z u$.

2d. Of the head $A E F B$, minus the breadth of the centre rib.

3d. Of the lower web, $G C D H$, also minus the continuation of the centre rib.

Now, t being taken to represent the tension of iron per square inch, just within its limits of elasticity, we shall have,

1. Resistance of $v t z u = \frac{1}{2} h s. n s. p q. t$

2. Resistance of $A E F B = \frac{1}{2} h x. n x. (n n - p q)$

$$\frac{n x}{n s^2}$$

Now, let $n m + \frac{r s^2}{12 n m} = \delta'$, and $\delta' + c n = \delta''$,

then

3. Resistance of $G C D H = n m. r s. (m m - p q)$

$$\frac{\delta''}{\delta'^2}$$

These three resistances being computed, let their sum be called s , and the clear bearing l ; then $\frac{4 s}{l} = w$, the load the bar ought to sustain at its middle point, for an indefinite time, without injury to its elasticity.

(To be continued.)

EFFECTS OF LIGHTNING.—The Boston Traveller says: Our readers will be interested in the following account of a scientific examination of the several buildings in this vicinity, injured by lightning during the storm of the 13th ult. It is from the pen of a practical electrician, well known in this community, who has been eminently successful in his researches, and who seems at length to have perfected the application of metallic rods to the prevention of dwellings from damage by lightning. It is certainly very remarkable, as mentioned below, that of four buildings struck, three should have been furnished with the round rod so common in most parts of the country.

"SIR—By request of a number of scientific gentlemen, I proceeded in company with one of them to examine the buildings struck by lightning in this vicinity, on the afternoon of Saturday, June 13. The first was the dwelling house of Professor Palfrey, at Cambridge. The Professor politely accompanied us, and

gave all the information required. This building had a round lightning-rod, with points at the top, but blunt in the ground. It was affixed to the back part of the building. In this examination, I was satisfied that the discharge of lightning was horizontal, from one cloud to another, taking the earth in its course. Passing over the points of the rod, it was attracted by them, passed down the rod to the upper part of the lower story; here it left, and struck into the building, passing through various parts and rooms by the bell wires, which were melted and otherwise destroyed. It left the house by the front door. In one remarkable instance, the lightning passed by the side of a door on a bell wire, which it melted, spreading the oxide of the wire on the plastering in its passage.

"From this building we proceeded to Brighton, and examined the meeting-house of the Rev. Mr. Austin. Here I was again satisfied that the discharge of lightning was horizontal; being received on the points of the round rod, it passed down the rod to the side of the building opposite the stove funnel, when it struck into the building, taking the stove funnel in its course, and passed down on one of the supporting pillars of the gallery, and off to the ground on one of the beams that supported the floor.

"Some days after, I visited the meeting-house near the bridge in Braintree, which was struck by lightning during the same storm. This house had also a round rod, pointed at the top and blunt in the ground. Such rods afford but an imperfect protection. In this instance, the earth about the conductor was considerably disturbed. About ten feet from the ground, near the rod, there was a perforation in the side of the building, where the lightning entered and passed under the stairway that leads to the gallery, and through the partition to an iron brace that supported the stove funnel. It then appears to have passed on the funnel to another brace, that was secured to one of the pillars, on which it descended, shattering it to pieces. The pillar opposite was also a little damaged; and other trifling injuries appeared about the building.

"I have also examined a dwelling house at Brookline, that was considerably damaged by lightning at the same time. This house had no conductor. The lightning struck a large tree in front of it, which it evidently left and descended on the building.

"During this thunder storm, we have three instances out of four, where houses having round conductors were struck by lightning, and where, it is evident, the rods afforded but little or no protection. The cause to me is very plain. In the first place, the number of rods is not sufficient. Secondly, they do not present in all directions a sufficient attracting power; and thirdly, they are in most cases put upon buildings by persons who are not familiar with the science of Electricity and the operations of lightning; and who of course are liable to leave them faulty in many very essential particulars."

"During thunder storms, there are three different discharges of lightning—from the earth to the clouds—from the clouds to the earth,—and through the atmosphere from one cloud to another. These latter discharges are more frequent than any other, and often take the earth in their course, and were by the philosophers of the last century called rebounding strokes of lightning. To meet these various discharges of lightning, we must have conductors armed at all parts—that is, they should present in all directions an attracting influence, by which the electric fluid may be discharged gradually and silently, without an explosion. The explosion prevented, all harm is prevented. This attracting, or receiving power, as it is more properly termed, depends on the points; hence the greater the number of points and sharp and rough corners, the greater the protecting power. Conductors should not only be armed with these numerous points, and should be placed upon the most exposed parts of the building. This requires the judgment of a person acquainted with the operations of lightning, and the nature of different substances to conduct it. Let such rods be placed on our buildings, under the direction of an experienced electrician, and we shall no more hear of lightning leaving the rod and striking into the building.

"Certain trifling things have been considered necessary for lightning conductors; such as silvering the points—pieces of glass to prevent the lightning from entering the building—and surrounding the lower extremity of the rod with charcoal. These are of no use whatever. That round rods with their silver points, their glass fastenings, and the lower end surrounded with charcoal, do not afford sufficient protection, is evident from the fact, that a great proportion of the houses struck by lightning are houses professedly protected by such rods. That the square rod with the numerous points and sharp corners does most effectually protect a building, may be easily proved by experiments with an electrical machine, to the satisfaction of every unprejudiced person. Another consideration of some importance in favor of these rods, is the fact, that of more than two thousand houses thus protected, I have never known an instance where the building was in the least injured. These rods discharge the electric fluid without an explosion, and consequently without harm."

JUNCTION OF THE RHINE AND THE DANUBE.—Frankfort accounts of the 2d June, state, that "the project so long talked of and so important, of connecting the Danube and the Rhine, begins to assume probability. A company, under the direction of Baron la Flèche de Krudenstein, and supported by the wealthiest bankers of Amsterdam and Germany, is making the necessary examinations and plans. Unless unforeseen accidents, or war—which is not likely—should occur to interrupt this enterprise, there is a good chance for the success of a scheme, tending to unite the Black to the North Sea—through an intervening distance of nearly 1200 miles.

[From the Farmers' Register.]

On Price—the Causes and Effects of the Fluctuations considered, and the Principles maintained applied to the Present Rage for Speculation. By THOMAS R. DEW, Professor of Political Economy, &c., in the College of William and Mary.

(Continued.)

Effect of importation of precious metals, and of a restoration of confidence.—Now, whilst the importation of the metals from abroad is gradually adding to the circulating medium, and therefore partially relieving, by this means, the pecuniary distresses of the country, the number of exchanges in society occasioned by forced sales will of course have a tendency to diminish, because those sales will become less and less frequent, after the violence of the storm has already prostrated all that could not stand against it. Affairs will soon settle down to this new state of things. Many of the wealthy men of the former epoch find themselves bankrupts at the commencement of the new—others again who could command a little ready cash during the crisis, find they have suddenly become wealthy. From this point, the operations of commerce once more begin to extend themselves. Confidence is gradually restored, and with it the credit system begins to be built up again, and the large accession of money from abroad makes the money market much easier than before. The effect of all this is at first to raise prices gradually, and then more rapidly, as a spirit of speculation is generated. When prices are sinking, the spirit of speculation sinks likewise, because each individual is fearful of purchasing, lest he be injured by a further fall in prices. The credit system likewise is greatly contracted, because the rapid fall in prices, and the frequent bankruptcies occurring from day to day, destroy the confidence of man in man.

Now a rise in prices is accompanied with effects the reverse of these. 1st, The credit system becomes instantly enlarged. When prices are rising all are on the alert: the energies of man are drawn forth; his hopes, which ever have an undue influence, are thrown into play, and the imagination spreads enchanting schemes and projects before him; he is disposed under those circumstances to rush into business, or to get possession of property, whose enhancement in value from the rising tide of general prosperity, is alone expected to make him wealthy. The borrower now can much more easily get money on loan than before, because general confidence is restored, and the constant rise in prices makes property a good security, which before would have been deemed very inadequate. Buying and selling too, under these circumstances, will generally be on credit more and more extended in proportion to the restoration of confidence. Now the immediate effect of the extension of credit, and the increased velocity given to the circulating medium, is to produce a superabundance of money. For, recollect, I have previously shown that sluggish circulation and the destruction of the credit system generated an extraordinary demand for money, which flowed into the country through the medium of importations. The increased velocity of circulation and the re-establishment of the credit system have just the opposite effect, viz. to increase the apparent amount and the real efficacy of the whole circulating medium. Now, when we reflect that the currency has received immense additions during the money pressure from abroad—that the portions hoarded by individuals are thrown into cir-

ulation as soon as the panic subsides—that the banks which have rode through the storm are beginning to increase their business and push out their paper, and thus add to the circulating medium—that the United States' Bank has recovered from the shock which it sustained by the removal of the deposits, and is consequently enabled to do a more liberal and extended business, thereby enabling other banks to enlarge likewise—we are not to wonder, under these circumstances, that we have a redundant circulating medium; especially, when we recollect that this increased currency is circulating with greatly increased velocity: and the effect of these combined causes must be a vast enhancement of prices, and a consequent rage for speculation. I will exemplify this by a very simple illustration. Let us suppose a particular neighborhood, whose exchanges, in ordinary times, are effected by \$1000. Now I have shown, if any causes operate to make the circulation only one-half as rapid as the ordinary circulation, then the \$1000 will not appear to our little district to be more in amount, or in real efficacy, than \$500. In this state of things, throwing out of view all other causes, prices in the neighborhood supposed would fall to half their former amount. Now, let us farther suppose that this fall in prices should cause an importation of \$500 additional into the neighborhood, and that the rapidity of circulation was again restored, do we not clearly see that we should have a currency redundant by \$500? And this would not only, on the great principle of supply and demand, carry up prices to their former level, but would increase them, in the case supposed, fifty per cent. beyond that level. Now what I have been saying here of a neighborhood, may with equal propriety be said of a whole nation. Let us suppose, for example, the circulating money of this country to be \$100,000,000, in ordinary times; that the circulation becomes suddenly only one-half as rapid as before; then the whole \$100,000,000, even supposing the quantity kept in circulation undiminished, will perform no more exchanges than \$50,000,000 would with the former rate of velocity in the circulation. Prices then would generally sink to half their former amount; money would flow in, let us suppose \$25,000,000; and immediately afterwards, the restoration of confidence, and the consequent re-establishment of the credit system, would communicate to the circulating medium the same velocity as before: you would then have a redundancy of twenty-five millions of dollars, and a consequent rise of prices at least twenty-five per cent. upon the principle of supply and demand alone. But the probability is, prices would rise greatly beyond this point, in consequence of the effect produced by a speculating mania—for when prices are rising, every one wants to purchase. Few are capable of reasoning upon the causes; hence an artificial competition is generated among the buyers, and property rises greatly beyond what it should do, upon the principle of actual supply and efficient demand. The reason of man on these occasions seems to be completely unguided. He looks forward to the realization of wealth by changes in the price of property which he holds in his hands, and almost every one is disposed to turn speculator. And this speculating mania is generally first felt in regard to stocks, whose value is ever fluctuating, and therefore liable to the most sudden impulses, upwards and downwards. I understand at this moment the stock-jobbing spirit to the north has risen to a most extraordinary height. A gentleman, under date of the 28th April,

writes me from Philadelphia, that railroads and canals are the order of the day there—that the papers scarcely find room for politics. He says, "two subscriptions have been opened for canals since I came here. The whole stock for the first was taken in thirty minutes. In the second, the whole stock was taken by the commissioners before the doors were opened. A rush and disappointment followed. Millions could have been taken," &c. All this arises from restored credit; from throwing suddenly the hoarded portions of money into circulation—from increased velocity of circulation—from issue of banks, &c.: all of which have contributed to make currency redundant, prices exorbitant, and the spirit of speculation wild and reckless. When I saw certain politicians congratulating the nation upon fresh arrivals of gold and silver a short time since, I could not but reflect upon the shallow knowledge of political economy which such congratulations proved. The influx of gold and silver was the clearest proof that could be furnished, of the general distress of the country; of the loss of confidence and credit; and of the stagnation of trade and the circulation. The importation of the precious metals could only be effected by parting with a large portion of our wealth; and as soon as a sound currency and circulation could be restored, this newly acquired portion was to be entirely redundant, and even mischievous in its operation, by raising in the community a speculating mania.

What is to check this rise in prices and spirit of speculation?—I will now examine into the manner in which this rise in prices is ultimately to be checked, and the spirit for speculation to be cured. And here let me observe, that as there is a certain point of depression below which prices will not go, in consequence of the influx of precious metals which this lowness of prices will certainly produce, so likewise there is a certain point in the elevation of prices beyond which they cannot well go, because of the efflux of the precious metals. It is this efflux which finally checks the speculating mania. I will explain: a rise in prices, when very great, makes our country a good market to sell in, but a very bad one to sell from; hence our imports will greatly overbalance our exports, and a money balance will be created against the nation, which must be paid in money. This produces the exportation of money until the redundancy is sent off; then prices fall, and ruin overtakes the most adventurous in the game of speculation—they involve others, and prices once more sink, from loss of confidence and credit, and stagnation in circulation, below their average level, to be brought up again by the operation of causes already pointed out. Whenever the pendulum of price, (if I may use the expression,) has, either by the operation of the natural course of events, or by the unwise and unskilful tampering of government, been thrown far into one extreme of the arc, it will, in its effort to regain its natural position, go almost so far into the opposite extreme; and the vibrations will frequently last through a long period of time.

Do these Fluctuations depend entirely upon the Banks?—Some suppose these fluctuations depend entirely upon the operation of the banking system. This, however, is not the fact. Banks may do a great deal, but are by no means omnipotent in the regulation of a currency. For example; when loss of confidence, stagnation of circulation, and fall of prices, derange the whole credit system, banks are affected like indi-

viduals; they are obliged to curtail their operations and check the farther emission of paper, lest a run upon them may break them. They may not under these circumstances have the ability to relieve the distress, however strong the inclination; the relief must come through the wasting process of buying metals from abroad. Again, when prices begin to mount upwards, banks, by seizing upon the favorable moment, may enlarge their issues, and thus swell still farther the already bloated state of the currency. But they cannot prevent, if they be specie-paying banks, the correction of the evil exportation of the metals; for so soon as these are redundant, they will be gathered up for a foreign market; a necessary run will then take place on the banks for the purpose of making the collection, and these banks must either suspend specie payment, curtail their issues, or break. On the first supposition, the evil would have to correct itself by a rise in exchange against us with foreign countries, to the amount of the depreciation caused in the currency by suspension of specie payment. In the second case, prices would be lowered by contraction of the currency from curtailment. In the third, by contraction from the withdrawal of all paper which had emanated from the broken banks, and a loss of confidence in the whole banking system, which would, by the runs made upon them, force all to curtail or break. And thus may we always confidently look forward sooner or later, from causes whose operation I have pointed out, for either a rise in prices when they are very low, or fall when they rise very high. Whenever prices are disturbed, it is a long time before the equilibrium is again restored.

Effect of Foreign Demand for some of our Agricultural Products on Present Prices.—So far I have been arguing as if the present state of things were the result solely of that re-action which must sooner or later take place after great depression and stagnation of trade. But the rise in prices may be rapidly accelerated by an extraordinary foreign demand for some of our great staples. Most undoubtedly the rise in the price of cotton has at this moment very great agency in the high prices and rage for speculation, manifesting themselves every where. The price of cotton in this country is regulated by the prices abroad, because the foreign market taking up about four-fifths of the whole product of the United States, it is evident that the value of the article must be determined by the foreign, and not by the home demand. What is the cause of the immense rise which has taken place in the price of cotton within a few months I am unable to say. I am not at this moment in a condition to get at the statistical information required for the investigation of this subject, and my mind not being particularly directed to it, until within a day or two past, I have not noticed from time to time in the papers such articles as might perhaps have given me a clue to the explanation of this interesting phenomenon. Whatever may be the cause, however, whether a general deficit in the cotton crops over the world, or in the United States particularly; or to the rapidly increasing demand for cotton fabrics all over the world; or to a spirit of speculation in England; or to the gradual reduction of the tariff; or to all these causes combined; certain it is, that the price of this most important agricultural staple is now at a height which well indemnifies the planter for his labor, and will, if it could continue, diffuse wealth and prosperity over the whole of our southern country.

Let us now examine into the influence exerted by this rapid rise in the price of cotton: and in the first place it is manifest, that the rise in the price of cotton must have had a most important influence on the foreign exchanges. This article alone, constituting a very large portion of the whole of our exports, say two-thirds, a rise in its price has therefore tended to swell the value of our exports, and of course to make money flow more rapidly into the country, through the agency of a favorable balance of trade. From this cause, then, the late money pressure may have lasted a shorter time than it would under other circumstances.

Influence of the Price of Cotton on the Value of Slaves.—Again: the rise in the price of cotton has most undoubtedly given an impulse to the price of slaves. Cotton is the great agricultural staple throughout almost the whole of our southern slave-holding states, and consequently the marketable value of slaves will ever be determined by the value of the principal product of their labor. In Virginia and Maryland the price of slaves will always depend upon the external demand, and not on their intrinsic value in those two states.

If the price depended on the real demand arising among themselves, I doubt whether those states could afford to raise them even, so little would be their marketable value.

But there is another cause which I believe at this moment is operating in raising the price of slaves, and will exert a still more powerful influence in future. I mean the late emancipation of the slaves in the British West Indies. That act is certainly indefensible upon every ground of expediency, morality, and religion, but its impolicy appears most glaring when considered in a politico-economical light. Now, whatever may be said about the relative efficacy and value of free and slave labor, there is no question but that free labor, produced by sudden emancipation of slaves, is the most worthless and inefficient labor in the world. Let us take upon this subject the testimony of one who has favored emancipation in the West Indies, and who has already reaped some of the fruits of his folly. Lord Brougham, in his *Colonial Policy*, says, "The free negroes in the West Indies are, (with very few exceptions, chiefly in the Spanish and Portuguese settlements,) equally averse to all sorts of labor which do not contribute to the supply of their immediate and most urgent wants. Improvident and careless of the future, they are not actuated by that principle which inclines more civilized men to equalize their exertions at all times, and to work after the necessities of the day have been procured, in order to make up for the possible deficiencies of the morrow. Nor has their intercourse with the whites taught them to consider any gratification as worth obtaining, which cannot be procured by slight exertion of desultory and capricious industry." The report of the committee of the Privy Council of Great Britain in 1788, of Mr. Braithwaite, the Agent for Barbadoes, and of M. Malouet, who bore a special commission to examine the habits and character of the Maroons in Dutch Guiana, all agree in asserting that free negroes are idle and worthless, and will never provide for the morrow with the foresight of civilized beings. The latter, M. Malouet, says: "Le repos et l'oisivete sont devenus dans leur etat social leur unique passion." Does not our own experience in this country prove the truth of his assertion? Do we not find the free negro the pest of the society wherever he is seen? He is the same idle, worth-

less creature in the north as in the south and west of our country. Have not the colonies at Sierra Leone and Liberia most conclusively proven the same fact? Does not the example of St. Domingo, which is now but a wreck of its former self, speak volumes on the same subject? Well, then, with all these facts and evidences before them, what could British statesmen have foreseen from the emancipation of slaves in the West Indies, but idleness and worthlessness of the whole population? and is not this actually the result? Do not all the statements agree in asserting, that the system of apprenticeship has failed to realize the anticipated advantages? and the state of things will be still more deplorable if ever the negro shall obtain his perfect liberty. Now, what will be the consequence of all this? Why, that the British West Indies will soon cease to produce sugar for exportation, and will therefore throw the monopoly of its production into the hands of the slave-holding islands, and of Louisiana and the Floridas in our own country; and this will contribute at once to a rapid rise in slave property.

When St. Domingo was first liberated, the imaginations of mere speculative statesmen led them to behold a belt of black republics stretching through the West India Islands, diffusing their moral influence by commerce and social intercourse throughout the habitable globe. Now, what was the fact? Why, that St. Domingo was soon found to have such an idle, worthless population in her newly emancipated blacks, that her commerce was at once destroyed. She has entirely ceased to export sugar, although formerly the most productive sugar growing island in the world. Under these circumstances, to talk of moral influence is perfectly absurd. Those black islanders have been, by the effects of their own laziness and vices, as effectually cut off from the rest of the world as if St. Domingo has been enclosed by Bishop Berkeley's forty-foot wall of brass. The London Quarterly Review, in one of its most powerful articles, asserts that nothing but the condition of St. Domingo would have enabled the British West Indies to have borne the oppression of the mother country as long as they did; that St. Domingo being thrown out of the competition in the production of sugar, gave a sort of monopoly to the British islands which enabled them to bear the oppressive regulating legislation of the Parliament. Provided we are let alone by the busy meddling philanthropists, who can attend to every body's business but their own, every negro that gets his liberty in the West Indies, or in South America, will contribute to a rise, upon precisely the same principles, in slave property in our country. The liberation of the slaves in the British West India islands is already producing that effect. If the French, Spaniards, Portuguese, Danes, &c. shall be unwise enough to follow this lead, the southern states of our Union will most assuredly reap the benefit; and if Brazil, too, should follow the example, the effect would be almost complete. It would give us a monopoly in both sugar and cotton. Sugar is not made by free labor any where in the world. Even in China, all the sugar and cotton districts are cultivated by slave labor, which in my opinion has set to rest forever, in warm countries, the question about the relative advantages of free and slave labor. The cultivation of sugar requires a great deal of hard labor, which can be expected of the slave alone. In warm countries the principle of idleness triumphs over that of accumulation, and hence slave labor is uni-

versally the most efficient in warm and tropical latitudes. If all the slaves in the West Indies shall ever be liberated, Louisiana will become an *Eldorado*.

Effect of the Rise of the Price of Cotton and Slaves, on Corn, Wheat, Tobacco, &c.—The rise in the price of cotton and of slaves is of itself calculated to give an impulse, not only to all the agricultural products of the south, but of the north and west likewise, particularly of the west. Corn, which is the great staple of the middle states, is soon raised in value by high prices for cotton; because all the southern country, which is better adapted to the raising of corn than the middle states, raises cotton exclusively, and thus become purchasers of corn. The cultivation of cotton likewise gradually extends itself even into the middle states, and thus diminishes the quantity of corn raised still farther. In addition to these circumstances, there has been a deficient corn crop for the last two years, in consequence of distressing droughts in the latter part of the season, and too much rain in the commencement. Now, we must recollect that in any necessary of life, like corn, whose price is dependent on the home demand, if a deficit occur, the price will rise generally more than in proportion to the deficit.

The high price of cotton and corn will quickly communicate itself to horses, mules, hogs, cattle, &c., which constitute the great staples of the west; for with corn and cotton high, the middle and southern States will cease in a measure to rear those animals, and consequently will become purchasers. Wheat and tobacco, depending mostly on the foreign market, will not be so much affected. But as ours is the principal tobacco growing country for all Europe, and as an extension of the cultivation of corn and cotton has a tendency to diminish that of tobacco, it is evident that tobacco would be more influenced than wheat by rise in the price of cotton and corn. Accordingly we find that tobacco is now selling very high. The high price of cotton is likewise calculated to make the south a better market for all the products of the north, and to give increased activity to the commercial interest, in which the north possesses the deepest stake. Mr. Lee, the author of the celebrated Boston Report on the Tariff, and one of the best statisticians which this country can boast of, estimated the advantage flowing to the north from the transportation of the cotton of the south, as equal to \$5,000,000 on cotton, amounting in value to \$25,000,000.

Summary of the Causes of the Present Prices.—Thus have I rapidly sketched out the causes which have been operating in producing the present prices. In the first place, the late removal of the deposits, and the consequent caution and curtailment of business on the part of the Bank of the United States, together with the unfriendly relations existing between that bank and the state banks, which imposed the necessity of a similar curtailment on the latter, gave a shock to public and private credit, which plunged the country into the greatest distress, and rendered the circulating medium scarce every where, by both diminution of quantity and of the rapidity of circulation. This at once brought down prices to a minimum. The importation of the precious metals from abroad was the immediate consequence of lowness of prices, and tended to relieve the pressure by increasing the currency. By and by, the banks that rode safely through the storm, began when things settled down, to enlarge their business, confidence and credit were restored,

and a redundant circulating medium is the consequence. This of itself is capable of producing high prices, independent of other causes; but in the present instance, it has been aided by the great foreign demand for cotton, which, together with the emancipation of slaves in the British West Indies, has made slaves rise in value throughout our slaveholding country. It has indirectly contributed to the high prices of corn, tobacco, and the staples of the west, and will no doubt, if it continues, diffuse prosperity over all the northern states, in the way I have already explained.

Prospects.—In the mean time, let me ask what are our prospects? I answer, that this rise in prices has already excited a rage for speculation, which will, in all probability, carry up prices still higher. A fever for speculation, when once excited in the body politic, always produces, both economically and morally, the most disastrous consequences. It destroys that regular persevering industry by which alone a nation can be enriched. It attracts the capital and resources of the country towards chimerical projects and airy bubbles. During the prevalence of the South Sea scheme in England, hundreds of projects were set on foot, and the sums proposed to be raised by these expedients amounted to more than \$300,000,000, which exceeded the value of all the lands in England. On these occasions, so intoxicated do the people become with a spirit of adventure, that they fall victims to the grossest delusion. Only call it a joint stock company, and thousands of dollars instantly flow into the scheme. All are anxious to enrich themselves by a single stroke of good fortune. The hard-working, plodding man, is looked upon with contempt. Habits of the most luxurious and vicious character are speedily introduced. There is nothing more true than the old adage, "easy come—easy go." A man who makes a fortune at a stroke, is almost sure to spend it extravagantly. He must live high, and give costly entertainments, to purchase the attention and consideration of the new circle into which his wealth has just introduced him. The great merchants, lawyers, physicians, &c. follow the example which is set by the speculators—a reckless, profligate, gambling spirit, is spread through the country—one half the nation is trying to grow wealthy by the ruin of the other half. Every kind of deception, falsehood, and trickery, are resorted to for the purpose of influencing the markets. "During the infatuation produced by this infamous scheme, (South Sea,)" says the historian, "luxury, vice, and profligacy, increased to a shocking degree of extravagance. The adventurers, intoxicated by their imaginary wealth, pampered themselves with the rarest dainties, and the most expensive wines that could be imported; they purchased the most sumptuous furniture, equipage, and apparel, though without taste or discernment; they indulged their criminal passions to the most scandalous excess; their discourse was the language of pride, insolence, and the most ridiculous ostentation; they effected to scoff at religion and morality, and even to set heaven at defiance." A bill was actually brought into the British Parliament for the suppression of blasphemy and profaneness, to so fearful a degree had the spirit of speculation and gambling effected the morals of the people.

The disastrous influence of this rage for speculation in our own country, during 1817, 1818, and part of 1819, was almost as great as that produced in England by the celebrated South Sea bubble, or in France by the Mississippi scheme.

With regard to Virginia, I do not think the mania will be so apt to reach her in its most aggravated form. The high price of negroes and cotton, now producing a fearful emigration to South West, where golden harvests will be realized, if present prices can only be kept up, the spirit for speculation will in a great measure direct itself towards south-western lands. Hence, although corn, wheat, and tobacco, may rise, this exhausting drain of our labor and capital to the south-west, will keep land in this state from rising *pari passu*. Our labor and capital both are swept from our soil as fast as accumulated. At this moment in Virginia, there is a mighty struggle going on between the elastic principle of the black population on the one hand, and the drain to the south-west on the other. And if the high price of slaves shall be kept up for a few more years, I doubt whether all the procreative energies of the race can compensate for the emigration; and in that event we shall be obliged to fill up with Irishmen and northern laborers, or leave the soil of the state comparatively stripped of labor. In the mean time, however, let us preserve our sobriety, our industry, and our morality, enjoying the present advantages of high prices, without rushing into schemes and adventures of a wild and reckless character, under the vain belief that these times are to last forever. Sooner or later, if prices rise above the natural level, they must come down by a process which I have already pointed out. If cotton shall fall speedily, or if a superabundant corn crop shall be made this year, these extravagant prices would be checked at once. And we must recollect, too, that the Bank of the United States is quickly to wind up, and if its curtailment shall be very rapid, it may force the whole banking system of the country to contract its accommodation, and thus, perhaps, to give a shock once more to public confidence. At all events, let us remember the moral of the famous epitaph—"I was well—I wished to be better—and here I am."

May 21, 1835.

FAIR OF THE MECHANICS' INSTITUTE OF THE CITY OF NEW-YORK.—The following circular is cheerfully published with a view of calling attention to the subject.

Institute Rooms, City Hall,
New-York, July 1, 1835.

This institution was founded in 1830, and incorporated by an act of the Legislature, in 1833, and now enumerates about seven hundred members; and has for its object, the instruction of mechanics and others in all the useful branches of science and the arts, while the tenor and spirit of its construction prohibits the introduction of politics, religion, or irreligion.

The course of education in our common schools, which the young mechanic generally leaves for the workshop, enables him to acquire a knowledge of reading, writing, and the rules of common arithmetic: but beyond these branches it scarcely makes any pretensions: he therefore labors under a serious difficulty at the very commencement of his business, namely, that of being compelled to learn a set of dry and often uninteresting rules, without a previous acquaintance with the principles upon which they are founded. It was with the view of supplying this deficiency, as well as others hereafter to be mentioned, that the 'Mechanics' Institute of the City of New-York' was established. It was designed as a school for teaching the most useful branches of physical and chemical science, to

prepare the mechanic to understand and appreciate the lectures of the college or university, and thus increase his knowledge, usefulness, and happiness. The institution is founded on the most liberal principles, and though intended especially for mechanics, is open to all who are disposed to avail themselves of its privileges. An initiation fee of two dollars and the same amount in annual dues secure admission to its lectures, and exhibitions, and also to the use of the library.

In accomplishing its designs, the Institute has established regular annual courses of lectures on a variety of subjects connected with improvements in the arts, but more especially on chemical and mechanical philosophy. It has also an excellent library, a reading room, museum of models, and a valuable collection of chemical and philosophical apparatus—all of which are appropriated for the benefit of its members. To increase still more the facilities for the acquisition of useful knowledge, the Institute has engaged a scientific gentleman, who, under the supervision of the Board of Directors, has charge of the entire property, and gives his personal attendance at the rooms, which are now kept open day and evening throughout the year.

The Institute Rooms, situated in the City Hall, and consisting of a lecture room, reading room, library, museum of models, apparatus, etc., are now opened daily for the use of the members and for the inspection of the public, where all who feel an interest in the advancement of science and improvement in the arts, are most cordially invited to call and obtain for themselves more perfect information as to the character, objects, and history of this institution.

To extend still farther its usefulness, and to carry more fully into effect its designs, the Institute has come to the determination to establish an *Annual Fair*, where the results of the genius and industry of the mechanic can find a ready avenue to the public eye, and thus be known and appreciated.

It is not intended that the Fair shall be confined to the productions of our own city; but, on the contrary, it is hoped that its managers may have the gratification of enumerating amongst the articles for exhibition, the productions of mechanical genius from every city and town of the Union.

Under these considerations, the Managers appeal with confidence to the public, and particularly to all immediately interested in the improvement and perfecting of the mechanic arts, to support them in their praiseworthy object—the moral and intellectual elevation of the mechanic, both in his own estimation and in that of others.

It may be further stated, that the Fair will be solely conducted by mechanics, for their improvement and benefit, and that the funds arising from the proceeds will be appropriated for the advancement of the objects of the Institute; it relies, therefore, with the utmost confidence on a liberal patronage from the public generally, and more especially from mechanics.

The Fair will be opened on Tuesday morning, the 29th of September next, at Castle Garden, where all articles for exhibition must be brought on the day previous.

For more detailed information, address the Corresponding Secretary of the Mechanics' Institute, City Hall, New-York.

A circular to the mechanics will soon be issued, containing an account of the pre-

miums to be awarded, and the regulations by which the Fair will be governed.

Committee of Arrangements:

Samuel Carter, John Bell, William Ballard, Jonas Humbert, Jr., Henry Durell, John W. Dodd, N. S. Hunt, George Bruce, John Thomas, William Stebbins, Peter Walters, Uzziah Wenman, L. D. Gale, S. S. Ward, William Belcher, William Partridge, Oliver White, G. L. Price, Sereno Newton, Thomas Godwin, J. S. Redfield, W. H. Hale, James Walters, Gabriel Furman, John N. Baur, Daniel A. Robertson, Henry Cunningham, Thomas Timpson, John Steele, Jr., Henry Ludwig, James McBeath, John Remick, G. D. Kashow, George Sullivan, Charles Belcher, John Wint, P. C. Cortelyou, Colin Lightbody, William Norris, Fitch Taylor, Adam Hall, Robert Smith, William Everdell, Alex. Masterton, L. D. Chapin, William Frisby, Walter L. DeGraw, L. Feuchtwanger, Augustus Campbell, Samuel Bailey.

SAMUEL CARTER, Chairman.
L. D. GALE, Secretary.

By order of the Institute:

GEORGE BRUCE, President.

HENRY CUNNINGHAM, Secretary.

✂ Editors who are friendly to the cause here advocated, are requested to use their influence in giving publicity to this circular.

We have been furnished with the following circular, giving notice of the 'Eighth Anniversary Fair, of the American Institute of the City of New-York;' which will, we doubt not, as heretofore, be well attended, and at which our citizens will as usual derive much pleasure.

The Managers have the satisfaction to state, that they have procured for the coming Fair, Niblo's spacious and convenient establishment, 576 Broadway.

Articles intended for competition for premiums, will be received at the Garden on Friday and Saturday, the 16th and 17th of October next.

On Monday forenoon, the 19th of October, the judges will examine the articles intended for premiums. Such as are for exhibition merely, may be brought at any time during the Fair.

On Monday, at 12 o'clock, the Garden and the Saloon will be opened to visitors, and continue open four days.

The preparations for this exhibition already brought to the knowledge of the Managers, satisfy them that the coming Anniversary will afford the most cheering proof of our rapid progress in the arts, by a more ample display of the extent and perfection of American skill and industry, than has ever before been exhibited in this city; as well in the household departments of industry, as in those of the workshops and the larger manufactories.

The objects of the American Institute, under its charter, are broad and multifarious, embracing agriculture, commerce, manufactures, and the arts, throughout the United States. Space has accordingly been provided, suitable for a great number of bulky productions, natural and artificial.

The exhausting effects of our importations of woollens, cottons, and silks, amounting to nearly thirty millions of dollars per annum, render their increased home production extremely desirable. With a view to this, the quantity of broad-cloths presented for competition for the first premium, will be required to be not less than fifty yards; and cassimeres not less than one hundred

yards. And in the awarding of premiums on cotton and silk goods, some regard will also be had to the quantity.

Inventors of curious and useful machines are particularly invited to exhibit their operations. These moving evidences of mechanical genius impart life and entertainment to the scenes.

The Ladies at all our former Fairs have contributed largely to render interesting the display. The Managers rely in full confidence on their continued favors.

Patriotic individuals—friends of American industry, and distinguished characters in this and other states,—are invited to attend the exhibition, and give their accustomed countenance and support to an institution that has for so many years exerted its influence to stimulate industry, and establish on a durable basis the independence of our country.

THADDEUS B. WAKEMAN,
MARTIN E. THOMPSON,
ADONIRAM CHANDLER,
JONATHAN AMORY,
ANDREW WILLIAMS,
JAMES F. KENNY,
JOSEPH TORREY,
JOHN SAMPSON,
FREDERICK H. WOLCOTT,
JOSEPH TITCOMB,
CHARLES H. HALL,
ISAAC FRYER,
EDWARD V. PRICE,
Managers.

P. S.—In order to give full publicity to the exhibition, Editors of papers friendly to manufactures, the arts, &c., are respectfully requested to give the foregoing one or more insertion.

INDIA RUBBER.—Although so many establishments are in active operation for the manufacture of India rubber, such is the manifest utility of the articles made of it, and such the demand for them by the most intelligent people, that it may be safely said that the whole business is still in its infancy. It is a curious circumstance in the recent history of this novel fabric, that those countries from whence the raw material is drawn, without the least question, must ultimately become the greatest market for India rubber goods in the world. Indeed, tropical climates, of all others, require the clothes and casings which none but New-Englanders seem to understand how to make. The rainy seasons of equatorial regions have been regarded with perfect dread, on account of the utter impossibility of venturing beyond the threshold, without being instantly drenched under those torrents of rain which appear to fall directly from the windows of heaven, and from which no other kind of covering could shield the body. Since the discovery of India rubber cloth, the entire aspect of those deluged countries will be changed. Men may now go abroad for the transaction of business, fearless, though the rains descend in torrents, perfectly comfortable, under the protection of garments so light that the freedom of the body suffers no restraint. One great obstacle to the active operation of armies in the tropical countries has been the periodical rains, destructive alike to soldiers and military armaments. A simple India rubber watch coat and cap completely shuts out the storm, so that nothing short of a flooding of the land could impede the march of soldiery, dressed in these beautifully devised habiliments.

But without all these boundless avenues for the consumption of manufactured India rubber, our own country alone, before the completion of two years more, cannot be

supplied by the united labors of all the manufactories of Boston and its vicinity; hence the value of the corporate property must be constantly increasing; for new conveniences, and unlooked-for contrivances, indispensable even in domestic life, as well as in the useful arts and sciences, are daily being discovered, and which can only be constructed economically from this singular elastic gum. Viewing the progress of discovery, as it especially regards this one article, our admiration is raised, and our wonder excited, by the ingenuity and skill displayed in the various adaptations of India rubber to the daily, and even hourly wants of mankind.—[Scientific Tracts.]

RAILROAD FROM BRATTLEBOROUGH ON THE CONNECTICUT RIVER TO THE HUDSON.—A plan is under discussion, for making a railroad from the interior of Vermont, to the Hudson at Troy, and a public meeting was to be held at the latter place on Wednesday evening, to consider of the practicability and means, of accomplishing the project.—There is now a capital M'Adam road making from Troy to Bennington, and this might serve, we should think, also to lay rails on, without interfering with the ordinary travel. Then with a stationary power to pass the Green Mountains, at Bennington, the route might, we should think, be found both practicable, and comparatively cheap, to Brattleborough. Such a road would be of prodigious value to the fine and fertile country thro' which it would pass, and to enterprising and flourishing Troy, where it would terminate.

BOSTON AND WORCESTER RAILROAD.—The amount received on this railroad during the last week, for the fare of passengers, was \$3,133 37— for freight \$522 45—total \$3,655 92.

CANAL TOLLS OF PENNSYLVANIA.—The whole amount paid into the State Treasury of Pennsylvania, for Canal Tolls, from November, 1834, to July 14, 1835, was \$361,429 88—\$200,000 more than was received during the corresponding season of last year. The Harrisburg Chronicle of Monday says: "The amount yet in the hands of collectors must exceed \$40,000; making the whole sum received on account of tolls from the close of the fiscal year of 1833-34, to the 14th inst., exceed four hundred thousand dollars."

MAD RIVER AND LAKE ERIE RAILROAD.—We are pleased to perceive that this improvement, which was sometime since projected, is now in a fair way to be commenced; and we hope, to be vigorously prosecuted to completion. James H. Bell, of New York, has recently been appointed Chief Engineer for the construction of the work. Mr. Bell, we understand, has arrived on the line, and will shortly enter upon the duties assigned him.—[Cleveland Herald.]

BRIDGE ACROSS THE ILLINOIS RIVER.—We understand that the stock for erecting a bridge over the Illinois river, (a charter for which was obtained at the last session of the Legislature, with \$50,000 capital, exclusive privileges, has recently been all subscribed, mostly by an eastern gentleman. This bridge is to be located at the mouth of Lake Peoria, and opposite the town of Peoria, and cannot fail to increase greatly the growth and prosperity of that beautiful place.—[St. Louis Bulletin.]

A MILE A MINUTE.—A steam car has been built in England, for exportation to the United States, which performed the distance between Manchester and Liverpool at the rate of a mile a minute, (nearly forty miles.) At that rate, when the New York and Erie Railroad is finished, one can breakfast in New York, dine in Buffalo, and be at Detroit, Michigan, the next day, a distance of nearly 800 miles, which is not now travelled in much less than a week.—[Sun.]

AGRICULTURE, &c.

The whole amount of wool raised last year in the United States was seventy-five millions of pounds, in addition to which about three millions were imported from abroad, making the whole quantity manufactured in American factories seventy-eight millions of pounds. In addition to the above, manufactured woollen cloth was imported to the amount of six millions, making the entire consumption in this country eighty-four millions of pounds.—[Baltimore American.]

THE SILK COCOONERY of Mr. Samuel Whitmarsh of this town is now in full operation. It is two hundred feet in length and two stories in height.—It is filled with ranges of sliding draws of twine lattice work, upon which the worms feed, and these are intersected by alleys, so that the building has fresh air and light. It is capable of feeding four or five millions of worms. At the present time he has but about eight hundred thousand. He has them in all the various stages, just out of the egg, to the winding the cocoons.

It is curious enough to see the almost invisible little worms just from an egg, less than half the size of a pin head. To notice their expansion each successive day, more than doubling themselves in size, and increasing in a few weeks from the mere mite to the dimensions of a three inch corpulent caterpillar. Then to notice their habits and instinct and way of taking their food, eating in a continued half circle upon the leaf until it is all devoured. Again, the preparation for winding itself up in the cocoon, attaching its two extremities to some object and then throwing out its threads in every direction until it excludes itself from sight.—It thus erects its own tomb and encloses itself within its bosom.

Mr. Whitmarsh does not feed his worms at present upon the Chinese mulberry. The plant is yet rare and the growers are anxious to multiply them, by laying down all the shoots. From the great number under cultivation by various gentlemen in this town, and the care taken to increase them, there is reason to believe the supply will be adequate to all demands next spring. Mr. Whitmarsh has some trees three or four feet in height, which withstood the severity of last winter unharmed. On some of these trees, the berry is now found, and great care will be taken to preserve the seed, so that the precise character of the plant propagated from them may be accurately known.—[Northampton Courier.]

The annual revenues of Prince Esterhazy, in Hungary, are estimated at \$2,000,000 silver florins. His debts, or rather those of his father, amount to 18,000,000 florins. His property is at present under sequestration. He possesses about 3,000,000 sheep, whose wool annually produces an immense sum. It is related, that when Prince Esterhazy was Ambassador from Austria to England, he one day heard a young nobleman boasting that he had on his estates 30,000 sheep: "And I," said Prince Esterhazy, "have 30,000 shepherds." This was no exaggeration.

FLOWER MARKETS.—These in Paris are held four times each week, during the summer, and form an object of great interest to both strangers and residents. At a reasonably early hour, on market day, may be seen here collected the most choice flowers and most beautiful women, the good taste of the one refined by the delicacy of the other. If such a market were to be instituted here and held beneath the shade of the graceful elms in our Mall, from six to ten o'clock every Saturday morning, our Florists would soon make it attractive to the beaux and belles, and would find a ready sale for their charming productions.—[London paper.]

The Lexington Intelligencer of the 7th inst. says, "We understand that H. CLAY, Esq., sold to Spencer Cooper, Esq., a few days ago, one of the improved short horned Cows, with a calf one day old, by Accommodation, for \$500, but she is said to be unsurpassed in promise. Before the cow and calf were removed from Ashland, Mr. Cooper sold the calf, delivered at weaning, to Major S. Smith, for \$200."

List of the Forest Trees of America, described in the work of M. Andre F. Michaux. (Concluded.)

Juniperus virginiana, Red cedar.—Red cedar, only name given to this tree in all parts of the United States where it grows.

Q. Is it not sometimes called *savin*?

Olea americana, Devil wood.—Devil wood, name given to this tree on the Savannah river, in Georgia.

N. B.—We doubt the expediency of establishing this unfashionable name to any tree.

Carpinus ostrya, Iron wood.—Iron wood, only name in all the states to the south of the Hudson. Lever wood, in the district of Maine and Vermont.

Carpinus americana, American hornbeam.—American hornbeam, only name given to this tree throughout the U. States.

We doubt whether it is ever called any thing but simply *hornbeam*.

Hopea tinctoria, Sweet leaves.—Sweet leaves, only name in use in the southern states.

Malus coronaria, Crab apple.—Crab apple, name given to this tree in all the southern states.

Q. Is this a native or indigenous tree?

Mespilus arborea, June berry.—June berry, name given to this tree in the middle states. Wild pear, in the district of Maine.

Magnolia grandiflora, Large magnolia.—Large magnolia, most common name in the cities of the southern states. Big laurel, in the country of the southern states. Laurier tulipier, by the Louisianians.

Magnolia glauca, Small magnolia.—Small magnolia, name given to this tree by many persons in New-York and Philadelphia, as well as in some parts of New-Jersey. Swamp sassafras, secondary name at a given distance from the above cities. Sweet bay, white bay, and swamp laurel, names more used in the southern states. Beaver wood, name formerly given to it in New-Jersey.

Magnolia acuminata, *Magnolia cucum-ber tree*.—Cucumber tree, only denomination in all the western states, and along the Alleghany mountains.

Magnolia cordata, Heart-leaved magnolia.—The heart-leaved magnolia, name given to this species in Upper Georgia, and which is confounded with the preceding.

Magnolia tripetala, The umbrella tree.—The umbrella tree, only name given to this tree in the middle and southern states.

Magnolia auriculata, The ear-leaved magnolia.—The ear-leaved magnolia. Indian physic, denomination most in use in the mountains of North Carolina and Virginia, but less proper. Long-leaved cucumber tree, second name in the same countries.

Magnolia macrophylla, Large leaved magnolia.—Large-leaved magnolia, name given by M. Michaux to this species, which is confounded with the next preceding one.

Fraxinus americana, White ash.—White ash, only name given to this species in all parts of the United States where it grows.

Fraxinus tomentosa, Red ash.—Red ash, most general name in all the middle states, where this tree is most abundant.

Fraxinus viridis, Green ash.—Green

ash, name given by Michaux to this tree, which has none where it is found.

Fraxinus quadrangulata, Blue ash.—Blue ash, only name in Kentucky and Tennessee.

Fraxinus sambucifolia, Black ash.—Black ash, most general name in the northern and middle states. Water ash, secondary name in this part of the United States.

Fraxinus platycarpa, Carolinian ash.—Carolinian ash, name given by M. Michaux. It has none in the southern states, where he found it.

Gordonia lasyanthus, Loblolly bay.—Loblolly bay, only name in the southern states.

Gordonia pubescens, Franklinia.—Franklinia, name given by W. Bartram, in honor of Dr. Franklin.

Cornus florida, Dogwood.—Dogwood, only name given to this tree in the United States. Bois de fleche batard, by the French of Louisiana.

Rhododendron maximum, Swamp laurel.—Swamp laurel, so called on the Alleghany mountains, where this tree is most abundant.

Kalmia latifolia, Mountain laurel.—Mountain laurel, most common name in the Alleghany mountains. Sheep laurel, secondary name in the same places. Calico tree, in some parts of the southern states.

N. B.—M. Michaux considers that this plant is not found to the north of the Hudson river. It is abundant in some parts of Massachusetts, where it is generally only a shrub. He says it grows in Carolina to the height of 15 or 20 feet, and as its wood is very hard, it is applied to some useful purposes in the arts.

Cerasus virginiana, Wild cherry.—Wild cherry, only name given to this tree throughout the United States.

Cerasus caroliniana, Wild orange.—Wild orange, only name given to this tree in the southern states.

Cerasus borealis, Red cherry.—Red cherry, name less used than that of small (or dwarf) cherry, but which is more appropriate.

Annona triloba, Papau tree.—Papau, only name given to it in the middle and western states.

Gleditsia triacanthos, Honey locust.—Honey locust, known under this name only in all parts of the United States where it grows.

N. B.—M. Michaux is mistaken in this general assertion. It is also called three-thorned acacia, in the catalogues of the nursery-men.

Gleditsia monosperma, Swamp locust.—Swamp locust, in the maritime parts of the southern states. Water locust, secondary name in the same parts of the southern states.

Laurus sassafras, Sassafras.—Sassafras, only name given to this tree in the U. States.

Laurus carolinensis, Red bay.—Red bay, only name given to this tree in the maritime parts of the southern states.

Platanus occidentalis, Button wood.—Button wood, name generally given in the United States, particularly the Atlantic ones. Plane and sycamore, names more used in the western states. Water beech

name given to it in some parts of Maryland and Virginia. Cottonier, by the French of Upper Louisiana.

Liquidambar styraciflua, Sweet gum.—Sweet gum, only name in the United States.

Lyriodendron tulipifera, Poplar or tulip tree.—Poplar, general name in the United States. N. B.—This is an evident mistake of M. Michaux. It is seldom called poplar, and it is an improper name to be affixed to it as its popular one. Tulip tree, most common name in the northern states, where it is only known as a cultivated tree. Yellow or white poplar, White wood, name in the Genesee country.

Bignonia catalpa, Catalpa tree.—Catalpa tree, general name in the southern states.

Andromeda arborea, Sorel tree.—Sorel tree, name given to this tree on the Alleghany Mountains, and in the middle states.

Celtis occidentalis, Nettle tree.—Nettle tree, in all the United States.

N. B.—We doubt its having such, or any other name, in the northern states.

Celtis crassifolia, Hackberry tree.—Hackberry tree, only name given to it in Kentucky and Tennessee. Hoop ash, upon the borders of the Ohio river, in Pennsylvania and Virginia. Black elder, less common name in the same places.

Morus rubra, Red mulberry.—Red mulberry, only name given to this tree in all the United States.

Pavia lutea, Buck eye.—Buck eye, only name given to it on the Alleghany Mountains, and in the western states.

M. Michaux ought to have added, that it is also called the yellow-horse chestnut.

Æculus ohioensis, Ohio buck eye.—Ohio buck eye, name given by M. Michaux, who claims to have been the first who distinguished it.

N. B.—The popular name of this tree ought also to be either American, or Ohio horse chestnut; for M. Michaux admits it is in truth a horse chestnut, and it would be very embarrassing to admit such confusion in popular names.

Robinia pseudo-acacia, Locust tree.—Locust tree, general name in the United States. Yellow locust, red locust, black locust, different names given to this tree on the Susquehannah, having regard to the varied color of the wood.

Robinia viscosa, Rose-flowering locust.—Rose-flowering locust, name given by M. Michaux to this tree in the Cherokee country, where it has no peculiar name.

N. B.—It has, however, been called so elsewhere.

Virgilia lutea, Yellow wood.—Yellow wood, name given to this tree in Tennessee.

Ulmus americana, White elm.—White elm, general name given to this tree, in all parts of the United States where it grows. Michaux.

N. B.—We doubt the generality of this application. It is new to us. It is generally called, in the vicinity of Boston, American elm, or simply elm.

Ulmus alata, Wahoo.—Wahoo, name given to this species in the maritime parts of the southern states.

Ulmus rubra, Red elm.—Red elm, most common name in all parts of the United States where it grows. Slippery elm, secondary name in New-York and New-Jersey. Moose elm, in the upper parts of New-York. Orme gras, by the Illinois French.

Planera ulmifolia, Planer tree.—Planer tree, name given to it to preserve the memory of some individual. Michaux.

N. B.—We are not told who this personage was, nor why the tree (as M. Michaux, in the French idiom, remarks) was consecrated to him.

Populus tremuloides, American aspen.—American aspen, name given to this tree in the northern and middle states. Michaux.

N. B.—Sometimes called aspen poplar, and sometimes poplar only.

Populus grandidentata, American large aspen.—American large aspen, name given by M. Michaux to this species, which is ordinarily confounded with the preceding one.

Populus argentea, Cotton tree.—Cotton tree, known by this name on the Savannah river.

Populus hudsonica, American black poplar.—American black poplar, name given by M. Michaux to a species (as he says) before destitute of a name.

Populus monilifera, Virginian poplar.—Virginian poplar, name given in Europe to this species.

Populus canadensis, Cotton wood.—Cotton wood, name given to this tree on the Mississippi, and the rivers which flow into it.

Populus angulata, Carolinian poplar.—Carolinian poplar, name given to it in Europe, because first brought from Carolina.

Populus balsamifera, Balsam poplar.—Balsam poplar, known under this name in Canada.

N. B.—It is probable M. Michaux means by this, or the next, the tree which is called black poplar, tacamahac, and balm of Gilead poplar, in the state of Massachusetts.

Populus candicans, Heart-leaved balsam poplar.—Heart-leaved balsam poplar.

N. B.—If this is a different species from the last, it is the tacamahac of Massachusetts.

Tilia americana, Bass wood.—Bass wood, prevailing name in the north and middle states. Lime, name almost as frequent.

Tilia alba, White lime.—White lime, this species on the Ohio is confounded with the last.

Tilia pubescens, Downy lime tree.—Downy lime tree, thus called in the southern states.

Alnus serrulata, Common alder.—Common alder, in all the United States.

Alnus glauca, Black alder.—Black alder, in Vermont.

Salix ligustrina, Champlain willow.—Champlain willow, name given by M. Michaux, who found it on Lake Champlain in great plenty.

Salix nigra, Black willow.—Black willow, general name in the United States.

Salix lucida, Shining willow.—Shining willow, name given by M. Michaux.

NEW-YORK AMERICAN.

JULY 18—24, 1833.

LITERARY NOTICES.

LETTERS DESCRIPTIVE OF THE VIRGINIA SPRINGS, &c. &c., with a map of Virginia. By PEREGRINE PROLIX. Philadelphia, H. S. TANNER.—All the world hereabouts, that is, such portion of it as has little to do with the labors of the world, is gone or going to the Virginia Springs, which this year bid fair to eclipse our own far famed mineral waters. It is therefore quite *à propos*, that the letters contained in this little volume, and which appeared originally in the U. S. Gazette of Philadelphia, have been collected, corrected, and annotated. Written in a fine vein of humor, and gentlemanly scholarship, and with such a due infusion of the punning propensity, as at once to betray their Philadelphia origin, they are as little like as possible to an ordinary guide book, and yet have all the value of one, so far as imparting information respecting roads, distances, prices, and things to be seen, is concerned. There is, too, a good map of Virginia, whereon the routes of pleasure travellers are carefully laid down. Those bound to the Springs should possess themselves of this little companionable volume, and those who cannot go, and dread hearing too much about them, on the return of the more fortunate travellers who can, may forestall all their raptures by reading and quoting to them, the descriptions here given.

HISTORY OF THE FALL OF THE ROMAN EMPIRE, comprising a view of the invasion and settlement of the Barbarians, by J. C. L. de SISMONDI: 1 vol. 8vo. Philadelphia CAREY, LEA & BLANCHARD.—The name of *Sismondi* as an elegant historian needs not our commendation. The events, which in this volume, have been rapidly, but by no means hastily, treated, exercised and yet exercise a wide influence on Christendom, and the history of them is, as the author so well says, "more than the destruction of ancient civilization, or of the first attempts at the reconstruction of society, according to its modern forms—it is the history of the sufferings of the human race, from the third century of the Christian era, to the close of the tenth."

Little can be added, doubtless, to the results which the laborious research of Gibben has accomplished, in his "Decline and Fall of the Roman Empire," but to many, who have neither the time to study the many volumes which embody that history, nor the means to purchase it, this summary, by such a hand as *Sismondi's*, will be eagerly sought.

SCENES AND CHARACTERS ILLUSTRATING CHRISTIAN TRUTH, No. III. HOME, by the AUTHOR OF "REDWOOD," "HOPE LESLIE, &c. Boston—JAS. MUNROE & Co.—We know not how it happened, that this modest little pamphlet should have been lying some weeks by us, without attracting attention; but so it was, until within a few days, when taking it up accidentally, it was not relinquished, till it was read through—with how frequent swelling of the heart, and how much of emotion that would not be controlled, we are hardly willing to tell. It is the story of a HOME, the humble home of a mechanic, made happy, and blessed, by means within the reach of all—cultivated minds, cheerful dispositions, well-disciplined tempers, integrity of purpose, independence of spirit, and a deep, and abiding, sense of religion. What a privilege is that of such a pen as Miss Sedgewick's, and how admirable the employment of it, to elevate the character, by elevating the aims, and hopes, of the industrious classes of her country men!

DEVOTIONS FOR THE FAMILY AND THE CLOSET, FROM THE MANUAL OF A COUNTRY CLERGYMAN: 1 vol. New York, Protestant Episcopal Press.

In prayer we are one, for as the preface of this little book truly states, "the common wants of humanity, bring us all, in private prayer, to a common language." This cannot be other than an acceptable manual, for it is one conceived and executed in earnest and sincere piety, and its petitions and thanksgivings bear the deep and unmistakable impress, of springing from the actual trials and joys of life.

SYNOPTICAL FRENCH GRAMMAR, with a new, short and easy method of learning the verbs—by Prof. J. M. MOULS, N. Y.

This is undoubtedly a work of merit, combining simplicity with accuracy, in a remarkable degree, and thus greatly facilitating to learners, the acquisition of the grammar of the French language. Its tabular form adds to its advantages, by shewing at a glance, the rules and the exceptions applicable to all the cases arising from the various forms of verbs, participles, &c. It would prove a great assistance to teachers, by being hung up in their school rooms, to be readily referred to, on any occasion.

INDIAN SKETCHES, taken during an expedition to the Pawnee tribe, by JOHN T. IRVING, Jr., 2 vols. Philadelphia, CAREY, LEA & BLANCHARD.—Talent, happily—if not estates—may, without violation of law, or republican usages, run on in one family in unbroken succession. Here is another of the *Irving's* who appeals to the public, as an author, and whose appeal will be listened to with pleasure.

These Indian Sketches were made by the writer on the spot, when in the summer of 1833, he accompanied the United States Commissioner, Mr. Ellsworth (to whom these volumes are dedicated) to the Indians on and near the Platte river—the fierce *Pawnees*, and the fierce, though less numerous *Otoes*.

The readers of the New York American will doubtless remember some admirable descriptions of the council held with these Indians, which appeared in this paper, and which were at the time much copied, and in some instances ascribed to the pen of *Washington Irving*. They were by the author of these volumes—which embody some very striking sketches, most happily traced and carried out.

THE BROTHERS, a tale of the Fronde; 2 vols: N. Y., HARPER & BROTHERS.—Those, who have been readers of the American Monthly Magazine, since its first establishment, will not have forgotten some scattering chapters under the title of "The Brothers," which, from time to time appeared in its pages, and were perused with breathless interest. We have now the complete work, from which, in anticipation—and perhaps by way of ascertaining their merit—these chapters were taken, and we are sure it will not disappoint expectation, however high-raised.

It is a tale of war, of love, and blood. The Hero is an English cavalier, and who—having unavailingly perilled life and lands in the service of his monarch, in the struggle against the Commonwealth—becomes a soldier of fortune under the noble Condé, in the war, if so it may be called, of the *Fronde*. The Heroine is a creature of love, and holy trust, and high daring—and the incidents are in the court, the cloister, the dungeon, and the battle field. We are not about to spoil any interest in the work, by referring more distinctly to the story; and merely add, that for accurate keeping in the costume of the times, and in portraying the

characters and peculiarities of that period of barbarous crime, and chivalric valor, this tale may claim to rank with those of the author of *Darnley* & *Richelieu*.

SPECIMENS OF THE TABLE TALK OF S. T. COLERIDGE. 1 vol. N. Y., HARPER & BROTHERS.—We referred hastily to this volume last week, and now recur to it, chiefly as introductory to some detached thoughts, taken from its pages, which, tho' falling far short undoubtedly, both in manner and expression, of the same passages as delivered by his glowing lips, may yet convey some idea of his power. Coleridge was a dissertator, rather than talker, and the train once fired, would go on from one illustration to another, through an infinite variety of brilliant, recondite, and sometimes mystical imaginings, which would leave to those around, the part only of admiring, though not always unwearyed, listeners.

The specimens that follow are to be taken as selected at hazard, rather than choice.

MARRIAGE.—"You may depend upon it, that a slight contrast in character is very material to happiness in marriage."

STYLE.—"In my judgment Bolingbroke's style is not in any respect equal to that of Cowley or Dryden. Read Algernon Sidney; his style reminds you as little of books as of blackguards.—What a gentleman he was!—Burke's Essay on the Sublime and Beautiful seems to me a poor thing; and what he says upon taste is neither profound nor accurate."

"Painting is the intermediate somewhat between a thought and a thing."

TALENT AND GENIUS.—"Talent, lying in the understanding, is often inherited; genius, being the action of reason and imagination, rarely or never."

SWIFT.—"Swift was *anima Rabelaisii habitans in sacco*—the soul of Rabelais dwelling in a dry place. Yet Swift was rare. Can any thing beat his remark on King William's motto,—*Recipit non rapuit*—that the receiver was as bad as the thief."

DEMOCRACY.—"It has never yet been seen, or clearly announced, that democracy, as such, is no proper element in the constitution of a state. The idea of a state is undoubtedly a government *à républicain*—an aristocracy. Democracy is the healthful life-blood which circulates through the veins and arteries, which supports the system, but which ought never to appear externally, and as the mere blood itself."

WOMEN.—"Most women have no character at all," said Pope, and meant it for satire. Shakspeare, who knew man and women much better, saw that it, in fact, was the perfection of woman to be characterless. Every one who wishes a *Demomona* or *Ophelia* for a wife,—creatures who, though they may not always understand you, do always feel you, and feel with you."

"There are three classes into which all the women past seventy that ever I knew were to be divided: 1st. That dear old soul; 2d. That old woman; 3d. That old witch."

SPURZHEIM.—Spurzheim is a good man, and I like him; but he is dense, and the most ignorant German I ever knew.

CRABBE AND SOUTHEY.—I think Crabbe and Southey are something alike; but Crabbe's poems are founded on observation and real life—Southey's on fancy and books. In facility they are equal, though Crabbe's English is of course not upon a level with Southey's, which is next door to faultless. But in Crabbe there is an absolute defect of the high imagination: he gives me little or no pleasure; yet, no doubt, he has much power of a certain kind, and it is good to cultivate, even at some pains, a catholic taste in literature. I read all sorts of books with some pleasure, except modern sermons and treatises on political economy.

SIR WALTER SCOTT.—Dear Sir Walter Scott and myself were exact, but harmonious opposites in this: that every old ruin, hill, river, or tree, called up in his mind a host of historical or biographical associations, just like a bright pan of brass, when beaten is said to attract the swarming bees—whereas, for myself, notwithstanding Dr. Johnson, I believe I should walk over the plain of Marathon

without taking any more interest in it than any other plain of similar features. Yet I receive as much pleasure in reading the account of the battle, in Herodotus, as any one can. Charles Lamb wrote an essay on a man who lived in past time.—I thought of adding another to it on one who lived not in time at all, past, present, or future—but beside or collaterally. When I am very ill indeed, I can read Scott's novels, and they are almost the only books I can then read. I cannot at such times read the bible; my mind reflects on it, but I can't bear the open page.

CAREY'S LIBRARY OF CHOICE LITERATURE.—We refer to an advertisement under this head, by which it will be seen that Messrs. E. L. Carey & Hart, of Philadelphia, are about undertaking a new cheap periodical, to be published weekly, in which it is intended to embody the current literature of Great Britain, and when occasion justifies, translations from the best continental works.

AN APPEAL FOR THE WEST.—The article under this head from the Boston Courier, should be read. It is an appeal not addressed to fanatical or sectarian feelings, but to patriotism, and love of well ordered liberty.

A PLEA FOR THE WEST, BY LYMAN BEECHER, D. D.—Such is the brief title of a duodecimo volume comprising about 200 pages, which has recently been received here from Cincinnati. A few lines, by way of advertisement, inform the reader that the essay is a discourse, delivered by the writer in several of the Atlantic cities, while on an agency for the Lane Seminary,—and that those who heard it will perceive that it is as it was delivered, with a little enlargement on a few points, which demanded a more ample illustration.

The object of the agency, in which Dr. Beecher was employed in 1834, was to procure funds for the endowment of certain professorships in the Seminary over which he presides. The circumstances of the case are stated in a very few pages at the beginning of the discourse, in a manner most powerful, and peculiarly his own. We do not mean to dwell long on this topic, but there are a few sentences which we cannot refrain from copying.

"No opinion is more false and fatal than that mediocrity of talent and learning will suffice for the West. That if a minister is a good sort of a man, but somehow does not seem to be popular, and find employment, he had better go to the West. No; let him stay at home; and if among the urgent demands for ministerial labor here, he cannot find employment, let him conclude that he has mistaken his profession.

"But let him not go to the West. The men who, somehow, do not succeed at the East, are the very men who will succeed still less at the West. If there be in the new settlements at the West a lack of schools and educated mind, there is no lack of shrewd and vigorous mind; and if they are not deep read in Latin and Greek, they are well read in men and things. On their vast rivers they go every where, and see every body, and judge with the tact of perspicacious common sense. They are disciplined to resolution and mental vigor by toils, and perils, and enterprises; and often they are called to attend as umpires to the earnest discussions of their most able and eloquent men, which cannot fail to throw prosing dullness in the ministry to a hopeless distance. No where, if a minister is deficient, will he be more sure to be 'weighed in the balance and found wanting.' On the contrary, there is not a place on earth where piety, and talent, and learning, and argument, and popular eloquence are more highly appreciated, or rewarded with a more frank and enthusiastic admiration. There are chords in the heart of the West which vibrate to the touch of genius, and to the power of argumentative eloquence, with a sensibility and enthusiasm no where surpassed. A hundred ministers of cultivated mind and popular eloquence might find settlement in an hundred places, and without the aid of missions, and only to increase the demand for an hundred more."

Again:—

"But what will become of the West, if her prosperity rushes up to such a majesty of power, while those great institutions linger which are necessary to form the mind, and the conscience, and the heart of that vast world. It must not be per-

mitted. And yet what is done must be done quickly; for population will not wait, and commerce will not cast anchor, and manufactures will not shut off the steam nor shut down the gate, and agriculture, pushed by millions of freemen on their fertile soil, will not withhold her corrupting abundance.

"We must educate! We must educate! or we must perish by our own prosperity. If we do not, short from the cradle to the grave will be our race. If in our haste to be rich and mighty, we outrun our literary and religious institutions, they will never overtake us; or only come up after the battle of liberty is fought and lost, as spoils to grace the victory, and as resources of inexorable despotism for the perpetuity of our bondage. And let no man at the East quiet himself, and dream of liberty, whatever may become of the west. Our alliance of blood, and political institutions, and common interests, is such, that we cannot stand aloof in the hour of her calamity, should it ever come. Her destiny is our destiny; and the day that her gallant ship goes down, our little boat sinks in the vortex!"

And again:—

"I would add, as a motive to immediate action, that if we do fail in our great experiment of self-government, our destruction will be as signal as the birth-right abandoned, the mercies abused and the provocation offered to beneficent Heaven.—The descent of desolation will correspond with the past elevation. No punishments of heaven are so severe as those for mercies abused; and no instrumentality employed in their infliction is so dreadful as the wrath of man. No spasms are like the spasms of expiring liberty, and no wailings such as her convulsions extort. It took Rome three hundred years to die; and our death, if we perish, will be as much more terrific as our intelligence and free institutions have given to us more bone, and sinew, and vitality. May God hide me from the day when the dying agonies of my country shall begin!"

But it is not on account of the pecuniary wants set forth in this discourse, that we wish chiefly to arrest the attention of the public. It is indeed a Plea for the West, but it might, with equal propriety, be called a Plea for the Republic. We have never read a more powerful display of the dangers to which our government and all our civil, literary, and religious institutions are exposed, nor a more eloquent appeal to the good sense and the patriotism of the people. We know that a great portion of our citizens, immersed in the calls of business or occupied with the consideration of political matters of more immediate and personal concern, view the subject treated of by Dr. Beecher with almost total indifference; and we know that there are many persons who look upon his notions as the bitter ravings of sectarian ambition and prejudice. Let all such persons read the argument,—the unanswerable argument, in our humble opinion,—and we think they will not be disposed to treat the subject with contempt, or the author of the book with a sneer. Dr. Beecher has been accused of endeavoring to stir up the feelings of certain religious sects against the Catholics, and the controversy between him and them has been represented as one of a religious, or sectarian, character merely. We give him credit for purer motives. Let us take his own explanation:

"If, upon examination, it should appear that three-fourths of the foreign emigrants whose accumulating tide is rolling in upon us, are, through the medium of their religion and priesthood, as entirely accessible to the control of the potentates of Europe as if they were an army of soldiers, enlisted and officered, and spreading over the land; then, indeed, should we have just occasion to apprehend danger to our liberties. It would be the union of church and state in the midst of us. The church and the state both in Europe, and the plant colonial church here. Her priesthood, educated under the despotic governments of Catholic Europe, and dependent for their office, support, and honors upon a foreign temporal prince, on whose sanction to their laws and doings they are as dependent as the colonies were upon George the Third; and this prince, too, elected by Austrian influence and sustained by Austrian bayonets, and of course subservient to Austrian policy; a priesthood not elected by their people, or dependent on them during good behaviour, or accountable to them for their deeds, but dependent on a foreign jurisdiction, and to a great extent on foreign patronage. This

would, indeed, be a church and state union—another nation within a nation—the Greek in the midst of Troy.

"Before I proceed, to prevent misapprehension, I would say that I have no fear of the Catholics, considered simply as a religious denomination, and unallied to the church and state establishments of the European governments hostile to republican institutions:

"Let the Catholics mingle with us as Americans and come with their children under the full action of our common schools and republican institutions, and the various powers of assimilation, and we are prepared cheerfully to abide the consequences. If in these circumstances the Protestant religion cannot stand before the Catholic, let it go down, and we will sound no alarm, and ask no aid, and make no complaint. It is no ecclesiastical quarrel to which we would call the attention of the American nation.

"Nor would I consent that the civil and religious rights of the Catholics should be abridged or violated. As naturalized citizens, to all that we enjoy we bid them welcome, and we would have their property and rights protected with the same impartiality and efficacy that the property and rights of every other denomination are protected; and we should abhor the interposition of lawless violence to injure the property or control the rights of Catholics as vehemently as if it were directed against Protestants and their religion. For when the day comes that lawless force prevails argument and free inquiry are ended, and law and courts are impotent and useless, and liberty is extinct, and anarchy by its terrors will compel men to call in the protection of despotic power to save them from the pursuing hell. The late violence done to Catholic property at Charlestown is regarded with regret and abhorrence by Protestants and patriots throughout the land, though the excitement which produced it had no relation whatever to religious opinions, and no connection with any religious denomination of Christians.

"We are equally opposed to any attempt to cast odium upon Catholics of the present generation for any maxims, doctrines or practices of the past ages, which are now by the competent authority of the pope or a general council disavowed. But for all the political bearings of their unchangeable and infallible creed, and for all the deeds of persecution and blood justified by their principles and perpetuated by Catholic powers and not disavowed by his holiness or by a council, the Catholic church is accountable, whatever may be the personal opinion of particular individuals or particular departments of that great community;

"It is to the political claims and character of the Catholic religion, and its church and state alliance with the political and ecclesiastical governments of Europe hostile to liberty, and the tendency upon our republican institutions of flooding the nation suddenly with emigrants of this description, on whom for many years European influence may be exerted with such ease, and certainty, and power, that we call the attention of the people of this nation. Did the Catholics regard themselves only as one of many denominations of Christians, entitled only to equal rights and privileges, there would be no such cause for apprehension while they peaceably sustained themselves by their own arguments and well doing. But if Catholics are taught to believe that their Church is the only church of Christ, out of whose inclosure none can be saved,—that none may read the Bible but by permission of the priesthood, and no one be permitted to understand it and worship God according to the dictates of his own conscience,—that hereby is a capital offence not to be tolerated, but punished by the civil power with disfranchisement, death and confiscation of goods,—that the pope and the councils of the church are infallible, and her rights of ecclesiastical jurisdiction universal and as far as possible expedient may be of right, and ought to be as a matter of duty, enforced by the civil power,—that to the pope belongs the right of interference with the political concerns of nations, enforced by his authority over the consciences of Catholics, and his power to corroborate or cancel their oath of allegiance, and to sway them to obedience or insurrection by the power of life or death eternal; if such, I say, are the maxims avowed by her pontiffs, sanctioned by her councils, stereotyped on her ancient records, advocated by her most approved du-

thors, illustrated in all ages by her history, and still UNREPEALED and still acted upon in the armed prohibition of free inquiry and religious liberty, and the punishment of heresy wherever her power remains unbroken: if these things are so, is it invidious and is it superfluous to call the attention of the nation to the bearing of such a denomination upon our civil and religious institutions and equal rights? It is the right of SELF-PRESERVATION, and the denial of it is TREASON or the INFATUATION OF FOLLY."

We believe there is no man, having the ordinary intellectual capacities of man, and exercising the ordinary power of reflection, who will not feel the force of the conclusions to which the writer arrives. Let those who have witnessed the operations of the priesthood in the city of New York, during the last two years, and who have seen similar operations, but on a smaller scale, in other cities, say whether they do not, with Dr. Beecher, feel that "there is no despotism so terrible as a popular despotism under the names and forms of liberty, where ignorance and prejudice, and passion, and irreligion, and crime are wielded by desperate political ambition and a corrupting foreign influence," and whether they do not agree with him, that "if ever our liberties perish, it will be by an explosion of the volcanic power of the European and American populace, and foreign influence and American demagogues in bad alliance, who will ride on the whirlwind and direct the storm."

Extrats from Com. Porter's Letters from Constantinople.

MACKEREL IN THE BOSPHORUS.—"This is the season [Feb. 12] for catching mackerel here. They come down from the Black Sea in immense shoals; and thousands, ay, tens of thousands of boats come at the same moment into the Bosphorus, employed in taking them in seines and gill nets. The quantity taken and sold every day would appear incredible. They are from five to six inches in length, and nothing can be more delicate than they are. By the time they arrive at Gibraltar they are half grown, and full grown when they arrive on the coast of America, three or four months hence.

"The Black Sea appears to be the great nursery for the mackerel, as well as the Palemedes, as they are called here, or the tunny-fish, as they are called when full grown, and caught on the coast of Sicily, Italy, and Spain. Myriads of them are taken during the few weeks of their running. They are generally from a foot to eighteen inches long, and an excellent kind of fish for boiling. Indeed there is no place so abundant in fish as the Bosphorus, and there is no place where there are so many taken. From the windows and doors of most of the houses situated on this beautiful canal they take fish with lines; and in the fine, calm, and beautiful summer mornings, the bay of Buyuederé may be seen swarming with kaïcks filled with the ladies and gentlemen of the legation, and with those of the Frank families, and Americans, and Greeks, engaged in the diversion of fishing. It, in fact, makes one of the few, and principal, of the amusements of the country.

"The large fishing boats which are employed for taking the mackerel and the palemedes are generally fifty feet in length, narrow and sharp at both ends, and are of the best construction for velocity. They are rowed by eighteen active young Greeks, who make them fly through the water; and there can be no scene more animating than to see half a dozen of those boats approach the quay, on their return from their fishing excursions, laden with the fish which they have taken at a single haul of their seines. They pull with a strength, quickness, and regularity, which is truly surprising, and the stroke of their oars in the water produces a most singular noise, which may be heard for more than a mile."

THE TURKISH SHIP MAHMOUD.—"I visited every part of the ship. The carpenter's work, and the materials of which she is composed, are not equal to those of our ships, but when I say we have not a ship in our service, whose ornamental parts, equipments, and outfit are at all to be compared to those of the Mahmoud, as regards richness, elegance, utility, and expense, I say no more than the truth. Her batteries will consist of one hundred and forty guns, of calibre from five hundred pounds downward. On her main deck she is to carry four of this description, the rest are to be forty-two pounders. Every gun on board is as bright as burnished gold; her gun carriages are absolutely cabinet work; all the iron work about

them is like polished steel, and the brass work, of which there is much, corresponding therewith. The beautiful polish of the rich and costly woods of which the ceiling, sides, and bulkheads of her cabin are composed, strikes the eye with a dazzling magnificence. The floors are covered with the same woods laid in a kind of Mosaic. All the rest of her equipments, which are in a high state of forwardness in the storehouses, are in the same keeping; and when all are put together, and the Mahmoud is complete, the Turks will have it in their power to boast of the largest and most splendid ship in the world."

"Nothing can look more majestic and beautiful than the fleet of the Sultan. I have never in my life seen a fleet of ships of war look so well; they are all fresh painted, and painted in perfect uniformity, that is to say all alike. The Mahmoud is the most splendid ship in the world as well as the largest. She mounts no less than 156 guns, and her dimensions are every way larger than those of our large ship, the Pennsylvania. Nothing can exceed the beauty and magnificence of her internal arrangements, no cost or pains have been spared on them. The Capudan Pacha is a fine young man, a great favorite of the Sultan, and is allowed to do what he pleases. He has much taste, and displays it to great advantage. The cabins are finished off with the most precious woods; all her guns are brass, polished as bright as burnished gold, and the gun carriages looked as if they had come from the hands of the cabinet maker. The stanchions, fore and aft on her decks, are also turned and polished brass. All the rest of the fleet is in equally fine condition, not so splendid to be sure as the Mahmoud, but in beautiful, and, to all appearance, efficient order. What their discipline will be is to be seen hereafter; but I think it promises to be good. The crews are all young and active; apparently perfectly willing and pleased with the service; they are all Turks, and dressed as I believe I before observed, in the same uniform as the soldiers. I went through some of the workshops, boat houses, and stores of the arsenal yesterday, and I do assure you that every thing there is subjected to the most perfect order and arrangement. The boats for the use of the admiralty are magnificent, and the new ones building for the Sultan cannot be described."

SUMMARY.

CRITICS WILL DISAGREE.—We annex two very different opinions, from respectable papers, on the merit of the *Monikins*. The Baltimore American says:

To use a phrase that is not often set up in type, these volumes will, we think, astonish the natives. In some of his former works, Mr. Cooper has given evidence of a strong infusion of the satirical in his mental composition. In this he lets it have free and full play. It is an elaborate satire. There is much to admire in the work itself: it is no common production, though there is in it much necessarily that is common place. We honor the author for having written and published it.

Per contra, hear the Southern Patriot, printed in Charleston:

THE MONIKINS.—This is a political satire, as well as a satire on things and matters in general, in the form of an Allegory. We do not think Mr. Cooper at all successful in the category of fiction. His taste and judgment seem sadly at fault, in thus attempting to bring to his powers of ridicule the aid of his imagination. If Mr. Cooper had not given higher evidence of his inventive genius, he never would have taken rank among the most gifted of the writers of prose fiction. The scheme of his satirical allegory wants propriety and truth—it wants congruity and grace. There is nothing to attract the imagination, or to win the sympathy of the reader, by figuring human nature under the degrading imagery of Monkeys.

PRESIDENTIAL APPOINTMENT.—We understand that E. A. Brown, of Ohio, late Minister to Brazil, has been appointed Commissioner of the General Land Office, in the place of Elijah Hayward, Esq., resigned.—[Cincinnati Gaz.]

The Pittsburg Statesman, of Wednesday, says: "Our rivers are low, and the business will have to be transferred to the smaller class of steamboats during the dry season. The canal is in fine condition, and the business still good."

MR. CLAYTON'S BALLOON ASCENT.—This adventurous Aeronaut, who left Cincinnati on the 4th inst. in his balloon, returned to that city on the 9th. The following is his description of the voyage, as copied from the Cincinnati Evening Post.

At a quarter before six, P. M., (July 4th) I cast off the last rope that secured my Aerial bark to the earth, and immediately she rose majestically into the atmosphere. In an instant I beheld the thousands of spectators that had collected on the outside of the amphitheatre, and in a few moments a rich panorama of Cincinnati and its surrounding country opened to my view.

How delightful was now my situation! High in the air I was suspended by materials capable of bearing twenty or thirty times my weight, and knowing this, I felt as safe as if I had been standing on a firm rock, with bulwarks around me. Beneath me I could view the "Queen of the West," Newport and Covington, and towns, villages, and green and fertile fields. My view was more extensive than some might imagine. I could see objects in every direction, distinctly, 20 miles at least; consequently the area of my scene was more than twelve hundred square miles. Around this view several dense clouds floated, their upper surface was illuminated by the rays of the sun, and they appeared like vast fields, mountains, projecting rocks and caverns, all clothed in pure white.

On leaving Cincinnati, I passed in an East South East direction, and was on the Kentucky side of the Ohio river for a short time, but soon crossed the river again and moved about East by South. At half after six o'clock I lost sight of the Amphitheatre. Thirty-five minutes after six heard the firing of a gun. Ten minutes after seven could hear the people shouting, and heard the firing of cannon three times in succession which seemed at considerable distance.

At seven I took the first observation with the instrument for ascertaining the rate of my travelling, and found that I was moving at the rate of one mile in 4 minutes and 17 seconds—or about 14 miles per hour. The above mentioned instrument is simple, and to me valuable; it was constructed by Dr. Locke, of Cincinnati, to whom I am greatly indebted, not only for the instrument, but for the advice on various subjects, and the interest he has taken in my welfare. I now marked on a number of the way-bills (which Dr. Barnes had politely prepared for me) the height of the thermometer and barometer, the course and rate I was travelling, and threw these and also a number which were not marked, overboard. Thermometer 50 deg., barometer 24 1-10 inches; course east by south; rate 14 miles per hour. At the time I took my departure the thermometer was 54 deg., barometer 23 3-10 inches. At quarter after seven, passed a little to the left of a town, which if I mistake not was Batavia, the town bell was ringing, music playing, and people shouting. The inhabitants noticed my passing over, I waved my flag and threw out several way-bills to them: I was at an altitude of nearly a mile. I continued to pass over a fine open country. At half past seven o'clock I lost sight of the Ohio river. At eight o'clock I took my second observation. Thermometer 30 deg., barometer 31 inches; course east by south, rate 1 mile and a half in nine minutes; saw Williamsburg to the south of me.

Several clouds were now floating above and below me, and as they had lost their pure white appearance, cast a dullness over all beneath, and robbed me of a scene of grandeur—the setting of the sun. Moisture from the clouds began to accumulate on the surface of my vessel, and to run down my neck, so as to completely soak my pantaloons and feet with water. At 9 o'clock took 3d observation; thermometer 33 degrees, barometer 24 1-10 inches, course east by south, rate 1 mile in 8 minutes. The moon now shone, but it was not clear, and I had but a very imperfect view of the earth. A little before 10 o'clock, water poured down upon me; the blankets and sheets, the ballast bags, mail bag, and every thing on board were wet. I threw out a great weight of ballast to gain a more elevated and drier region in the atmosphere, and in a short time I found myself in a situation, though drier, much more unpleasant. The silk had become as hard as wood, icicles hung from the valve rope; I stood in wet clothes upon blankets and sheets that were stiff with ice, and if ever I felt cold in my life, it was at this time. I felt desirous to know the height of the thermometer and barometer, but it was with great difficulty that I

could hold my phosphorus bottle to see their height, the thermometer 10 degrees, the barometer down to 15 inches.

I felt badly and sick at the stomach, and was stiff with cold and wet, and it was with the greatest difficulty, and only by beating my arms and body, and stamping with my feet, that I was enabled to keep awake; for I caught myself, even when in the act of striking my body, a nodding, and falling insensibly asleep. The cause of this drowsiness was the coldness and rarification of the atmosphere.—Being desirous of preserving my gas, I would not open the valve to descend to a milder atmosphere; I soon found myself descending, and found that I had to discharge a quantity of ballast, more than double the quantity I discharged on my former voyage, to keep me at a safe distance from the earth. At first I thought the loss of the levity of my vessel was owing to the accumulation of water and ice on its surface; but I have since found it was owing principally to two holes which I discovered and temporarily mended before I left Cincinnati, but which had broken again and formed large apertures. At 10 o'clock, I felt too cold to pay any attention to my rate of travel. Shortly after, passed a little to the left of Florence. At 11 o'clock, took an observation; thermometer 35 degrees, barometer 24.1-10 inches, course about east by north, rate 1 mile in 6 minutes. At 12 o'clock thermometer 40 degrees, barometer 26 inches, course east by north, rate 10 miles an hour.

After dark, the objects I took for measuring the angle, for ascertaining the rates of travel, were lights that appeared every now and then to pass beneath me. Before one o'clock, the moon was down, and I was left with no better lights to cheer me over the wilderness than a few stars that appeared to struggle through the vapor or mist through which I was floating. I thought before the moon went down, I should have sufficient ballast to keep me afloat till sunrise, but at half after one o'clock my last bag of sand went overboard, next in turn went my six bottles and their contents and provisions, then my cable and anchor, and after a while I found myself again descending; then went my blankets and sheets, and soon after my great coat, and at last some of my instruments, and after all I could not keep afloat till sunrise. My vessel had sprung a leak, and altho' all her valuable burthen, except myself, had gone overboard, yet she was compelled to sink to the bottom of her element.

I at last found myself gently touching the tops of the trees in a dense wood. I stopped myself with one hand without any difficulty, for I was not moving, nor had been for the last half hour, at a rate exceeding two or three miles per hour. I could perceive that there was no space between the trees to bring my vessel to the ground. I therefore secured her by means of a rope to a branch, and then laid myself down in my cold and disagreeable berth, without any great coat, or blanket, or drink to warm me, and with nothing to gaze upon but darkness, or to listen to but frightful noises in the woods. As soon as the sun arose in the morning, I began to exercise my lungs for the purpose of attracting some one to my assistance, but could not succeed in making any one hear.

At seven o'clock in the morning I unlashd my vessel from the tree and drew her to within twenty feet of the ground, and descended by the means of a rope. I struck off in a due West direction, marking the trees so as to be enabled to find my way back. I soon found a path which led me to Mr. Bryan's house, about a mile from where I descended. The news of the man having arrived who had travelled through the air from Cincinnati to the Alleghany Mountains, spread in quick time for miles around, and a great number of ladies and gentlemen came to see me and my aerial ship. I allowed the "Star of the West" to remain inflated and to ornament the woods until Sunday evening. I was then kindly assisted by Mr. Bryan, Mr. Beanning, (Justice of the Peace,) Mr. Pennelton, and two or three others. We cut down several trees, and were enabled to secure her without any injury.

The spot on which I landed is in Pebble township, Pike county, nine miles from Picketon, 18 miles from Chillicothe, and 100 miles from Cincinnati. The letters entrusted to my care were safely deposited in the Post Office at Waverly, a few miles from where I landed.

I take this opportunity of expressing my grateful feelings to the ladies and gentlemen of Cincinnati and its vicinity, for their liberal patronage on the day of my ascension, and to assure the public that

had it not been for the unforeseen escape of gas through the apertures before alluded to, I would have remained in the atmosphere at least 30 hours, and have accomplished my proposed voyage to the Seaboard.

R. CLAYTON.

Cincinnati, July 9, 1835.

NEW YORK STATE TEMPERANCE SOCIETY.—The New York State Temperance Society commenced its annual meeting at Buffalo on the 9th inst. A great number of members and delegates were in attendance. The meeting, after a call to order by Mr. Dwight of Geneva, was opened with prayer by Rev. Dr. Edwards, Corresponding Secretary of the Society. Mr. Hartly of New York, and Mr. Willmore of Buffalo, were appointed Secretaries of the meeting. The report of the Executive Committee was read by the former; after which, the Rev. Mr. Kirk, of Albany, moved that it be accepted and printed. Judge Hopkins, of Geneva, objected. It advanced sentiments, and laid down principles, that he could not agree with—and he did not expect the discussion of them would come up at this early hour. He did not wish the report to go forth as the expression of the Society's views. After some remarks, in which Messrs. Kirk, Potter, Leavitt and others took part, it was resolved to lay the report on the table, to be called up at a future time. "From unequivocal indications," says the Buffalo Commercial Advertiser, "there will be great interest excited, much feeling exhibited, and talent displayed during the session of this Convention, in discussing the great question of abstaining from all drinks that can intoxicate."

In the same paper of the next day, we find the second day's proceedings, which consisted principally in the reading and discussion of the following resolution:

Resolved, That this meeting cordially approve the resolution and preamble adopted by the American Temperance Society at their Eighth Anniversary, to wit:

As it has been proved by the experience of thousands in the United States, of all classes of persons, and in all kinds of lawful business, that abstinence from the use of all kinds of intoxicating liquor as a drink, is not only safe but salutary, (and as this is the only course in which it can be rationally expected that intemperate persons will ever be permanently reformed) and as the example and kind moral influence of the temperate is the only means of leading the intemperate to adopt and continue a course so essential to their present and future weal: therefore,

Resolved, That the more extensively this course is adopted by all classes in this community, and especially by all members of temperance societies, the more rapid will be the progress of the Temperance Reformation, and the more certain the prospect that drunkenness and its evils will cease.

The resolution was opposed by Judge Hopkins, of Geneva, and advocated by several gentlemen, among them Mr. Bidwell of Canada. When the vote was finally taken, it was unanimous with one single exception, and the gentleman who made this exception, afterwards withdrew his opposition.

Mr. Kirk, from the committee appointed to prepare an address to the people of this State, reported for that purpose, which he then read, accompanied by a few prefatory remarks.

The address recommends the general adoption of the pledge of total abstinence from all intoxicating drinks, as the only method of advancing the Temperance cause, of effecting any extensive and permanent reform, or in fact retaining the ground it has already won. After briefly alluding to the falsity of the statement that the ulterior measures of the advocates of Temperance contemplated the proscription of Tea and Coffee as beverages, the question as to the use of Wine, on scriptural authority, is treated at much length.

NIGHT FERRY TO HOBOKEN AND NARROW ESCAPE.—A man fell overboard from the steamboat Constellation, about 2 o'clock this morning, and was picked up by the Hoboken ferry boat *Fairy Queen*, near the middle of the river. It was not known that the man was overboard until his cries were heard by those on board the F. Q. This fortunate rescue is the more remarkable, from the fact that last night for the first time, the night boat ran—and will henceforth continue to run all night between this city and Hoboken.

FINE STEAMBOAT.—The New York Gazette gives the following description of a very fine boat now building here, to be run on the Sound:

We were particularly struck with the appearance of a new steamboat now on the stocks in Messrs. Brown and Bell's yard. On inquiry, we learned that she was intended to ply between this city and Providence, in connection with the Boston and Providence Railroad Company. She is 200 feet long, 30 feet beam and 12 feet hold, with copper boilers; two engines of 110 horse power each, and 9 feet stroke. She will be built entirely of live oak, white oak, locust and cedar, and, when completed, will, in our opinion, surpass in strength and durability any steamboat in the country. The superintendence of her construction is entrusted to Capt. William Comstock, who has been long and favorably known as commander of one of the New York and Providence steamboats, and who is, in every respect, competent to the duties assigned him. We advise all those who are desirous of viewing a beautiful specimen of naval architecture, to make an early visit to the above yard. Now they can have a good opportunity of examining her, but in a few days it will be too late, as they will commence planking her. This boat will be launched early in October, and be ready to take her place on the river at the opening of the season in March next.—The enterprising owners, who have spared no expense in her construction, have our best wishes for their success.

[From the Jersey City Gazette.]

LAUNCH.—A steamboat of about one hundred and fifty tons burthen, will be launched at noon, this day, from the foot of Essex street. A boat of the same size was launched from the same place on the morning of the 4th inst. We understand they are destined for Havana, and are intended to ply as ferry boats between that place and the Rigoleta. These boats were built by Mr. Wm. H. Brown, of New York.

Next week the keel of a new boat will be laid at the same place, to be placed on our ferry. By the time she is ready, we have no doubt that the increased travelling will require the constant use of three day boats.

NAVY DEPARTMENT.—Copy of a letter received from the Commandant United States Navy Yard, Pensacola, dated 2d July, 1835.

Sir—I have the honor to report that the sloop Vandalia sailed from this port on the 1st inst., and the sloop St. Louis sailed this day.

I also report the arrival, this day, of the schooner Grampus, Lieutenant Commandant White, from a cruise.

I have the honor to be, very respectfully, sir, your obedient servant, WOLCOTT CHAUNCEY.

To John Boyle, Esq.,

Acting Secretary of the Navy.

NAVAL.—The Boston Commercial Gazette says the Independence 74, which has been lying in ordinary at the Navy Yard in Charlestown, if we remember right, about fourteen years, was hauled along side the wharf a few days since, preparatory to a thorough overhauling and repair. She is now discharging her kentledge, and will probably be taken into dock about the middle of August, previous to which the Navy Commissioners are expected to arrive, on their annual tour of examination. The outer and inner plank are already, in many places, stripped off, being found very defective, and this will probably be the case to the water line; but what is of far more consequence, the timber composing the frame of the vessel, although it will undoubtedly require being renewed in some few places, is, generally speaking, sound, and in excellent order.

The Independence was launched in Charlestown from the same ship house under which the Vermont is now upon the stocks, about twenty or twenty one years ago, and was the first 74 about belonging to our Navy. She is lighter, we believe, than either of the others, and is considerably smaller than any that are now upon the stocks, and shows a battery of only 54 guns, having none in her waist. She is to be repaired forthwith, but will probably be not ready for service much short of a year.

The sloop of War Boston, built at this yard about ten years ago, has just been refitted, having undergone a thorough overhauling and repair in the Dry Dock, whence she has recently been taken.

The Boston is of the largest size, mounting 24 24-pounder medium guns, and is now to all out-

ward appearance, with the exception that her sails are not bent, ready for sea, and is only waiting for orders. She is one of the most beautiful vessels we ever set our eyes on, and will be a credit to our Navy wherever she goes.

The Convention of N. C. for amending the Constitution, after sitting five weeks, adjourned on the 11th inst. The following are the chief alterations proposed in the Constitution:—

1. Equalizing Representation in both Houses.
2. Changing the Sessions of the Legislature from annual to biennial.
3. Taking the election of Governor from the Legislature and giving it to the People, and making it biennial instead of annual.
4. Altering the term of Office of the Attorney General from continuance during good behavior, to four years.
5. Excluding Borough Members in future.
6. Abolishing the right of free persons of color to vote.
7. Requiring the General Assembly, in the election of all Officers, to vote *vis voce*.
8. Amending the 32d Article of the old Constitution so as to admit Roman Catholics to a participation in the Offices of the State Government.
9. Providing for future amendments of the Constitution.
10. Providing a mode for the Impeachment of Judges and other Officers.
11. Providing for the Removal of Judges for mental or physical disability.
12. Providing against unnecessary private legislation.

These amendments are to be submitted to the People for their ratification or rejection, on the 2d Monday in November next.

VALUE OF LOTS IN DETROIT.—By the annexed paragraph of the Detroit Journal of 10th inst., it will be seen that, elsewhere than in this city and its vicinity, real estate has enormously increased in value:

LAND SALES.—The auction sale in this city on Tuesday last, of the valuable lots brought into the market by Gov. Cass, was crowdedly attended. The amount of sales was far beyond all expectation. The lots sold, averaged from 13 to \$1400, and yet it is verily believed that these same lots, in two years from this, will readily command double the money. The total amount of sales on the Cass farm was \$69,000. Other sales were made during the day amounting to \$11,000. It was most fortunate for our modest, though enterprising citizens, that none of the capitalists of New York were here, and it is to be hoped that they will stay at home for the present, or at all events not cross Lake Erie until we ourselves shall be plentifully supplied from the rich resources of Michigan, our Railroad and Manufacturing stock distributed, and our senses fully restored.

But a small portion of the Cass farm is yet sold, yet it has yielded its owner \$169,000. It will be remembered by many of our citizens that Gov. Cass would have readily taken \$69,000 for the whole farm four years ago. It was offered for that sum, but no buyers were to be found.

The Apalachicola (Florida) paper of the 15th June, informs us that the citizens of that place have all, without a single exception, resolved to abandon it *en masse*, and remove to St. Joseph's, which, as respects its harbor, local situation, and salubrity, is regarded as a much more eligible site. They have been induced to take this decisive step by what the editor calls the child's play and quibbling course of the proprietors, who appear to be non-residents. The harbor of St. Joseph's is described as being excellent, and it is announced that Apalachicola will have to bow to it in silent submission.

RUMORED INSURRECTION OF THE FREE COLORED APPRENTICES OF JAMAICA.—Hudson has at his News Room, a letter, via Philadelphia, from his Jamaica correspondent, without a date, saying that the whole island was in a state of alarm, by reason of the riotous and insubordinate conduct of the apprentices. The Governor, too, is said to be unpopular for his efforts in behalf of the blacks. The whole story is very vague.

The corner stone of a new Episcopal Church (St. John's) was laid at Mount Morris, Livingston, co., on the 3d inst. by the Rev. Dr. Whitehouse of Rochester, assisted by the Rev. Thomas Meacham, rector of the parish, with appropriate religious ceremonies. Address and sermon by the

Rev. Dr. Whitehouse; morning service by the Rev. R. Kearney of Avon, and the Rev. Wm. P. Page of Genesee.

NEWS FROM CAPT. BACK.—We learn from the Montreal Gazette, that GEORGE SIMPSON, Esq., the Governor of the Hudson's Bay Company, arrived on the 14th instant at Lachine from the interior, accompanied by J. D. Cameron, Esq. one of the wintering partners of the concern. These gentlemen bring favorable reports of the state of the country—it is remarkably healthy, and the Indians are peaceable and well disposed. When in the interior, Mr. Simpson received a letter from Captain BACK, dated at Fort Reliance, near Great Slave Lake, 7th December, 1834. The gallant officer and his whole party were at the time of writing, in the enjoyment of good health and spirits.

SINGULAR DEVELOPMENT.—By an article in the last number of the Boston Medical and Surgical Journal, it appears that since the death of Sir Everard Home, whose reputation for medical and surgical knowledge has become almost unbounded, in consequence of his essays, strange disclosure has been made, to the effect that the writings in question were stolen, bodily, from the manuscripts of the late eminent John Hunter, preserved as the property of the nation in the Hunterian museum, of which Sir Everard was one of the curators, and thus had free access to the manuscripts therein contained. After making such use of Hunter's papers as he thought proper—that is, copying from them *verbatim*—he destroyed them to conceal his theft to the amount, it is said of *ten large folio volumes*. These circumstances are represented to have become known in the course of an examination of Mr. Edward Clift, formerly a pupil of Mr. Hunter, before a committee on medical education in the House of Commons.

[From the Norfolk Herald, of Friday.]

On Tuesday the President visited Fort Monroe, and reviewed the troops. The steamboat Old Dominion carried down nearly a hundred persons from this place to see the review, and also the target firing with 33 pound shot, which had been announced to take place during the day; but they were cruelly disappointed: the review was over two hours before they arrived, and the target could not be adjusted in its desired position (mid-way the channel between Fort Monroe and the Rip-Rap) in consequence of a strong breeze and a high swell. But they saw the President and a crowd of strangers, and partook of the good cheer at the Hygeia, and came home tolerably well reconciled.

[From the North River Times.]

EXTRAORDINARY CIRCUMSTANCE, and Providential escape from Death.—On Monday of last week, the hands employed in the quarry of Mr. Harman Lydacker, situated under the high range of mountains, below Slaughter's Landing, in this county, were alarmed by the cry of murder! proceeding from a female voice, but were totally unable to discover the source from whence it came. At the same moment the crew of the sloop Henry Edward, which was passing down the river, saw something suspended at the side of the mountain resembling a female form. With commendable promptitude they immediately put about, dropt anchor, and jumping into the small boat, rowed to the shore. On arriving at the foot of the mountain, they found it to be a young girl, (aged about 16,) hanging by one foot in a cedar bush, about 100 feet from the base, and 80 feet from the top of the perpendicular rock. To reach her from the bottom was impossible, and providing themselves with a rope, they hastened around to the top from which they lowered it. The unfortunate girl was yet able to fix it around her waist, and by this means, was drawn from her perilous situation, and rescued from impending and almost certain death. She proved to be Miss Phebe Wells, a niece of Mr. Benedict Wells, who had left his residence without the knowledge of his family, with a view of going to New York to see her friends. Unacquainted with the passage of the mountains, it is supposed she was unaware of the danger until she found herself descending the precipice, and the rock being nearly perpendicular, her fall could only have been broken by the slight shrubbery which projects from the side of the cliff, until, luckily for her, she struck the cedar bush, in which her foot fortunately caught.

Her situation here may be imagined, it cannot be described; hanging by one foot to a slender bush, and a yawning gulf of rocks and stones 100 feet below—unable to extricate herself, and for aught she knew, far beyond the reach of human call. It is not at all probable that in five hundred thousand cases, one could have passed the cliff she did, and not have been dashed to pieces long before reaching the bottom. She was not materially injured, and was conveyed to her friends in New York by the sloop Henry Edward, the captain and crew of which are entitled to the highest commendations for their promptitude and humanity.

Yankee Peddlers are fruitful in expedients to attract customers. One of the craft passed through our village last week, with a wagon load of wooden ware drawn by a nice looking steer, harnessed in horse fashion. This rather novel mode of travelling attracts as many gazers around the wagon, as if a dancing bear was attached to it, and it is a great chance if some of them are not metamorphosed into purchasers. A year or two since, this same character passed through here with a cow attached to his wagon. When hungry, he was in the habit of milking *mully* and regaling himself with a bowl of bread and milk. At that time we could not but be struck with the manifold advantages of a travelling concern of this description. We can't conceive why the fellow has substituted a steer for his cow, unless he has got married, and is thus enabled to keep his provision chest well stocked.—[Greenfield Gaz.]

EUROPEAN INTELLIGENCE.

The accounts from Europe, by the *Caledonia*, as to the partial intervention by France and England in the affairs of Spain, indicate a new line of policy in such matters.

Instead of marching armies, or sending fleets of the nation, to the people whose form of government the intervention is to settle, the matter is now left to private enterprise, by the simple repeal of the general prohibition against enlistments or the sending of supplies, to countries distracted by civil war.

These prohibitions are now in force, both in France and England, only against Don Carlos and his partisans; but the Queen may derive men and arms, provisions and money, if she has credit enough, from either nation.

This strikes us as quite an improvement in politics. It is intervention upon the true principle of free trade, leaving the supply to be regulated by the demand, and especially leaving it to the party benefitted, or supposed to be so—to pay the cost—instead, as heretofore, of that being paid by the nations intervening.

The correspondent of the London Times describes *Zumalacarraguy*, it will be seen, as possessing in an eminent degree, the qualities of an insurgent commander. The most daring personal valor, the greatest simplicity of manners and attire—and the power of combining movements on a large scale.

Col. EVANS, member of Parliament from Westminster, is announced in the London papers, as designed to command the British legion about being recruited for the young Queen. He is spoken of as a soldier, tried in the Peninsula and in this country.

The change of Ministry in Portugal is looked upon disagreeably, it is said, in England, chiefly on the ground that it implies a disposition on the part of the Queen to connect herself with the French reigning family, by marrying the Duke of Nemours.

Count Pahlen has been appointed Russian Ambassador at Paris, in the place of *Pozzo di Borgo*, who had so long occupied that station.

The most interesting intelligence is that which relates to the indemnity due by France to this country. The London Morning Herald of the 15th says:—"The domestic news given by the Paris papers is highly interesting. The Chamber of Peers passed the American Indemnity Treaty Bill on Friday last by a large majority (125 against 22), in the shape in which it had been brought up from the Chamber of Deputies; thus defeating all the speculations that the clause introduced into it in the latter mentioned Chamber, on motion of Gen. Viduget, and which it was thought would give offence to America, would be omitted.

Lines on the Death of Mrs. Hemans.

"Bring flowers, fresh flowers, o'er the bier to shed,
A crown for the brow of the early dead."—F. Hemans.

Gather flowers, and bring the fairest,
Let them early, drooping, wave;
Hither group the sweetest, rarest,
To wither round the poet's grave!
Let their dying perfume faintly
Here, like dew drops, fall with tears,—
Sigh, in aspirations saintly,
O'er the home of hopes and fears.
Mourn the Muse, whose strains once breathing
All the soul of woman's love;
Joyous chords, with gems unwreathing,
Garlands her own hand had wove:
Songs that waked the chiefs to glory,
Ere the battle's din was o'er;
Songs of sweet, domestic story,
Ye, alas! are heard no more.
Hearts, in apathetic slumbers,
By her gentle, matchless mind
She awakened with her numbers,
And the soul of sense refined.
Fame has spread her songs of gladness,
Echoed from the princely dome,
While her simple lays of sadness
Bless the lowly cottage home.
Once her trembling chords revealing
Deepest thoughts, in mournful shade,
Vain a breaking heart concealing
Hopes that promised, here betrayed;
Hopes she had in spring time cherished—
The bruised reed—the flower crush'd—
A delusive wreck—had perished,
Ere her lyre and voice were hush'd.
Mourn her loved and honored name,
Which Genius to the world hath given:
Her soul, beyond the breath of fame,
Shall find felicity in heaven.
Her song of sorrow now hath ceased,—
Mute her lyre, and cold the hand;
Her broken spirit God appeased,
And called her to the better land.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

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HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

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P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. 1738pm

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STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleecker street, New-York.

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40 do. 1 $\frac{1}{2}$ do. do.	holes, ends cut at an angle
900 do. 2 do. do.	of 45 degrees, with splicing
500 do. 2 $\frac{1}{2}$ do. do.	plates and nails to suit

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Mathematical Instrument Maker, No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, AUGUST 1, 1835.

[VOLUME IV.—No. 30.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 1, 1835.

HARTFORD AND NEW-HAVEN RAILROAD.—

We give to-day a long extract from the Report made by ALEXR. C. TWining, Esq., of his survey of the route for a Railroad between these two cities. This road by itself would undoubtedly be a profitable work ; but, taken in connection with others, which will beyond all question be constructed between Hartford and Worcester, and up the valley of the Connecticut river to Windsor, Vt., and eventually to Canada line, it will become one of the thoroughfares of the country.

We should have given this Report in our last, if it had been received in time—and have called attention to the opening of the books yesterday at the Union Bank in this city, for subscription to the stock.

The Winchester Republican of 22d ult., says that "William H. Morell, Esq., has been appointed Engineer in Chief of the Winchester and Potomac Railroad Company, to fill the vacancy occasioned by the resignation of Moneure Robinson, Esq. This is a most excellent appointment. Mr. Morell comes from a race distinguished, in their native north, for talent and worth ; and he adds to these qualities, energy and experience in his profession."

The Alton Spectator says that "the survey of the Railroad route between Springfield and Alton progresses, according

to our last accounts, with rapidity and success, under the auspices of General Mitchell."

ANOTHER LINK. — The great Atlantic Railroad progressing.—The Portsmouth Journal says : "We are happy to announce to our readers the gratifying intelligence, that the stock in the Railroad from this town to Massachusetts line in the direction of Newburyport and Boston is taken up."

"On Thursday, the Committee appointed at the meeting of Tuesday evening, made preparations to open a Subscription for the Railroad Stock, and in the evening a few individuals subscribed. Yesterday morning the books were opened at several places of resort, and before noon the entire capital Stock, amounting to *Two Hundred Thousand Dollars* had been taken,—the anxiety to obtain Stock being so great, that the Committee were induced to increase the capital stock *fifty thousand dollars* beyond what was contemplated by the meeting of Tuesday evening."

AND YET ANOTHER. — The Philadelphia Commercial Herald says : We learn that a general meeting of the Stockholders of this Company was held yesterday, at which it was unanimously resolved to increase the Capital Stock of the Company, from six hundred thousand to one million of dollars. This amount will enable the Directors to complete without delay, the entire route between Trenton and New-Brunswick, by means of a Railroad, on the route of the present Straight Turnpike, to build a Bridge over the River Delaware, at Trenton, and to complete a second track between this City and Morrisville. A resolution was also unanimously passed, approving of the purchase by the Directors of the Philadelphia and Trenton Railroad Company, of the majority of the stock of the Straight Turnpike."

COLUMBIA RAILROAD—INCLINED PLANE.

—The Philadelphia Herald says, "We learn that there is strong probability of a route being obtained by which the inclined plane on the west side, and near the Schuylkill river, may be avoided and the rise overcome by a grade of not more than 25 feet to the mile. The route leaves the present road at the foot of the plane, and leans to the right

for about fifteen miles, when it again unites with the road. By this route the distance is increased only about a mile and a half. A reconnoissance was made of this route at the request of the Canal Commissioners, by Mr. Gill, who deemed it practicable. Mr. Gay, we understand, is now engaged in making a minute survey of the route. If the plane can be dispensed with, the public will undoubtedly demand that it shall be done."

Is it not singular that a discovery so important should have been made at *this late period* ? If so, it would appear that a desire to complete, had entirely cast into the shade the importance of selecting the best route for, this *great work*. It is however better, even late than never, to discover and acknowledge our errors.

[From the Pittsburg Advocate.]

EXTENSION OF THE BALTIMORE AND OHIO RAILROAD.—The visit of Jonathan Knight, Esq., to our city having attracted attention to this important subject, a meeting of the citizens of Pittsburgh and its vicinity took place at the Exchange, on Friday, the 24th inst. A full and frank conference was held with that gentleman, in which he expressed the belief that a liberal subscription at this place would lead to the immediate undertaking of the western section of the road, and insure its termination at Pittsburg. It being now certain, through the liberality of the Legislature of Maryland, that an artificial communication will be completed from Baltimore and Washington to Cumberland, the question is one of vital importance to Pittsburg—what course the trade shall take from that point ? The meeting having fully come to order, by appointing Isaac Lightner Chairman, and Geo. Cochran Secretary, the following resolution was unanimously adopted :

Resolved, That a committee of seven be appointed to correspond with the officers of the Baltimore and Ohio Railroad, on the subject of the contemplated extension ; to ascertain the condition and stipulations which may accompany any subscription made at this place, and to take such measures generally as shall seem best calculated to place the subject in all its bearings before our citizens, in a distinct and authentic form.

The chairman appointed the following committee : Richard Biddle, W. Robinson,

Jr., Wm. Hays, James Brown, Wm. Wade, Thomas S. Clark, and Charles Shaler.

On motion, the chairman was added to the committee.

On motion, Resolved, That the proceedings of the meeting be published.

ISAAC LIGHTNER, Chairman.

GEO. COCHRAN, Secretary.

[From the Baltimore American.]

We made a day or two since a trip on the Washington railroad, starting with a train of three commodious and very large cars, each capable of holding sixty passengers, and all drawn by one steam engine. The average speed of the train was about eighteen miles per hour, and it frequently exceeded twenty five, the engine being under perfect command, suddenly moderating its gait at the curvatures, or in passing the highest embankments, and stopping at a short notice. We had the pleasure of witnessing a new application, not exactly of steam power, but of its generator the boiling water, by the ejecting of which the engineer quickly cleared the road of some obstructing cows.

We take the opportunity of calling the attention of the company to the policy and propriety of accommodating way-passengers. People residing on the line of the road have reason to complain if they cannot have the benefit of its construction, without the inconvenience of going several miles to one of the few regular stopping places. Such too is the facility of arresting the engine that the delay occasioned by taking in or letting out a passenger is but momentary.

The passage of the cars is a novel sight which attracts the inhabitants of the country long distances to witness; and well it may, for it is enough to excite a special wonder to behold a row of long houses roaring along the road, borne at the rate of thirty miles an hour by the snorting engine.

The train came yesterday morning from the depot beyond Bladensburg to that on the outskirts of Baltimore, in one hour and fifty minutes, the distance being about thirty three miles. This is the average time taken to make the trip, and proves that when the whole route shall be completed the passage between Baltimore and Washington will be made with ease in two hours, stoppages included.

ITHACA AND OWEGO RAILROAD.—At a meeting of Citizens of Tompkins County held in Ithaca on the 19th instant resolutions were passed in favor of the New York and Erie Railroad. It was also

Resolved, That a cheap and rapid communication from the heart of Tompkins county to our great commercial mart, through the Ithaca and Owego and New York and Erie Railroads, at a much less distance than a circuitous route by water communication, which can be travelled in much less time, and at seasons when the latter cannot be used at all, is a matter of great importance, of which our citizens should not lose sight.

UNION CANAL.—During the week ending the 17th inst., the amount of tolls received was \$2,309 11. Former report \$86,417 44. Whole amount of receipts this season, \$88,729 52.

We learn that no boats have passed through this canal from the west, since the breach which occurred, on the 12th inst., in the Pennsylvania canal at Highgate.—[Phil. Com. List.]

SCHUYLKILL NAVIGATION.—During the week ending the 17th instant, the receipts for tolls amounted to \$6,792 23. Former report \$180,928 94—making the total receipts this season, \$187,631 22.—[Ib.]

LEHIGH COAL TRADE.—Despatched from Mauch Chunk during the week ending the 17th inst., 136 boats, carrying 4458 tons—cwt. Former report, 1381 boats, carrying 48,576 tons—cwt. Total this season 1517 boats, carrying 53,034 tons—cwt. of Coal.—[Ib.]

RAPID MOVEMENT.—Passengers who left Norfolk on Monday morning at 6 o'clock in the steamboat Chesapeake, were in the hotels in Baltimore at half past 7 o'clock the same evening, having made the run in thirteen hours and a half—distance 200 miles.

[From the Worcester Palladium.]

RAILROAD SURVEY.—ENGINEER'S REPORT.

Boston, July 1, 1835.

To the Chairman and Members of the Executive Committee for the survey of the route of the Western Railroad.

Gentlemen: Agreeably to your request, that I would give some details of the route for the Railroad between Worcester and Springfield, as developed by the surveys and examinations thus far made, I herewith present the following statement, with the remark, that the preliminary surveys are not completed, and further examinations may enable me to improve even upon the favorable route already obtained—I would also add, that I have examined the route from Springfield to Hartford, with a view to the continuation of the road in that direction, and will state the circumstances under which that continuation may be made.

1st. The route to Springfield from the point of junction with the Worcester railroad half a mile east of the Main street in Worcester, by South Leicester, Spencer, Brookfield, Warren, Palmer, Monson and Wilbraham, into the village of Springfield, is 53½ miles in length; the average rise is 9 feet, and the average fall 17 feet per mile going west, and in no place exceeding 34 feet to the mile in either direction; the grading along this route is very generally favorable, and the estimate of cost will be nearly as follows:

For grading, masonry, &c. including engineering and every contingency, \$11,000 per mile, 559,000

The superstructure or Railway including turn outs, \$8000, 428,000
Land, damages, fencing, engines, cars and depots, 183,000

Total, \$1200,000

2d. The distance to Hartford from this route down the Connecticut river is 23 miles, passing over a remarkably level and favorable country, the fall on which will not exceed 2½ feet per mile—the estimate for cost is for grading, masonry, &c., including a bridge across Connecticut river, Engineering and every contingency, \$6000 per mile, 138,000

For the superstructure or railway, including turn outs, \$8000 per mile, 184,000

Lands, damages and fencing, engines, cars and depots, 78,000

Total, \$400,000

3d. For the whole distance by these routes from Worcester to Hartford, with no radius of less than 1500 feet, we have 76½ miles, and the maximum inclination as stated above, 34 feet to the mile—the average rise to Hartford 6 feet, and the fall 12½ feet to the mile. The estimate is for grading, masonry, &c. including bridge across the Connecticut River, engineering, and every contingency, \$9,500 per mile, 727,000

The superstructure or railway including turn outs, \$8000 per mile, 612,000

Land, damages and fencing, engines, cars and depots, 261,000

Total, \$1,600,000

The foregoing estimates contemplate the use of the heaviest edge rail and the best materials for the superstructure, and all other parts of the work, for engines, cars and depot arrangements, for a much larger amount of the transportation and travel than at present over the route.

The annual expenses on the route from Worcester to Springfield, estimated as I

have before, for a much larger amount of transportation than there is at present between the two places, I think will not vary materially from the following.

For salaries of superintendent and 45 others, to wit:

Assistants, clerks, engine and firemen,	\$21,000
depot and brakemen,	18,000
Fuel for twenty trains per day,	
Repairs and depreciation of engines and cars 18 per ct.	19,000
Repairs of road at 500 dollars per mile,	27,000
	\$85,000

The annual expenses on the route from Springfield to Hartford would be less in proportion to its length than the above, on account of its directness, and the near approach to a level, and would allow an average rate of travelling 1½ faster than on any equal distance of the route east of Springfield; or the 23 miles between Springfield and Hartford would be run as soon as any twenty miles from Springfield towards Worcester. The preliminary surveys are still progressing, and the approximated location will be made as soon as these are completed. Very respectfully, your obedient servant,

J. M. FRESHWATER, Engineer.

Extract from the Report of the Engineer, upon the Preliminary Surveys for the Hartford and New-Haven Railroad.

The following table has been arranged with reference to this last mentioned route by Holt's hill, by throwing together all the excavations of a similar depth, and all the embankments of a similar height, in such a way as to give a correct and ready view, both of the extent and depth of cutting and filling, and their relative proportion to each other upon the entire route.

Upon this plan, there will be of excavation and embankment,

Excavation, 2 feet deep, 6.30 miles.	"
do. 6 " " 9.11 "	"
do. 12 " " 2.69 "	"
do. 26 " " .30 "	"
Embankment, 3 feet high, 9.50 miles.	"
do. 6 " " 5.70 "	"
do. 15 " " 2.58 "	"
do. 25 " " .32 "	"
Entire length of excavation, 18.40 miles.	"
do. do. of embankment, 18.16 "	"
do. do. of bridges, .14 "	"

Entire length of route, 36.64 miles.

The excavation will be sand, gravel, and clay, in a nearly equal proportion, with a considerable amount of ditching and wet digging in mud and vegetable matter. The amount of rock is estimated at 83,986 cubic yards,—mostly solid rock, and that chiefly red sand-stone and slate.

The following table is arranged in such a manner as to exhibit the entire extent of the inclinations of the same degree throughout the whole route. It will be noticed, that the steepest inclinations are but thirty feet to the mile.

Ascending to the north.	Inclination to the mile.	Descending to the north.	Extent of similar inclinations.
Level			13.16 miles
5.83 miles	9 feet and under	6.75 miles	6.57 "
4.18 "	13½ feet	1.05 "	3.23 "
2.78 "	26½ feet	2.36 "	5.14 "
3.70 "	30 feet	4.84 "	6.54 "

44.88 miles ascending | descending 9.00 miles | 35.84 miles

About twenty miles of the route is disposed in straight lines. The remaining

sixteen miles and two thirds consists of curves, which may be turned on radii of from five thousand to twenty thousand feet; except at the entrance of the two cities, where curves of about twenty-five hundred feet would probably be expedient.

Estimate of Grading.

For the convenience of statement, the line will be disposed into sections, that will be estimated each by itself; and these separate estimates will be brought together, to make the general result. In all the sections, I suppose the road to be thirty feet wide at the level of the grade, (but to provide for contingencies, the calculations are in fact made for a width of thirty-five feet.) A single track only is supposed to be at first employed. The masonry is to be generally dry work, at \$1.50 the perch of twenty-five feet; but at \$3 the perch, when mortared, or dressed with particular care, to joints and beds. The bridges are supposed to be a simple truss-work, or string-pieces, braced from beneath, and sustained by abutments, and sometimes piers of masonry.

NEW-HAVEN SECTION.

This commences at the foot of East street, passes the embankment and bridge at Mill river, and the deep cut at the base of East Rock, and ends near the margin of the salt marsh, three miles from New-Haven. Excavation is sand and gravel; the principal body to be transported a half mile by a temporary railway, to form the embankment at the Mill river.

Grading East street, past Barns-	
ville,	\$3,876 50
Embankment at Mill river, and	
excavation opposite East Rock,	18,500 00
Bridge across Mill river, (founda-	
tions to be piled,) 8,174 00	
Road bridge for Middletown	
turnpike,	556 00
One mile light excavation and	
embankment,	2,086 19
Three crossings for farms,	325 00
Grubbing and clearing,	75 00

Cost of New-Haven Sec-
tion, 3 miles, \$33,592 69

QUINIPAC SECTION.

This proceeds with a low grade, along easy ground, to the crossing of the Quinipac, a little south of North-Haven bridge; then upon the sandy plains east of that stream, as far north as to the bend of the river and the foot of the high grounds of Meriden, sixteen miles from New-Haven.

Excavation and embankment,	
thirteen miles,	\$49,595 33
Ditching salt marsh and wet	
ground, 60 chains,	1,200 00
Changing North-Haven road 420	
rods,	1,050 00
Bridge at crossing of Quinipac,	
150 feet long,	2,116 00
Six bridges and two crossings	
for public roads,	3,674 00
Thirteen crossings for farms,	750 00
Culvert, ten feet span, for Hor-	
ton's brook,	1,500 00
Culvert for brook opposite Yales-	
ville,	1,500 00
Ten small culverts,	2,650 00
Grubbing and clearing,	200 00

Cost of Quinipac Section,
13 miles, \$64,235 38

MERIDEN SECTION.

This turns from the river into the valley leading to Holt's hill,—cuts through the hill,—passes along much swampy ground to the first dividing summit, and then along the east of the Beaver ponds, ending to the

north of these, nearly opposite the turnpike gate, and twenty-one miles from New-Haven.

Excavation of Holt's hill, 48 chains, viz.:	
Wet earth 33,088 cubic yds.,	
at 20 cts.,	\$6,617 60
Red Rock 32,648 cubic yds.,	
at 60 cts.,	19,588 50

\$26,206 40

Excavation at summit, 36 chains, viz.:	
Earth 10,028 cubic yards, at	
12 cts.,	\$1,203 36
Loose rock 9,000 cubic yards,	
at 25 cts.,	2,250 00
Solid rock 9,000 cubic yards,	
at 60 cts.,	5,400 00

8,853 36

Excavation and embankment, 3	
miles 76 chains,	26,885 40
Harbor brook culvert at Meri-	
den, ten feet,	1,500 00
Culvert for brook from summit,	750 00
Three small culverts,	600 00
Ditching wet ground, 83 chains,	1,584 00
Changing road near Meriden, 50	
rods,	75 00
Two road bridges and one crossing,	1,450 00
Five farm crossings,	500 00
Grubbing and clearing,	350 00

Cost of Meriden Section, 5
miles, \$68,754 16

BERLIN SECTION.

This runs along the west margin of the 'Old Fly,' till it cuts through the ridge at its northern outlet; it then passes the defile in the next ridge,—crosses Brandegee's pond on to the Worthington hill, and descends to the Berlin flats, which it passes to their northern border, and terminates at the southern opening of the Green swamp. Length six miles.

Embankment along the 'Old	
Fly,' six feet high for 87	
chains, with ditching and	
clearing,	\$11,564.80
Two culverts for Beaver brook,	1,500.
Excavation through two ridges,	
and embankment across mea-	
dow, &c., to factory pond	12,541.14
Rock in meadow, 14,600 cubic	
yards,	8,900.
Bridge 200 feet, across factory	
pond,	7,200.
Culvert for Beaver brook,	1,000.
Embankment and excavation on	
Worthington sideslope, one	
mile and a quarter,	8,388.81
Embankment on flat 14 feet high,	
83 chains long,	10,118.88
Excavation and embankment on	
flat, 1 mile 78 chains,	3,850.
A bridge and two culverts for	
streams,	1,850.
Bridge and two crossings,	1,000.
Three farm crossings,	300.
Grubbing and clearing,	125.

Cost of Berlin Section, 6 miles, \$67,736.63

GREEN SWAMP SECTION

This extends through the swamp by a low embankment, with wide and deep ditches on each side. It passes on to the table and, cuts through 'Dirty swamp,' and terminates near the brick-yards, on the other side of the gully which is made by a south-western branch of the Hog river. The soil is all clay. Length six miles.

Excavation and embankment in	
swamp, 3 miles 57 chains,	\$10,143.95
Ditches,	3,645.
Culvert, ten feet, for Green	
swamp brook,	1,500.

Bridge for New-Britain road, also	
one crossing,	650.
Two farm crossings,	200.
Excavation and embankment, 1	
mile 76 chains,	14,051.44
Embankment across gully of	
Little river,	7,856.64
Bridge for old road to Farming-	
ton and Hartford,	1,050.
Culvert for branch of Little	
river,	2,500.
Grubbing and clearing,	275.

Cost of Green swamp Section, 6
miles, \$41,872.08

HARTFORD SECTION.

This courses along the broken ground west of the Hog river, and enters Hartford from the west, passing between the Asylum and the Hog river, and north of Imley's mills, into Pearl street. Length three miles and fifty-one chains. Soil all clay, and grubbing considerable.

Excavation and embankment to	
doubling of Hog river, 3½	
miles,	\$29,087.77
Rock near Hartford, 18,740 cubic	
yards,	9,870.
Embankment by Imley's mill,	
18 feet high, 30 chains long,	12,276.
One culvert \$1000, and seven	
small do. \$250 each,	2,750.
Four crossings,	400.
Bridge across north-west branch	
of Hog river, 100 feet,	3,502.
Two bridges across doublings of	
Hog river, 75 feet each,	10,068.
Grubbing and clearing,	350.

Cost of Hartford Section, 3 miles
51 chains, \$67,878.77

Recapitulation.

New-Haven Section, 3 miles,	\$33,592.69
Quinipac do. 13 "	64,235.38
Meriden do. 5 "	68,754.16
Berlin do. 6 "	67,738.63
Green swamp do. 6 "	41,872.08
Hartford do. 3.64 "	67,873.77

36.64 \$344,066.66

Cost of grading by Holt's hill, 36.64
miles, \$344,066.66, being per mile \$9,390.47.

It may be observed, in passing, that, by the estimates which have been made of the other routes, but which need not be given in detail, the results upon those other routes would vary from the above as follows:

Cost of grading by Sodom brook, 36.95
miles, \$333,998.33; cost of grading by
Kensington, say 36.31 miles, \$344,338.84.

Superstructure.

Upon the road, when graded, there may be laid, (if in the end such a construction shall be deemed advisable,) a wooden superstructure, with a flat iron rail, at an expense of about \$4000 to the mile. But the policy of adopting such a structure appears to me at present very questionable, both from considerations of economy, arising out of the cost and inconvenience of repairs upon a perishable structure, and from considerations drawn from the relation in which this road will stand to other lines of communication. It can hardly be doubted, that this road, (in addition to its contemplated extension to Springfield,) will, after being made, be speedily extended to Worcester. It will in that case connect with the Boston and Worcester railroad, forming with it one line of communication; and it would seem to be desirable, that the structure of this should not be exceeded in permanent excellence by the structure of that.

Besides, this whole route is to come into competition with other thoroughfares from New-York to Boston,—the most prominent of which will be the Boston and Providence railroad. When we consider the excellent navigation by steamboats, which is open at all seasons from New-York to New-Haven, and the inducements to travellers which are offered by the cities of New-Haven and Hartford, and the town of Worcester, it appears reasonable to expect, that the high advantages of this route will make it, to a greater degree than any other that can be selected, the rival route to the Boston and Providence railroad, (the great amount of whose destined business would soon secure it rivals in any event.) Under an expectation of this sort, it would be shortsighted to calculate for any thing less than a superstructure of a very substantial and excellent kind; and it would be, to say the least, unsafe, in our early operations, to incur the hazard of trammeling the future directors of this work, by estimating now on the idea of a cheap but perishable structure, when there is a prospect that they may wish to adopt a durable but more expensive one. I am decided, therefore, as to the propriety of making an imperishable construction the basis of these present estimates.

Among the superstructures of this character which have been either proposed or adopted, I prefer the one which has been arranged for the Brooklyn and Jamaica railroad by Major D. B. Douglass, the Engineer. As a railway it has many features in common with certain ways already laid, and in actual use; but it has other features peculiar to itself. I give preference to this, because it is at once very substantial and durable, and of moderate cost; and is at the same time better fitted, (as I judge,) to avoid *unequal* and *permanent* displacement by frost, than either the wooden frame, or the cross sleepers bearing upon longitudinal trenches of broken stone,—unless with additional and expensive transverse trenches. The bearing of this railway is to be upon stone slabs of twenty inches square, or an equivalent surface, and from three and a half inches to four and a half inches in thickness. These slabs are to be embedded in the sand,—one in each linear yard, for the whole extent under both rails. Upon the two corresponding slabs of each yard there will come down a transverse sleeper of red cedar, five inches square and seven feet long. This sleeper is to receive upon it, at each end, directly above the central bearing on the slab, a cast iron chair set into it, and secured by wood screws; which chair becomes, together with its fellows, the bed of a rolled iron edge rail, of 40 lbs. to the yard, which must be suitably secured in its place by keys. The whole body of transverse sleepers being thus three feet apart, are to be bound together by two parallel pieces of scantling, spiked on longitudinally,—one on each side of the centre; and these will also be a lateral support to the gravel which is to form the horse-path. The following will be the cost of one linear yard of a superstructure of this kind:

Two slabs dressed,	65 cents.
One sleeper notched,	55 "
Two chairs, 13 lbs. each,	44 "
Four wood screws,	9 "
Two yards of rail, 40 lbs. 1.79	"
Two keys and gibbs,	4 "
Scantling,	18 "
Four spikes for do.,	4 "
Setting two chairs,	8 "
Putting down work,	25 "

\$4.10 cents.

Cost by the yard, \$4.10 cents; or
by the mile, \$7.216
Say for a horse path and contingencies, 284

Cost per mile in round numbers, \$7,500

ESTIMATE FOR THE FINISHED RAILROAD.

For grading 36.64 miles for double track.	\$344,066.66
For one track laid, at \$7,500 per mile,	274,800
Turnouts,	16,000
Fencing 25 miles, at \$720, and damages,	40,000
Four locomotives and tenders, at \$6,500,	26,000
Twenty passenger carriages, at \$850,	17,000
Thirty burden cars, at \$350,	10,500
Two depots,	15,000
A carriage-house,	7,000
Engine-house and shop,	5,000
Two watering stations,	2,500
Contingencies,	30,000
Engineering and superintendence,	30,000

Cost of 36.64 miles of railroad, being per mile \$22,335.33, \$818,366.66

It will undoubtedly be necessary to form a direct connection with the steamboats to New-York, and if the expense of this be added, (as it ought to be,) the entire cost of the railroad, when ready for operation, may be stated at \$830,000, an estimate which, of course, applies only to the main road with a single track. If the company shall ever choose to construct branches, or to lay, in whole or in part, a double track, those additions will have their appropriate estimate at such time as they shall be determined on.

The sum, gentlemen, which has just been stated, may exceed, I am aware, your anticipations; and it must be admitted, that when we consider the generally favorable conditions of soil and location under which the work is to be executed, the estimate bears the appearance of a large one. But as it has been your desire to be acquainted with the exact truth, so it has been my aim to put you fully in possession of it; and I am desirous to have it understood, that in making up this amount I have kept in view the notorious fact, that the estimates of cost which have been made at the outset of almost every considerable undertaking of this kind in the United States, have been proved by the result to be far too low; and that I have intended to adjust the *standard* of this estimate so high, that the final cost of your work may not, if judiciously managed, exceed the original expectations of the stockholders. And here I would recall to your notice the general conditions of the work to which the amount above estimated is intended to apply.

The road is supposed to be put in preparation for a double track, and a single one to be laid. The prepared surface is to have a breadth of thirty feet at the level of the grade; but to provide for the contingencies that may arise in this department, the computations have been made *throughout*, in all excavations, embankments, rock, bridges, and culverts, for a breadth of thirty-five feet; and no advantage has been taken of the sometimes admissible economy of narrowing, for the present, the dimensions of deep cuts, and high embankments. These principles of computation have, doubtless, latitude enough: let us look next at the conditions under which the execution of the work is to take place.

At this part of the review we find that the line running in the direction of the ridges, will have to encounter few very untractable districts of country; that the ex-

cavation for one half of the route is of the very easiest kind, and for the other half only of ordinary difficulty; that no one very expensive bridge, or other structure, need be counted upon; that the workmanship of such incidental structures as are to be made, is supposed to be only so expensive in kind, as to insure a *substantial* and *neat* performance; and that the plan of the railway, while abundantly strong and durable, is yet one of moderate cost. Such are the grounds upon which I hold the belief, that unless a second track, in whole or in part, should be added, or branches be extended out from the main body of the road, (which, if resolved upon, must have their own estimate,) the sum of \$830,000 will complete the railroad, and put it in successful operation.

ANNUAL EXPENDITURE.

The expenses of repairs for the road and engines, and all contingent outlays for operations of this kind, are easily calculated from data derived from different roads in this country, that are in actual use. The annual expense of repairs may be taken at \$4,000.

The annual expense of transportation of burdens, such as cotton, manufactured articles, &c. would vary with the amount of this transportation, and the number of trips by the day which would be made. For the quantity of tonnage with which this road would open, we may consider the cost of transporting a ton from city to city, including fuel, oil, repairs, and attendance, at fifty cents the ton. For the number of passengers with which the road would open, there must be two trips and two return trips each day, which at \$15 the trip for 313 days, being the entire year, except Sundays, would make for the year, (including fuel, oil, repairs of engine and train, engine man, and all attendance,) \$18,780. The salaries of superintendence and clerks may be put at \$4,000. Supposing, therefore, the road to open with a business (in addition to the passage trips) that would be done by a single trip and return trip of a train of burden cars, carrying from twenty to thirty tons to each trip, and the same to each return trip, the entire annual outlay upon the railroad would be from \$33,000 to \$34,000.

Resources of the Railroad.

The amount of income which the holders of stock in this railroad may fairly count upon, is fixed, for the greater part of it, by ascertained facts; and for the rest, it must be matter, to some extent, of judgment. After carefully collating the supplies of revenue which will certainly fall into the channel of this road, and drawing cautiously upon those other currents of travel and transportation which will be within its influence, but which can fairly be counted upon only in part, I find, as the result of my own private judgment, an aggregate of annual receipts, which, after canceling the expenditures, will yield at once a fair return of interest to the stockholders. But, as this is a subject upon which every man, after having the facts before him, must be his own judge, I shall throw together, in a concise statement, the materials for forming a judgment, that are in my possession. Let me remark, however, that, if it were important for me to put down in *figures* my own private view of the subject, I should be far from copying after those romantic visions of per centage, in which half the projectors of useful public works throughout the world have indulged at the outset, and which have led almost of course to extensive disappointment. A judicious consideration of the subject would undoubtedly make it appear that (except in the case

of some great thoroughfares, that may be able to keep entirely aloof from competition,) the body of judicious railroads cannot, in respect of profit, range at once far above the business level of the country. But there are three considerations, which make this species of investment more desirable than an ordinary outlay. These are to be found in the *security*, the *permanence*, and the *increasing profit*, of such an investment. The estimation in which capitalists hold any investment that is both secure and permanent, even though it should yield but a moderate rate of interest, is manifest in the high customary premium upon five per cent. government stocks; and while in both these particulars, a profitable railroad stock is not inferior to a government stock, it has, in its *increasing rate of interest*, an element of value peculiar to itself.

The opinion which I have already expressed, respecting the intrinsic value of this particular railroad as a source of profit, rests upon facts which I shall now state, together with the sources, in general, from which these facts were derived.

Mr. John Babcock, general agent and proprietor of the stage lines from Hartford to New-Haven, states (as the result of actual investigation from the books) that there has been received annually, for the past five years, \$35,000 on an average; of which sum, \$5,000 was for mails. The price of passage has been \$1.50, to those coming by steamboats from New-York, who form the body of the passengers; but to those who have taken the stage at the cities, \$2. The number of passengers has therefore been 18,000 per annum; and this number corresponds with Mr. Babcock's estimate. In addition to the receipts from this source, a part of the mail money,—say \$3,000,—is to be counted on for the railroad. Also, there will be probably 2,000 of the local passengers, who now go between Hartford and New-Haven, or the intermediate towns, by private conveyance, that would, upon the construction of this work, prefer the latter.

A principal agent of the steamboat lines at Hartford, who knows the exact truth upon this subject, being applied to for information, has stated the amount of passage money taken on board the Hartford boats, at \$90,000 per annum; and he estimates the number of passengers at 30,000 annually. This estimate is thought by others, in the same line of business, to be low; indeed, if we judge from the full fare to New-York, which is \$3, that number must exclude, *in part*, those who, being way-passengers, and stopping at different places upon the river, are not to be counted upon in an estimate for the railroad.

The present number of passengers from New-York to Providence, is known to be estimated at 50,000 annually. Aside from the interposition of railroads, to vary the natural channels of intercourse, this route to Boston by Providence has been vastly superior to every other; and has taken, of course, nearly the whole long travel between the two great cities. But it is obvious, that if any other route had existed, possessing the same natural inducements, it would certainly have drawn to itself one half of the travel. If the distance from New-York to Boston is as great as it is generally taken to be, there would be, when the Hartford and New-Haven communication shall be open to Worcester, (an event which, I cannot doubt, will speedily find its accomplishment,—a charter for this railroad, as well as the Springfield road, having been already obtained to the north line of Connecticut,) a decided difference of

distance in favor of the route by Hartford. But I presume that distance to be overstated, and the distance to be, in fact, trifling; so that the times of arrival, by way of Providence, or of Hartford, will be nearly balanced. But the opening of this new route, equally advantageous with the former, will necessarily divide the travel, though in what ratio it is difficult to determine.

Besides these currents of travel, there is a great amount of passing to New-York from the north parts of Connecticut, and the south parts of Massachusetts, by the way of the Hudson river. No one can make even an *approximate* estimate of the amount which will be diverted by this railroad. When I placed it at 2,000 passengers, it was taking but one-fifth of the estimate made by others, who are as well-informed upon the subject as I am.

If, on a review of the foregoing facts, any one shall have fixed his mind upon any specific amount of travel with which the Hartford and New-Haven railroad would open at once, or any specific amount, including what would be drawn to it from other channels, as soon as the contemplated extension to Worcester shall take place, let him also consider, that his supposed number of passengers has been deduced only from the currents of travel *now* existing; and that the natural increase of activity in a region which is traversed by newly opened lines of communication, and in the country at large, may justify a greatly enlarged estimate of that number, as applying to the state of things that will exist in a few years to come. To fortify this view, let him cast an eye at the projected railroads which will centre at Hartford. First, there will be the Bolton road, which will connect, probably, with the Norwich and Willimantic railroad,—then there will be the railroad to Worcester, and that to Springfield. The railroad which is shown by the map, making off towards the Hudson river, may be considered by many a project too distant to be taken into notice here; but a petition for such a grant is even now pending, and the same connection will certainly be made through Springfield before a distant day. Of these four lines of communication, the Hartford and New-Haven railroad will be the trunk; and, through the Springfield communication, (which will certainly not terminate at the town last named,) will hereafter extend its arms into the higher parts of the Connecticut valley.

In addition to the foregoing sources of revenue, I judge from the facts before me, that the transportation of burdens upon this road will, at its first opening, be sufficient to employ at least one train of burden-cars each day, in a trip going and returning, carrying from 20 to 30 tons each way. But of this amount, and of its probable increase, some estimate may be formed from the facts which I now present.

I have received, from Elisha A. Cowles, Esq., of Meriden, a statement of the amount of transportation to Hartford and Middletown, from the villages of New-Britain, Worthington, Meriden and Wallingford, which lie on the route. This was compiled by means of a personal application to each individual named in the list. The amount is more than seven thousand tons, now transported at an expense of eighteen thousand dollars. Of this amount, two thousand tons would not pass upon the road, except in the event of a particular location, which, though as probable as any other, is not certain. I have deducted the

two thousand tons, and call the remainder equal to three thousand tons taken *through*.

The amount of transportation between Hartford and New-Haven, during the past winter, has been ascertained from the teamsters to have been three thousand tons, and the expense eighteen thousand dollars.

The Connecticut river is closed for four months in the year; and during that period, this railroad will take its place for the *whole* transportation; and during the remaining eight months, for a *part*. What the entire tonnage of the river is, has not been directly ascertained; but some light is thrown upon the subject, by the journal of the "Convention held at Windsor, Vermont, September 29 and 30th, 1830, for the purpose of taking into consideration, subjects connected with the improvement of the navigation of Connecticut river." In the report of a committee of that convention, I find, under the head of annual exports from the Connecticut river valley, the following *estimated* items: Beef, 10,181 tons; pork, lard, ham and bacon, 10,395 tons; butter and cheese, 8,050 tons; wool, about 800 tons; besides a considerable amount of other products. The imports are put, in the same estimate, at 25,000 tons. The aggregate of imports and exports in 1830, was, according to this authority, 54,426 tons, besides great quantities of lumber not here included. If these estimates are correct, it is probable, that there now comes into or passes Hartford, of both imports and exports, thirty thousand tons annually, supposing an equal amount taken off eastward by other channels.

Besides its portion of the foregoing transportation, this railroad would do a large business in winter, and a considerable business in summer, in supplying raw material to the large and numerous manufactories in Connecticut and Massachusetts, towards which it will lead, and returning to market the manufactured article. There are now at Springfield, and in the region around it, about sixty thousand spindles in operation;* and these, I should judge, (as twenty-eight thousand of the number are stated to consume eight thousand bales of cotton,) must create a transportation, to and fro, of six or seven thousand tons; and probably this same region, when its power shall be fully taken up, will transport five times, or perhaps even ten times, its present amount. A large amount of the cotton to feed these establishments would pass on your railroad,—as the new crop does not come in till the river is about closing.

It was stated by the witnesses who testified before a committee of the Connecticut Legislature, at its last session, that the manufactories upon the Hocoman and Tankarson, near Hartford, now transport from Hartford ten thousand tons of raw material, and return it in manufactured articles; that on the route to Worcester, there are, within the bounds of Connecticut, eight factories, besides paper mills, furnaces, and cupolas; and that out of Connecticut there are on the same route, in four or five towns, forty-five manufactories, both cotton and woollen, with an average business of one hundred thousand dollars annually. Their raw material is now received by way of Providence and Boston, and their manufactured articles returned to a southern market by the same route; but if an opening to New-Haven were created, this tonnage would fall into that new channel, both be-

* The number of spindles here stated is more than half the number in operation at Lowell, Mass.

cause its market is south, (at N. York and Philadelphia,) and because the saving of insurance from Boston to those cities would pay a large proportion of the entire freight to New-Haven.

When, from the foregoing facts, a just estimate shall be formed respecting the business to be done at once upon this railroad, it will still need to be greatly enhanced in order to apply to the state of things a few years hence,—in accordance with the considerations which were before applied to the subject of travel, as it is now, and as it will be soon, when the railroad shall have exercised a while its power upon the business and enterprise of the whole region within its influence, and shall have spread its branches widely by means of its junction with those other roads of which it is destined to be the trunk at no distant period.

I have the honor to be, gentlemen, your obedient servant,

ALEX' R. C. TWINING,
Engineer.

New-Haven, July 19, 1835.

We find in the Newark Daily Advertiser, the following account of something new in the way of propelling boats.

"Dr. PLANTOU, of Philadelphia, is now exhibiting at No. 92 Broadway, New-York, a model of his method of constructing and propelling steamboats, and will be happy to show and explain its principles to all who will do him the favor of a call. The principle is the propulsion of boats by means of water-tight revolving cylinders, furnished with paddles. One of these cylinders is placed at each end of the boat—and acting both as buoyancers and propellers, they effect, as the inventor very satisfactorily demonstrates, the important object of impelling the boat over the surface of the water without having to overcome the great resistance encountered by the usual method of forcing it through the water. The current created by the action of the forward cylinder, passes entirely under the boat, and by lifting it up, aids in impelling it forward.

"Dr. Plantou's models, &c. were submitted to a select committee appointed by the last Legislature of New-York, who recommended them to the favorable consideration of the canal board. The Board have since expressed their approbation of the project."

It will be seen by the following article from the Buffalo Journal, that a most important, indeed an almost indispensable improvement, of the Buffalo Harbor is about to be made:—

[From the Buffalo Whig and Journal.]

BUFFALO HARBOR—IMPORTANT PUBLIC IMPROVEMENT.—An improvement of great importance to the commercial interests of this city, which has been long projected, is, we understand, about to be accomplished, by individual enterprise. Buffalo harbor, as is well known, is constituted wholly of Buffalo Creek—no part of the lake being susceptible of occupancy as harbor; and as that stream is narrow though deep, the harbor extends far inland. A difficulty has always existed, and is yearly increasing, arising from the crowded state of the harbor, near the entrance, rendering it difficult and toilsome to pass vessels in. Hence it is that the remark is often made, namely, Buffalo harbor is too small: when, in truth less than one twelfth of the harbor is yet occupied.

To add to the ease of egress and ingress, and to augment the facilities of occupying and improving all parts of our harbor front, we learn that a contract has been closed by several gentlemen, with Col. O. H. Diddle, for carrying out the original project of Joseph Elliott, Esq., thus forming another mouth to Buffalo Harbor. At the easterly line of our city, the Buffalo Creek approaches

to within eighty rods of the Lake shore. At this point a cut is to be made, one hundred feet in width, from the harbor to the lake of sufficient depth for navigation, and secured, at the Lake end, by a pier extending into the Lake. This entrance will be a mile or more from the present one: and by doubling the facilities of admission and departure, will largely provide for the rapidly augmenting commerce of our Lakes. The work we learn, is to be completed the ensuing season, and when done to be dedicated to the public, without any charge or incumbrance, whatever.

NEW YORK AND ERIE RAIL ROAD COMPANY.

We take great pleasure in stating, upon unquestionable authority, that this Company, by their directors, engineers and agents, have made very rapid progress during the present summer, towards completing the arrangements necessary for commencing the actual execution of this great work—and that the public may confidently expect that at least fifty miles will be put under contract during the ensuing autumn.

By inquiries actively prosecuted, under the personal inspection of some of the Directors, they have acquired increased confidence in the practicability and productiveness of the work. The Allegany river, which more properly might be denominated the *Upper Ohio*, is represented as affording the strongest incentives to exertion, by supplying to this city the means of a rapid, safe and cheap communication with the great line of cities and villages along the Ohio, during the whole of the early spring, and especially during the season when our commerce is obstructed by the ice on the canals and on Lake Erie.

It is believed that the company, if properly supported by the public, will be able to extend their road to this most valuable river, within five years from the present season. It is also highly gratifying to learn that the enterprising and liberal spirited inhabitants along the line, are exerting their utmost efforts to facilitate the progress of the work, not only by making and procuring gratuitous cessions of the land required for the road-way, but also by subscribing to the extent of their means, to the stock of the company. We learn, too, that the surveys made during the present summer, have still further improved the route of the road, as well in shortening the line, as diminishing its cost.—[N. Y. American.]

An Engineer at Rouen has according to the National Gazette, obtained a patent from the French Government, for a *suspension bridge*, with an arch sufficiently high to admit the passage under it of the highest mast.

The Gazette adds that "the *draw bridge* is said to be of so simple a construction, that it may be raised by one person with the greatest ease." But if the arch is so high, as to admit the passage under it of the highest mast, what use is there for a draw-bridge?

RAILROAD BETWEEN PORTLAND AND QUEBEC.

A public meeting was held in Quebec on Monday, 20th inst., to consider the proper preliminary steps to be taken in favor of this enterprise. J. W. Woolsey was in the chair, K. Fisher Secretary.—Mr. A. Smith, one of the Commissioners appointed by the State of Maine, was introduced to the meeting, and explained the views and wishes of Maine on the subject, all which tended to increase the facilities of intercourse between the United States and Canada. He was received with cheering, and resolutions were subsequently passed, asking the concurrence of the Governor of Canada, in the efforts making by Maine, and in those which the citizens of Quebec stand ready to make.

Morris Canal Collector's Office, NEWARK, July 27, 1833.

Arrived from the 15th to the 26th July, from Mauch Chunk, Easton, Washington, Port Colden, Stanhope, Dover, and other places:

126 boats with coal	2531	6 tons
59 do. with other articles	1009	12 tons

185 boats	3540	18 tons
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Cleared during the same period:

71 boats with merchandise	1033	00 tons
115 do. in ballast—coal boats		

186	1033	00 tons
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Total number of boats, amount of tonnage passed the lock during the above period:

371 boats	4573	tons 18 cwt.
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THOMAS MCGAURAN, Collector.

CANAL STEAMBOAT.—A new steamboat called the Phenomenon, has been placed on the Erie Canal, to ply between Rochester, at which place she was wholly built, and Utica. She is so constructed that those on board can enjoy the benefits of walking on the outside, a few inches above the water, without the inconvenience of dodging a bridge every few moments. She has two commodious cabins, and is propelled at the rate of five miles an hour including lockages, by two wheels, at a moderate expense—the swell or wake is so trifling that it can be no objection to her travelling the canal.—[Sun.]

CANAL CELEBRATION.—The canal boat Northampton, with a delegation from this city, and a large number of citizens, started this morning from Hillhouse's Basin, for Northampton, in pursuance of an invitation from the citizens of that town, to celebrate the completion of the Hampshire and Hampden Canals, and their junction with the Connecticut river. The Governor of the State, Mr. Senator Smith, and other distinguished gentlemen, accompanied the party, which went off with streamers flying, a band of music, and hearts full of glorious anticipations. Success attend them!—[New Haven Herald.]

NEW FERRIES AND AVENUES.—It is with satisfaction, we observe that a new ferry to Long Island is about to be established, from the foot of 13th street, to North street in Williamsburg. The line across is almost a straight one, and the starting points on each side of the river, such as to accommodate a large population, both in the city and on Long Island. When is the contemplated ferry on the North river, from the foot of Amos street to Hoboken, to be established? It is much wanted for the accommodation of the upper part of the city.

A macadamized avenue on the west side of the city, similar to the Third avenue, so as to afford an equally convenient outlet to the residents in the 9th, 8th, 5th and 3d Wards, is also proposed, and will be, we hope, made forthwith. And this affords a fitting opportunity for repeating a question, frequently before asked in this paper, why ferries should not, equally with avenues, be established and kept up at the public expense, and free from toll? There is no distinction, that we can perceive, in principle, between facilitating access by land and access by water, to "the great city." We gain, by every obstacle removed on either element; and we do not see why—if roads are made and kept in repair out of the general funds, ferries should not in like manner be. At any rate, it certainly is inconsistent with common right, that monopolies in ferries should be created in behalf of private individuals, and that they should grow rich, enormously rich, as the lessees of the Fulton ferry have done, and are doing, out of the pockets of their fellow citizens,—every one of whom has a right—which the city of his residence ought to secure to him, as it does the lighting of the streets at night, the establishment of a watch, &c.—to go back and forth over the river, as on the road,—*scot free*.

We are aware that no such change can be effected during existing leases, on established ferries—but in reference to that one about to be established, from the foot of 13th street, and to the principle itself—our remarks are as well timed now as on any other occasion.—[N. Y. American.]

[From the London Penny Magazine.]

MR. JOHN LOMBE, AND THE SILK-THROWING MACHINERY AT DERBY.—The Lombes were originally manufacturers at Norwich, but removed to London, and became silk throwsters and merchants there. There were three brothers, Thomas, Henry, and John; the first was one of the sheriffs of London at the accession of George II. in 1727, on which occasion, according to custom, the chief magistrate was created a baronet, and Mr. Lombe was knighted. The second brother, who was of a melancholy temperament, put an end to his existence before those plans were developed which connected the name of Lombe with one of the most important manufactures of the country.

The Messrs. Lombes had a house at Leghorn under the firm of Glover & Unwin, who were their agents for purchasing the raw silk which the Italian peasantry sold at their markets and fairs to the merchants and factors. There were many other English houses at Leghorn, Turin, Ancona, and other parts of Italy, chiefly for exporting silk to England, in part return for which numerous cargoes of salt fish were and still are received from our ports for the consumption of the Italians during their Lent and other fasts. It was at that time customary for the English merchants engaged in the Italian trade to send their apprentices and sons to the Italian ports to complete their mercantile education, by acquainting themselves on the spot with the details of their peculiar line of business. It was professedly in compliance with this custom, but, with a deeper ulterior view, that the youngest of the brothers, Mr. John Lombe, who at that time was little more than twenty years of age, proceeded to Leghorn in the year 1715.

The Italians had at that time become so much superior to the English in the art of throwing silk, in consequence of a new invention, that it was impossible for the latter to bring the article into the market on equal terms. This state of the trade induced the Lombes to consider by what means they might secure the same advantage which their improved machinery gave to the Italians; and the real view of the younger brother, in proceeding to Italy, was to endeavor to obtain such an acquaintance with the machinery as might enable him to introduce it into this country. The difficulties in the way of this undertaking were very great, and would have appeared insurmountable to any but a person of extraordinary courage and perseverance. We find these difficulties thus stated in the paper which Sir Thomas Lombe printed for distribution among the members when he applied to Parliament for the renewal of his patent. One at least of these printed papers has been preserved, and has been lent us for the present occasion. It is there said, that "the Italians having, by the most judicious and proper rules and regulations, advanced and supported the credit of the manufacture, have also, by the most severe laws, preserved the mys-

tery among themselves for a great number of years, to their inestimable advantage. As, for instance, the punishment prescribed by one of their laws for those who discover, or attempt to discover, any thing relating to this art, is death, with the forfeiture of all their goods, and to be afterwards painted on the outside of the prison walls, hanging to the gallows by one foot, with an inscription denoting the name and crime of the person; there to be continued for a perpetual mark of infamy."

The young Lombe, however, was not to be deterred by the danger and difficulty of the enterprise. On his arrival, and before he became known in the country, he went, accompanied by a friend, to see the Italian silk works. This was permitted under very rigid limitations. No person was admitted except when the machinery was in action, and even then he was hurried through the rooms with the most jealous precaution. The celerity of the machinery rendered it impossible for Mr. Lombe to comprehend all the dependencies and first springs of so extensive and complicated a work. He went with different persons in various habits, as a gentleman, a priest, or a lady, and he was very generous with his money; but he could never find an opportunity of seeing the machinery put in motion, or of giving to it that careful attention which his object required. Despairing of obtaining adequate information from such cursory inspection as he was thus enabled to give, he bethought himself of associating with the clergy, and being a man of letters, he succeeded in ingratiating himself with the priest who confessed the family to which the works belonged. He seems to have opened his plans, partly at least, to this person, and it is certain that he found means to obtain his co-operation. According to the scheme which they planned between them, Mr. Lombe disguised himself as a poor youth in want of employment. The priest then introduced him to the directors of the works, and gave him a good character for honesty and diligence, and described him as inured to greater hardships than might be expected from his appearance. He was accordingly engaged as a fillatoy-boy, to superintend a spinning engine so called. His mean appearance procured him accommodation in the place which his design made the most acceptable to him,—the mill. While others slept, he was awake, and diligently employed in his arduous and dangerous undertaking. He had possessed himself of a dark lantern, tinder box, wax candles, and a case of mathematical instruments: in the day time these were secreted in the hole under the stairs where he used to sleep; and no person ever indicated the least curiosity to ascertain the extent of the possessions of so mean a lad. He thus went on making drawings of every part of this grand and useful machinery; the priest often inquired after his poor boy at the works, and through his agency Lombe conveyed his drawings to Glover and Unwin; with them models were made from the draw-

ings, and dispatched to England piecemeal in bales of silk. These originals are still, we believe, preserved in the Derby mills.

After Lombe had completed his design, he still remained at the mill, waiting until an English ship should be on the point of sailing for England. When this happened, he left the works and hastened on board. But meanwhile his absence had occasioned suspicion, and an Italian brig was dispatched in pursuit; but the English vessel happily proved the better sailer of the two, and escaped. It is said that the priest was put to the torture; but the correspondent of the "Gentleman's Magazine," to which we are indebted for most of the facts we have stated, says that after Mr. Lombe's return to England, an Italian priest was much in his company; and he is of opinion that this was either the priest in question, or at least another confederate in the same affair. Mr. Lombe also brought over with him two natives accustomed to the manufacture, for the sake of introducing which he had incurred so much hazard.

After his return Mr. John Lombe appears to have actively exerted himself in forwarding the works undertaken by him and his brother, Sir Thomas, at Derby; but he did not live to witness their completion. He died on the premises, on the 16th of November, 1722, in the 20th year of his age. The common account of his death is, that the Italians, exasperated at the injury done to their trade, sent over to England an artful woman, who associated with the parties in the character of a friend; and having gained over one of the natives who originally accompanied Mr. Lombe, administered a poison to him of which he ultimately died.

We recur to Sir Thomas Lombe's statement, already quoted for the most authentic particulars respecting the progress of the work. The document itself is entitled, "A Brief State of the Case relating to the machine erected at Derby, for making Italian Organzine Silk, which was discovered and brought into England with the utmost difficulty and hazard, and at the sole expense of Sir Thos. Lombe." It commences with stating the capabilities of the machine. "This machine performs the work of making Italian organzine silk, which is a manufacture made out of fine raw silk, by reducing it to a hard twisted, fine, and even thread. This silk makes the warp, and is absolutely necessary to mix with and cover the Turkey and other coarser silks thrown here, which are used for shute; so that without a constant supply of this fine Italian organzine silk, very little of the said Turkey and other silks could be used, nor could the silk-weaving trade be carried on in England. This Italian organzine (or thrown) silk has in all times past been bought with our money, ready made (or worked) in Italy, for want of the art of making it here; whereas now, by working it ourselves out of fine Italian raw silk, the nation saves nearly one third part; and by what we make out of fine

China raw silk, above one half of the price we pay for it ready worked in Italy." The paper goes on to state, that "the machine at Derby has 97,746 wheels, movements, and individual parts, (which work day and night,) all which receive their motion from one large water wheel, and are governed by one regulator; and it employs 300 persons to attend and supply it with work." After stating the difficulties which had been surmounted in introducing this improvement, the paper thus concludes: "Upon the introduction of which [this improvement], his late most gracious Majesty granted a patent to the said Sir Thomas Lombe, for the sole making and use of the said engines in England, for the term of fourteen years. Upon which he set about the work and raised a large pile of building upon the river Derwent at Derby, and therein erected the said machine; but before the whole could be completed, several years of the said term were expired. Then the King of Sardinia, in whose country we buy the greater part of our supply of organzine silk, being informed of his success, prohibited the exportation of Piedmontese raw silk; so that before the said Sir Thos. Lombe could provide a full supply of other raw silk proper for his purpose, alter his engine, train up a sufficient number of work-folk, and bring the manufacture to perfection, almost the whole of the said fourteen years were run out. Therefore, as he has not hitherto received the intended benefit of the aforesaid patent, and in consideration of the extraordinary nature of his undertaking, the very great expense, hazard, and difficulty, he has undergone, as well as the advantage he has hereby procured to the nation at his own expense, the said Sir Thomas Lombe humbly hopes the parliament will grant him a further term for the sole making and using his engines, or such other recompense as in their great wisdom shall seem meet."

The Parliament considering the matter of much public importance, thought it best to give him a grant of £14,000, on condition that the invention should be thrown open to the trade, and that a model of the machine should be deposited in the Tower of London for public inspection. It is commonly stated that Parliament refused to extend the patent, and granted the money to soften their refusal; but we have seen that Sir Thomas himself suggested some "other recompense" than an extended patent as an alternative. In the course of time similar mills began to be erected in different parts of the country; but in consequence of the difficulties that were experienced in procuring Italian raw silk of the proper size for organzine, (the exportation of which was prohibited by the Italians,) and also because the mills happened subsequently to find employment for other purposes, the quantity worked into organzine, in this country, bore for many years no proportion to the imports from Italy. The manufacture has, however, been since revived and improved. In consequence of which it is now car-

ried on to a very considerable extent, not only in Derby, but in other parts of the country.

The mill erected by Sir Thos. Lombe stands upon an island, or rather swamp, in the Derwent, about 500 feet long and 52 wide. The building stands upon huge piles of oak, double planked, and covered with stone-work, on which are turned thirteen stone arches, that sustain the walls. Its length is 110 feet, its breadth 39, and its height 55 feet. It contains five stories. In the three upper are the Italian winding engines, which are placed in a regular manner across the apartments, and furnished with many thousand swifts and spindles, and engines for working them. In the two lower floors are the spinning and twist mills, which are all of a circular form, and are turned by upright shafts passing through their centres and communicating with shafts from the water wheel. The spinning mills are eight in number, and give motion to upwards of 25,000 reel-bobbins, and nearly 3000 star-wheels belonging to the reels. Each of the four twist mills contains four rounds of spindles, about 389 of which are connected with each mill, as well as numerous reels, bobbins, star-wheels, &c. The whole of this elaborate machine, though distributed through so many apartments, is put in motion by a single water wheel, twenty-three feet in diameter, situated on the west side of the building. All the operations, from winding the raw silk to organizing or preparing it for the weavers, are performed here. The raw silk is chiefly brought in skeins or hanks from China and Piedmont. The skein is, in the first instance, placed on a hexagonal wheel, or swift, and the filaments which compose it are regularly wound off upon a small cylindrical block of wood, or bobbin. It is the work of five or six days to wind a single skein, though the machine be kept in motion for ten hours daily, on account of the amazing fineness of the filaments of which it consists. The silk, when thus wound off upon the bobbins, is afterwards twisted by other parts of the machinery, and is then sent to the *doublers*, who are chiefly women stationed in a detached building. Here four, seven, or ten threads, are twisted into one, according to its intended size, the fine kind going to the stocking weavers, and the others to different manufacturers. Other mills erected more recently at Derby, on a similar principle, greatly surpass this in their machinery, and efficiency; but the old mill must continue to be regarded with peculiar interest, as the first establishment of the kind erected in this country.

MINERAL KINGDOM. Gold.—This metal possesses above all others the qualities of utility and beauty, without any deleterious property. It has been in all times regarded as the most perfect and most precious of the metals, and among the more civilized nations has been the standard of value for other commodities. Its peculiar rich hue is well known; and it is the only metal of a yellow color. In its pure state it is as

soft as tin, and is very flexible, but it is capable of receiving a high lustre by polishing with a burnisher, although inferior in brilliancy to steel, silver, and mercury. It possesses little elasticity or sonorousness. Its specific gravity is 19.30—that is, it is more than nineteen times heavier than water, bulk for bulk. In *malleability* it exceeds all other metals; for one grain of it can be beat out into a leaf so thin as not to exceed $\frac{1}{1000}$ th part of an inch in thickness, and which will cover fifty-six square inches; in this state, notwithstanding the high specific gravity, it will float in the air like a feather. But even that is not the extreme limit to which it is capable of being extended; for a coating of gold, which is calculated to be only one-twelfth part of the above thickness, is produced by another process: if a silver wire be covered with gold, it may be drawn out into wire of still greater fineness, and retain a coating of gold; and one grain of gold will in this way coat a surface of wire about two miles and three-quarters in length. In *ductility* it also exceeds all other metals; that is, it can be drawn into finer wire than any other. In *tenacity*, however, it is greatly inferior, standing only fifth in order, in respect of that property when compared with other metals: a wire $\frac{1}{16}$ th of an inch in thickness will not support a greater weight than 150 lbs., whereas iron wire of the same diameter will sustain a weight of 550 lbs. without breaking. It is not a perfectly opaque body like all the other metals, for gold leaf transmits a green light; as may be conveniently observed by laying a leaf between two thin plates of colorless glass, and holding it between the eye and a strong light. It is less fusible than silver, and more so than copper: Mr. Daniel estimates its melting point to be at a heat equal to 2016° of Fahrenheit's scale. It is the most perfect of all conductors of heat; that is to say, if heat be applied to one end of a rod of gold, it will be transmitted from particle to particle, and become sensible at the other extremity of the rod more quickly than through any other substance in nature. Thus while the conducting power of a rod of porcelain is represented by a velocity of 12, of lead by 179, of iron by 374, the velocity of gold is 1000. Gold may be exposed for ages to air and moisture without undergoing any alteration; and a quantity of it has been kept for thirty weeks in a melted state in a glass-house furnace without the loss of a single grain, and without any change in its nature. But if a small portion of it be intensely heated by electricity, or by the oxy-hydrogen blow-pipe, it burns with a greenish blue flame, and is dissipated in the form of a purple powder.

Gold is found, almost universally, in the native or metallic state; but it is seldom quite pure, being generally alloyed, in greater or less degree, with other metals, and usually with silver, copper, or iron. The Prussian chemist, Klaproth, found a native gold from the Altai Mountains to contain as much as 36 per cent. of silver; and Professor G. Rose, of Berlin, by more recent analysis, has found a specimen from the same district to contain 38 per cent., and another from Hungary nearly 39 per cent. He found the gold of the Ural Mountains to contain from 2 to 15 per cent. in general; but one variety so free from foreign admixture as to contain nearly 99 per cent. of pure gold. Boussingault has found the native gold of Colombia to contain from 2 to 36 per cent. of silver. It is found in veins in the primary and older sedimentary rocks, and also in the unstratified rocks that are associated with these, such as granite,

porphyry, and hornblende rock; and sometimes, also, in the more ancient of the secondary strata. The veinstone in which the gold occurs is most generally quartz. In Transylvania small quantities of an ore have been found, in which gold is in combination with a considerable proportion of the rare metal *Tellurium*; and there is a kind of iron pyrites—that is, a sulphuret of iron,—not of very unfrequent occurrence, which contains minute scales of pure gold interposed between the laminae of the pyrites. When gold occurs in veins in solid rocks, it is sometimes regularly crystallized. In the splendid collection of minerals belonging to the Russian noble, Prince Demidoff, there are many beautiful crystals of gold from the Ural Mountains. By far the greatest proportion of this metal, in all countries which produce it, is obtained from alluvial soils, or deposits, where the gold is found in scales, grains, and lumps, rounded by attrition: so that the metal has evidently been derived from pre-existing rocks, in which it was disseminated either in minute scales or veins, and which have been broken up; the fragments having been abraded by the action of water in the same manner as the pebbles of tin-stone in the stream-works of Cornwall, and other places. For the sake of convenience, we shall call this “*stream-gold*.” It is found in the sand and gravel of the beds of many rivers and smaller streams in most countries of the world; but the chief quantity is met with in extensive alluvial deposits, formed by other aqueous causes than the water of existing rivers. The lumps of gold, in such situations, are of very various sizes; and masses have been found in the Ural Mountains of eighteen and twenty pounds weight,—in Colombia, of twenty-five pounds; and one is said to have been found near La Paz, in Peru, of nearly forty-five pounds weight, the value of which, if estimated at \$1. 10s. per ounce, would be 18900. A considerable portion of stream-gold appears to have been derived from auriferous pyrites; for almost all the sands from which this metal is gathered are of a deep blackish-brown color, and are highly ferruginous. It is a remarkable and not a very explicable circumstance that, in countries which contain deposits of alluvium rich in gold, and the materials of which must have been derived from rocks at no very great distance, it has rarely happened that the attempts to find the metal in the neighboring rocks have been successful. It may be asked, how gold comes to be so often found in alluvial soils, and that other metals should not be met with in the same way? Platinum is so found, and so is silver, but only very rarely. The reason is, that the ores of other metals are liable to decomposition by exposure to air and moisture; and, therefore, although they might have been originally in fragments, like the other materials of the rocks that were broken up, they would gradually disappear by decomposition; whereas the gold, from its indestructible nature, remains unchanged, except in form. In the same way stream-tin has been preserved, because the oxide of tin is not affected by air and moisture.

To describe the methods employed to separate gold from the other minerals with which it is combined would lead us into somewhat tedious details. The great value of gold makes searching after minute quantities profitable, which would never be practised with other metals. The usual mode of separation is by a process called *amalgamation*, which is founded on the property which mercury (or quicksilver)

has of combining very readily with gold, and of being easily separated from it again by the application of heat. The etymology of the word is Greek, viz., *ama*, together, and *gameo*, to marry; expressive in this way of the union of the gold with the quicksilver. Amalgamation is effected in this manner: the ore, broken to pieces and freed as much as possible from stony impurities, is reduced to powder, and made up into a paste with salt and water. Quicksilver in proper proportion is added, and the whole is well beaten and shaken together, and kept at the temperature of boiling water for some days, till the union is effected; after which the earthy matter is washed away, and the residue is subjected to distillation, by which the quicksilver is separated, and at the same time recovered in great part, and the gold, usually containing a little silver, is left behind. This is the usual process followed in Mexico and South America. In Hungary the gold is generally purified by another process, called *cupellation*. This depends on the property which lead and copper, the metals with which the gold is there mixed in the ores, have of attracting oxygen from the air when exposed to a strong heat, and which the gold does not. The ores are well roasted, to drive off the sulphur they usually contain, and are fused in several successive operations. The metallic mixture, freed from stony matter thus obtained, is put into a vessel made of bone-ashes, called a *cupel*; it is made of that material because it forms a porous texture, and is, at the same time, very refractory in the fire. A strong blast of intensely-heated air is now made to pass over the metal in a state of fusion, and the lead and copper becoming oxidated, are absorbed by the cupel, or skimmed off, and the gold is left behind. The lead is the great agent, for its oxide is easily fusible into a glassy substance, which sinks into the cupel, carrying the other impurities along with it; so that if the ore does not naturally contain much lead, a portion is added. We have described these processes only very generally: there are many delicate manipulations in the mode of conducting them, upon which success in the result greatly depends.

In our next section we shall proceed to describe the principal sources from which gold is derived. The ‘*Historical Inquiry into the Production and Consumption of the Precious Metals*,’ by William Jacob, Esq., may be consulted with advantage by those who are desirous of minute information; and we have ourselves relied upon it for many of the facts contained in the following sections.

SILVERSMITH'S PORTABLE FORGE.—

We were much pleased with the examination, at the machine shop of Mr. G. N. Miner, No. 30 Gold street, of a *Portable Forge* for the use of jewellers and others who require a small manageable fire. It consists, first, of a cast iron fireplace, much resembling a Franklin stove, with a pot, about the size and shape of the crown of an old-fashioned quaker hat, inverted, and attached to the bottom of the hearth of the stove, into which is inserted a tin air pipe, leading from the bellows, contained in a box of 37 inches long, 24 inches wide, and 16 inches deep, upon the top of which the forge or stove stands, occupying very little space, and it may be moved by one man to any part of the shop. The bellows is put in motion by the foot of the man who uses

the forge. This very convenient apparatus was invented, we are informed, by Mr. —, of Peekskill, Westchester county, New-York, and one of them may be examined at No. 30 Gold street, to which we would call attention.

SPEEDWELL IRON WORKS.—Speedwell is a small village situated on the Whippany river, about one mile from the pleasant town of Morris, Morris county, N. J., and celebrated for its manufactories of machinery. Located as it is in the very heart of an iron region, and supplied with an unfailing water power, it has advantages for the making of machinery which few works possess. They have been in operation thirty years, and have acquired, from the superior quality of the work, in strength, durability, and finish, extensive patronage and celebrity. The enterprising and intelligent proprietors, S. VAIL & SON, having gradually enlarged the works from their commencement, and improved the machinery as the times demanded, have spared no pains in providing the manufactories with every kind of apparatus which is necessary for the execution of the most difficult pieces of work, and with the greatest care and dispatch. At present the works consist of several shops, in which machinery in its various stages is made. The first is the forging department, where, by peculiar facilities and helps, afforded by the locality of the establishment, its water power, driving a trip hammer and also a pair of bellows, supplying all the fires with wind, its cranes and railways, is made the heaviest and most unyielding pieces of machinery. The next branch is its finishing departments, which are three. Every advantage is also here taken of its water power, and its apparatus for finishing is simple and effective. It has also a brass-foundry, and an iron-foundry erecting, a factory for spinning cotton not yet finished, a sash factory in full operation, where the mortices, tenons, &c. are made by machinery, and a saw-mill. The village is quite romantic, and its scenery enchanting—surrounded on every side by steep and high hills, overlooking the busy scenes below, and the spacious lake which spreads before the eye in beauty, embosomed between two large hills, whose verdant and woody sides slope to the water's edge.

Visit to the Messrs. Reynolds' Establishment at Kinderhook, New-York.

To the Editor of the *Mechanics' Magazine*:

Sir,—As my entire mental constitution is so completely tuned, and adapted to mechanical operations, that I should almost take pleasure in being ground up in any establishment which consisted chiefly of machinery, you would naturally expect to find me visiting and reconnoitring and examining and philosophizing upon, in mass and in detail, every mechanical, and especially every machine using establishment, which comes in my way; or rather which I come in the way of, even if I have to go considerably out of my way to do it.

In one of these reconnoitring excursions, which I lately made to that part of the town of Kinderhook, distinguished in the Golden Knickerbocker day by the cognomen of Valatie, partly to examine the progress of mechanical improvements there and partly to visit my friends, the Reynoldses, of that place—for I scarcely need tell you that every man who excels in nice mechanical operations is my friend, or, at any rate, I am his—I saw some improvements which I think ought to be duly noticed in your useful Magazine.

But before going into the detail of of those improvements, I hope my said friends will pardon the liberty I take, in offering you some remarks on the persons by whom the improvements have been made. They are three brothers, who appear, at least to me, to possess in an uncommon share that kind of native intellect which, when properly cultivated, becomes what is commonly called mechanical ingenuity. They are yet in early life, and have served regular apprenticeships at those branches of business, which, when combined together, embrace all the operations of machine making. They are united together, not only by the strongest tie of consanguinity, but by a congeniality of mind rarely to be met with in three members of the same family. They have, from the earliest periods of their apprenticeships, devoted their leisure hours industriously to the acquirement of such branches of science as might aid them in future business; and the joint result of their studies amounts, I should think, to a stock of mechanical science, perhaps not surpassed, if equalled, in any other establishment of the kind in this country. As their seasons for study must have been limited, it would seem they have so managed their subjects that, whenever one is at a loss, another is ready to prompt him. By the joint avails of their industry, previously to their uniting, they had acquired the pecuniary means of procuring an excellent water privilege, erecting shops, &c., to make a very respectable beginning. Every article in their shops exhibits a degree of skill in plan and arrangement, and of taste and neatness of workmanship, which are of the highest order. I am confident the most competent judge would, upon critical examination, pronounce their establishment an honor to themselves and the country.

But to return to the improvements.

The first which attracted my notice is a saw-mill, on a scale about half the size of the common saw-mill, but which may be as suitably applied to use on one scale as another. I think any person with a mechanical eye, who sees it, will concede that the propelling power necessary for a saw-mill of the common form and size, with one saw, would on this plan drive four of the same size. I will endeavor to give you a brief description, together with a diagram, which will, I think, make it clearly understood.

The saws are held and operated by

two balance beams or walking beams, similar to those used in the common steam engine. These beams are placed horizontally one above the other, exactly parallel, and their distance from each other about twice the length of the saw, more or less. Each beam is supported in the middle by a strong fulcrum or axis, resting on its pivots or bearings; which pivots or bearings are supported in the following manner.

The bearings of the lower axis rest upon strong side timbers of an oblong frame, about half way from the bottom to top, which frame is to sustain on its top the carriage and log or other timber to be sawed, with the necessary apparatus and fixtures for fastening the log, and moving it forward against the saw.

The axis of the upper beam is supported in proper boxes in two hangers or timbers, projecting downward from the framework of the building above, and must of course be securely braced.

On each end of each of these beams is a segment of a circle, the radius of which is exactly half the length of the beams; and each segment will contain about 70 or 80 degrees of a circle, more or less. Each segment has a flat steel spring, about the length of the periphery of the segment, and as wide as the thickness of the same, and the thickness of the springs about one-third or one-half that of the saw. One end of each of these springs is attached to the outer end of one of the segments, that is, to the lower end of the lower segments and to the upper end of the upper segments. The faces of the segments being made smooth, the springs will, of course, when bent to them, lie flat.

It will be readily perceived, that if the inner or approximate ends of the springs at each end of each beam, that is, a top spring and a bottom spring at each end of the beams, were connected together, in any manner so as to draw them tight, and the beams were, at the same time, placed in a parallel and horizontal position, the string, or whatever connected the top and bottom beams, with their respective springs, together, would make part of a tangent line from the centre of one segment to the centre of the other. When the beams are thus placed, if the ends are moved alternately up and down, the lines of connection between the top and bottom beams and segments will move exactly up and down, without any lateral motion whatever. If, then, these two connecting lines consist of two saws, attached to the aforesaid springs, the saws will move up and down as accurately as if carried up and down with a saw-gate, and perhaps more so. And if the power of a crank motion be applied to the centre end of either of the segments, both saws will be put in operation, one going up as the other goes down, and vice versa.

These saws may stand with their teeth in any direction, either to cut parallel with the beams or at right or any other angle. We have then two complete saw-mills, operated by the same power

which would operate one; and a gang of any number of saws may be operated in the same manner. If, however, the saws are set so as to cut parallel with the beams, one saw will interfere with the other; it will be necessary therefore to have the saws cut at right angles with the beams, and then, of course, the two logs can move parallel with each other.

By this plan, the weight necessarily moved up and down with the saws will be but a small part of the weight of the common saw-gate, and one saw completely balances the other, so that the power of a child will give the saws the necessary motion, except the resistance produced by cutting.

As the moving the log and other subservient operations may be effected as in the common saw-mill, no description is therefore necessary. The diagram will show the mode of hanging and operating the saw, which forms the basis of the improvement.

Several other improvements found in the same establishment will be noticed hereafter.

S. B.

[From the London Mechanics' Magazine.]

STEREOTYPE SUBSTITUTES.

SIR,—A writer in your Monthly Part for January, alludes to the probability of an invention by which the letters may be transferred from printed books to a kind of stereotype plates, by which copies may be infinitely multiplied, without a new composition or re-setting of types. Chemistry will no doubt add this to the numerous obligations it has already conferred upon the world; and the printing once transferred, the Chinese, or indeed the lithographic printing, may satisfy us, that the letters will be sufficiently in relief. The letter of your correspondent has suggested to me a question, whether lithography does not already supply us with a cheap mode of preserving a fac-simile copy of any types which have once appeared in the page of the printing compositor? What objection would there be to keep a copy of any printed page on transfer paper? Letter-press printing has long been successfully transferred to the lithographic stone, and if the copy taken off on transfer paper would keep for any length of time, we might, at very trifling expense, produce a few copies of a work, whenever they were wanted. I hope some of your scientific readers, who have made chemistry their study, will be so obliging as to solve this question: whether a copy made on transfer paper will keep for any length of time without being decomposed? In many cases the benefit to the literary world would be very great, from having the means of keeping (and renewing) a copy of a printed page, for immediate use, as type, in a space scarcely greater than that occupied by a printed book, and from it to have the power of producing copies, at an expense not worth any consideration, when compared with the cost of re-setting the press. I am, &c. B. B.

NEW-YORK AMERICAN.

JULY 25—31, 1835

LITERARY NOTICES.

ANNE GREY. A Novel. Edited by the author of *Granby*. 2 vols. CAREY, LEA & BLANCHARD. —An agreeable and sprightly novel—evidently and unmistakably from a female pen, and developing, in the person of the heroine, ANNE GREY, one of the sweetest female characters imaginable—a character, not of striking contrasts, nor of any of the ordinary marvellous qualities of professed heroines, but such, as a fine temper, good example, and a well cultivated heart, as well as understanding, may contribute to form at any time. The cousin's character, however—though necessary to the story, which could not get along without her evil machinations—is an incredible exaggeration.

THE GIPSY, a Tale by the author of *Richelieu, Mary of Burgundy, &c.*, 2 vols. New York, HARPER & BROTHERS.—To say that this is a tale of power, is only what might be expected, after designating the author; but to say that it will add to the fame of him who wrote *Richelieu*, and *Mary of Burgundy*, is what our literary conscience will not permit us to do. We were disappointed in the work—both as to interest and execution—there is too much diffuseness, too decided a purpose to spin it out, to the required number of pages, and to cram the ever craving maw that cries "copy, copy, more copy." But it is, nevertheless, a tale that will be read.

THE LIFE OF EDMOND KEAN; 1 vol., New York, HARPER & BROTHERS.—A player's life should, on the Shakespearian dictum that "all the world's a stage," be a sort of epitome of humanity under all its varying phases. And so we suppose it is—at any rate the biographies or personal memoirs of players, when executed with any degree of talent, have always been popular reading.

The author of this book—though it appears anonymously, is stated to be *Barry Cornwall*.—Whoever he be, he has executed his task in an attractive manner, and one removed, in the farthest degree possible, from that of mere book-making—for, doubtless, the materials under his hands, but for judicious compression, might easily have been swelled to volumes as thick and dull, as *Boaden's Life of Kemble*.

THE GENTLEMAN'S POCKET FARRIER, &c. &c. By F. TUFFNELL. N. Y.—Office of the *N. York Farmer*, and T. & C. WOOD.—We like this convenient little manual. It goes into the pocket, and has, as it seems to us, receipts—and we dare say they are good ones, since they are said to be founded on many years' experience—for all the accidents of lameness, galls, &c. to which horses are liable on a journey.

[From the *London Athenæum*, of June 13th.]

Personal Recollections of the late Mrs. Hemans.*

There are few cases in which delicacy and feeling are more entirely tested, than when the surviving friends of those who were gifted and celebrated while on earth, are called upon to determine in

* Perhaps this is a proper place to advert to a correction of a fact in our obituary notice of Mrs. Hemans, which has appeared, it is said, on authority, in the *Liverpool Standard*. She is there stated to have been born in Duke street, and not in St. Anne street. As an exact fact thus published, we can have no hesitation in submitting to correction. The same paragraph, however, contains a notice of her domestic life, equally ill-considered and incorrect: it is all wrong, both to the dead and the living, to mistake occurrences, about which there can be no mistake.

what time and in what measure some account may be offered to the public of their personal history and private character. Such, at least, is my feeling, in attempting to collect my remembrances of my deceased friend, Mrs. Hemans. I am afraid of saying too much, lest I be thought premature and unfeeling, in thus minutely dwelling upon the manners and habits of one scarcely cold in her grave. I am afraid of saying too little, lest those who knew her less, should think it requisite to complete the picture, by additions which bear little resemblance to the original. Had I merely consulted my own inclinations, the following notices would have been deferred some time; for who is there that can turn over the pages of his memory to seek for relics and memorials for those who have recently passed away, without a feeling of disinclination to produce such feelings, to the gaze and criticism of the public?

When I first became acquainted with Mrs. Hemans, her fame was at its brightest, and her lyrics published in the different periodicals—her 'Forest Sanctuary,' and above all her 'Records of Woman,' (probably from the happy choice of its subjects) had not only raised her name high in the estimation of all classes of readers, but had excited considerable curiosity, and I really believe genuine interest, as to the person and fortunes of the writer. She was, however, unknown, save to a small and select circle of friends—some spoke of her as an old and experienced verse-wright, some, remembering her juvenile poems, and forgetting that Time had since been at work for some fifteen years or more, described her as still very young and very beautiful—she was almost canonized by the serious; her claim to something more than ephemeral reputation of a young lady writer, was admitted by stern critics; in short, within two years,—dating from the publication of her 'Seige of Valencia,'—she had taken a permanent place in the republic of letters; and it was natural that the world, always preferring the peep behind the curtain, to the finest acted nature before it, should express great anxiety and solicitude to know "what she was like."

At this time, then, the death of her mother, and the marriage of her sister, were the cause of Mrs. Hemans' breaking up her establishment in Wales, and taking up her residence at Wavertree, a pleasant village about three miles from Liverpool. She had made choice of this situation for her sons, and cultivated society for herself. But the mistake she made in thus choosing, was a great one; Liverpool was then singularly deficient in good schools, and its society was too much broken up into small circles, too completely under the dominion of a money aristocracy, to offer much that was congenial to her own tastes and pursuits. She was too imaginative and fanciful to be thoroughly understood by that party to which Roscoe and Currie had formerly belonged; they found that the brilliant things which she threw out, the spontaneous overthrows of her peculiar mind, "proved nothing; and they did not perceive the elevation of thought, and the frequent religious feeling which also formed a part of her character. The less intelligent, who discovered that she did not enjoy dinners, balls, and concerts, after their fashion—and there is no code so arbitrary as the statute of manners in a provincial town—who remarked one or two singularities in her dress, and were frightened by her allusions to things and feelings of which they knew nothing, kept aloof from her, with suspicion and uneasiness.

I mention these things, neither in reproach nor derision—they are the natural and inevitable conditions of a society so constituted as the society of Liverpool—but simply as accounting for the manner in which Mrs. Hemans held herself in comparative retirement, and confined her intercourse (willingly given) to a very few. She had never learned the failings and prettinesses of the world's manners; nor, on the other hand, did she find it agreeable always to sit upon her throne, as it were, with her book of magic upon her knee, and her conjuring wand in her outstretched arm. Her humor was sprightly and searching, as well as original; she could talk delicious nonsense, as well as inspired sense; and the utilitarian and the serious, who would fain have had a moral placarded and paraded upon every chance phrase of conversation, "wondered and went their way." At this time she was sought out in her retreat by every species of literary homage, from every corner of England and America; gifts, offers of service, letters of introduction crowded upon her:—literary engagements were pressed upon her, from the divinity

treatise to the fairy tale, which she simply evaded by pursuing her own way; and yet she was never so delightful, never so happy, as when she could come in, like an inmate, to the firesides of the few who understood her—at times making most pleasant merriment of the notoriety of her lot; at times, when graver subjects were touched upon, rising to a lofty and glowing eloquence, which I have seldom heard reached, certainly never surpassed.

The house which Mrs. Hemans occupied was too small to deserve the name; the third of a cluster or row, close to a dusty road—and yet too townish in appearance and situation to be called a cottage. It was set in a small court, and within was gloomy and comfortless; its parlors being little larger than closets: and yet she threw something of her own spirit round her, even in so unpromising an abode,—and with her books, and her harp, and the flowers which sometimes half filled her little rooms, they presently assumed a habitable, almost an elegant appearance. Sometimes, indeed, the scene was varied by odd presents, literary and others. I remember once paying her a visit, when a persevering writer, personally unknown to her, had sent her a hundred sonnets, printed on separate slips of paper, for inspection and approval; these had not yet been consigned to the "chaos drawer," as she used to call it, from which many a precious piece of folly and flattery might have been disinterred for the amusement of the public; and as the day was windy, and the window chanced to be open, this century of choice things, was flying hither and thither, much to our amusement—a miniature snow storm, chased by her boys with as much glee as if they had been butterfly hunting. Scarcely had she settled herself at Wavertree, than she was besieged by visitors, to a number positively bewildering; a more heterogeneous company cannot be imagined. Many came merely to stare at the strange poetess,—others to pay proper neighborly morning calls, and these were surprised to find that she was not ready with an answer, when the talk was of housekeeping and like matters. Others, and these were the worst, brought in their hands small cargoes of cut-and-dry compliments, and as she used to declare, had primed themselves for their visit by getting up a certain number of her poems. Small satisfaction had they in their visits; they found a lady neither short nor tall; though far from middle age, no longer youthful or beautiful in her appearance, (her hair, however, of the true auburn tinge, was as silken, and as profuse and curling as it had ever been;) with manners quiet and refined, a little reserved and uncommunicative, one, too, who lent no ear to the news of the day—

Who gave the ball, and paid the visit last.

The ladies, however, when they went away, had to tell: that her room was in a sad litter with books and papers, that the strings of her harp were half of them broken, and that she wore a veil on her head like no one else. Nor did the gentlemen make much way by their Della Cruscan admiration; in fact, the stock of compliment, once being exhausted, there remained nothing to be said on either side: though there were none more frankly delighted, or more keenly sensible of the genuine pleasure she gave by her writings than Mrs. Hemans. Her works were a part of herself, herself of them; and those who enjoyed and understood the one, enjoyed and understood the other, and made their way at once to her heart. I must not forget to allude to what Charles Lamb calls the "albumen persecution" which she was called upon to endure. People not only brought their own books, but those of "sister and my sister's child," all anxious to have something written on purpose for themselves. One gentleman, a total stranger to her, beset her before (as the housewives say) "she was fairly settled," with a huge virgin folio splendidly bound: which he had bought on purpose "that she might open it with one of her exquisite poems." On the whole she bore her honors meekly, and for a while in the natural kindness of her heart, gave way to the current, wishing to oblige every one. Sometimes, however, her sense of the whimsical would break out; sometimes it was provoked by the thorough-going and coarse perseverance of the intrusions, against which it was difficult to guard. What could be done with persons who called thrice in one morning, and refused to take their final departure till they were told "when Mrs. Hemans would be at home?" It was on one of these occasions, that she commissioned a friend

others, in a lovely noth, to procure her "a dragon to be kept in her court-yard." At another time (and that I well remember was a flagrant case,) her vexation worked itself off in a no less cheerful manner:

"They had an album with them, absolutely an album! You had scarcely left me to my fate—oh! how you laughed the moment you were free!—when the little woman with the inquisitorial eyes, informed me that the tall woman with the superior understanding—Heaven save the mark!—was ambitious of possessing my autograph—and with 'leaped in lightning forth'—the album. A most evangelical and edifying book it is truly; so I, out of pure spleen, mean to insert in it something as strongly savoring of the Pagan miscellany as I dare. Oh! the 'pleasures of fame!' Oh! that I were but a little girl in the top of the elm tree again! Your which enduring F. H."

I cannot give this, and the following fragments selected from a mass of correspondence, with the different members of a family circle, without simply desiring the reader to remember that all of them were notes written—for such was her nature—from the impulse of the moment, during a period of unbroken intercourse and confidence. The graver as well as the gayer passages they contain, are so entirely characteristic, that I have not thought it right to withhold them altogether; though some may be so wound up with the less important personal interests and feelings of those whom she addressed, as not to be separable from them. All that was possible, however, has been detached, and, in so doing, I have sacrificed, with regret, much that is brilliant and striking, and speaks of and to the heart.

Besides all these home troubles, were the visits of strangers, not "angels' visits, few and far between"—from east and west, and north and south, they came—not a few from America. The admiration entertained by the Americans for her genius as sincere as it is creditable to themselves. I remember seeing a beautiful girl from New York town, quite pale with excitement at the thoughts of being presented to the poetess. "Her friends at home," she said, "would think so much of her, if she could only say she had seen Mrs. Hemans." Another lady, of stouter fibre, also from across the Atlantic, came sturdily upon her, with a box full of family portraits in her hand, and a mouth full of the oddest protestations of regard possible, and, on taking leave of Mrs. Hemans, remonstrated with her on the melancholy tone of her poetry in general, and entreated to be allowed to introduce a friend of her own, whom she might lean upon "as a perfect walking-stick of friendship," under which happy support, she prophesied that her verses would presently become cheerful—and the gentleman was "long, and lank, and brown," and suitable to the simile. These were mere acquaintances of the hour; but, among her visitors from far-away places, came friends too, and when I remember the evenings I have passed in her little parlor, with herself and Miss Jewsbury, (alas! too early called away!) and Mary Howitt, and Dr. Bowring, and others, I cannot but regret that I have no more specific record of the conversation, which was struck out in this encounter of minds of no common order. It was varied and sparkling, and suggestive beyond most that I have since heard. The two following notes refer to this period—the second to a cruel murder perpetrated upon that fine but most extravagant poem of Shelly's, 'Mary Anne's Dream,' which a gentleman had insisted upon reading aloud, much in "Eccles' vein":—

"Thank you for your very kind note: I was much better when it arrived, but did not feel the less gratified by all the cordial kindness of its expressions. My complaint is, indeed, most pertinacious, if not hopeless, as I am assured, and indeed convinced, that it is caused by excitements, from which, unless I could win "the wings of a dove and flee away" into a calmer atmosphere, I have no chance of escaping. I have, therefore, only to meet it as cheerily as I may—and there is a buoyant spirit yet unconquered, though often sorely shaken within me.

"Do you know that I have really succeeded in giving some thing of beauty to the suburban court of my dwelling, by the aid of the laburnums and rhododendrons, which I planted myself, and which I want you to see whilst they are so amiably flowering. But how soon the feeling of home throws light and loveliness over the most uninteresting spot. I am beginning to draw that feeling around me here, and consequently to be happier.

"Did you ever see a letter with a symphony? I

call the enclosed one of that class. After many and long wanderings it reached me this morning with that awful Titanic poem, the —; the sight of which really renews all the terrors of 'Charlemagne.' The opening of Mr. —'s letter strikes me as being so very original, that I send it for your edification."

"I fear you were very unwell the other evening, or did you run away so early, to escape the infliction of another 'Dream?' I was quite afraid of looking at you, lest I should have laughed. I had such a levee, yesterday morning, I was as much inclined to run away from all, as from Bishop and Dean, and sofa-table, and Chinese puzzles of old. — and — called upon me—what a butyraceous looking pair they are! Something was said of Montgomery's 'Pelican Island,' and with your comparison of the penguin, and my Welsh recollections full in my head, I had the narrowest escape possible of calling it 'Puffin Island.' How do poets contrive to grow so fat? I suppose it is only translators who can do so, and what the country people call 'nice quiet gentlemen' poets. However, I liked them both, they looked so extremely comfortable.

"* * * I send you the Moravian air, and this is the old Swedish tradition of which I was speaking to you last night, when the public entered and interrupted me. There is a dark lake somewhere among the Swedish mountains—and in the lake there is an island of pines—and on the island an old castle—and there is a spirit harper who lives far down in the lake and when any evil is going to befall the inhabitants of the castle, he rises to the surface, and plays a most mournful ditty on the shadowy heart, and they know that it is a music of warning. I met with it in "Olaus Magnus," such a strange wild old book; did you ever read it?"

These last notes are further interesting, as showing what may be well called "the rainbow hue" of the poet's mind, how near to each other dwell its livelier and its deeper feelings. But the world in general is singularly unwilling to admit this double power and I have often thought that a fear of its censure which Mrs. Hemans confined herself—though and remark, narrowed the class of subjects to again it may be said, that she never wrote save when in earnest, and that the lonely and prevailing thoughts of her mind, (I speak of it in a comparative calmness—there were times when they were of a much sadder hue,) were of that lofty, and noble, and chivalresque character, which speaks out in her poetry; something of this will be seen in further selections from her letters, which I shall give.

It was during Mrs. Hemans's residence at Wavertree, that she paid two long visits to Scotland, and a third to the Lakes. Perhaps the time she spent in Edinburgh and its neighborhood, was the most public part of her life—the sensation of curiosity she excited among the circles of "modern Athens," was great—and the attention lavished on her must, some of it, have been hard to bear with a grave face. One lady pursued her to the Castle garden, and introduced herself "as having discovered her to be Mrs. Hemans by a secret sympathy, which assured her she could not be mistaken"—one, herself a writer of no inconsiderable fame, desired to know, "whether a bat might be allowed to appear in the presence of a nightingale." These anecdotes are gathered from eye-witnesses—but a part of her Scotch journey will be best told in one or two of her own letters:—

Chieftwood, July, Tuesday morning.

"Whether I shall return to you all "brighter and happier" as your letter so kindly prophesies, I know not: but I think there is every prospect of my returning, more fitful and wilful than ever; for here I am leading my own free native life of the hills again, and if I could but bring some of my friends, as the old ballad says, 'near, near, near me,' I should indeed enjoy it—but that strange solitary feeling which I cannot chase away, comes over me too often like a dark sudden shadow, bringing with it an utter indifference to all things around. I lose it most frequently, however, in the excitement of Sir Walter Scott's society, and with him I am now in constant intercourse, taking long walks over moor and woodland, and listening to song and legend of other times, till my mind forgets itself, and is carried wholly back to the days of the Sigian and fiery Cross, and the wild gatherings of Border chivalry. I cannot say enough of his cordial kindness to me; it makes me feel when at Abbotsford, as if the stately rooms of that ancestral looking place, were old familiar scenes to me. Yesterday he made a party to show me 'the pleasant banks of Yarrow,' about ten miles

from hence; I went with him in an open carriage, and the day was lovely, smiling upon us with a real blue sunny sky, and we passed through I know, not how many storied spots, and the spirit of the master mind seemed to call up sudden pictures from every knoll and cairn as we went by, so vivid were his descriptions of the things that had been. The names of these scenes had to be sure, rather savage sounds; such as 'Slate Man's Lea,' 'Dead Man's Pool,' &c., but, I do not know whether these strange titles did not throw a deeper interest over the woods and waters, now so brightly peaceful—we passed one meadow on which, Sir Walter's grandfather had been killed in a duel—'Had it been a century earlier,' said he, 'a bloody feud would have been transmitted to me, as Spaniards bequeath a game of chess to be finished by their children,—and I do think, that had he lived in those earlier days, no man would have more enjoyed what Sir Lucius O'Trigger is pleased to call 'a pretty quarrel.' The whole expression of his benevolent countenance changes, if he has but to speak of the dirk or the claymore: you see the spirit that would 'say amidst the trumpets, ha! ha!' suddenly flashing from his gray eyes, and sometimes, in repeating a verse of war-like minstrelsy, he will spring up as if he caught the sound of a distant gathering cry.

"But I am forgetting beautiful Yarrow, along the banks of which, we walked through the Duke of Buccleugh's grounds, under old, rich, patrician looking trees; and at every turn of our path, the mountain stream seemed to assume a new character, sometimes lying under steep banks, in dark transference, and sometimes

Crested with lawney foam,
Like the mane of a chesnut steed.

And there was Sir Walter behind me, repeating, with a tone of feeling as deep as if then only first awakened.

They sought him east—they sought him west,
They sought him far with wail and sorrow;
There was nothing seen but the coming night,
There was nothing heard but the roar of Yarrow.

It was all like a dream. Do you remember Wordsworth's poem, 'Yarrow visited?' I was ready to exclaim in its opening words, 'And is this Yarrow?' There was nothing to disturb the deep and often solemn loveliness of the scenery; no rose colored spencer, such as persecuted the unhappy Count Forbin amidst the Pyramids—Mr. Hamilton, and Mrs. Lockhart, and the boys who followed us, were our whole party; and the sight of shepherds,—real, and not Arcadian shepherds,—sleeping under their plaids, to shelter from the noon-day, carried me at once into the heart of a pastoral and mountain country. We visited Newark Tower, where, amongst other objects that waken many thoughts, I found the name of Mungo Park, (who was a native of the Yarrow vale,) which he had inscribed himself shortly before leaving his own bright river, never to return. We came back to Abbotsford, where we were to pass the remainder of the day, partly along the Ettrick, and partly through the Tweed: on the way, we were talking of trees—in his love for which, Sir Walter is a perfect Evelyn. I mentioned to him what I once spoke of to you, the different sounds they gave forth to the wind, which he had observed: and he asked me, if I did not think that an union of music with song, varying in measure and expression, might in some degree imitate, or represent, those 'voices of the trees.' He described to me some Highland music of a similar imitative character, called the 'Notes of the Sea Birds'—barbaric notes truly they must be. In the evening, we had a great deal of music; he is particularly fond of national airs, and I played him many, for which, I wish you could have heard how kindly and gracefully he thanked me. But, O! the bright swords! I must not forget to tell you how I sat, like Minna in the 'Pirate,' (though she stood or moved, I believe,) the very 'Queen of Swords.' I have the strangest love for the flash of glittering steel, and Sir Walter brought out, I know not how many gallant blades to show me; one which had fought at Kilbernie, and one which had belonged to the young Prince Henry, James the First's son, and one which looked of as noble race and temper as that with which Cœur de Lion severed the block of steel in Saladin's tent. What a number of things I have to tell you. I feel sure, that my greatest pleasure from all these objects of interest, will arise from talking them over with you when I return. I hope you have received my letter with an account of the Rhymer's Glen, and the

little drawing of Chiefswood, for which I now send you a pendant in one of Abbotsford, which is at least recommended by its fidelity."

SUMMARY.

JOHN RANDOLPH OF ROANOKE.—"E'en in his ashes live his wonted fires," for even now that he has long ceased to be of the number of the living, the peculiarities of his temper, keep alive the interest about him. The Virginia Court, after being occupied some time about the validity of certain of his wills, have decided by a bare majority in favor of that of 1832. An appeal is to be taken. Meanwhile, the Richmond Enquirer publishes that will, which we subjoin. We agree with the Enquirer that it is "a remarkable document," and marked with "originality"—but what does the Enquirer mean in saying it is "stamped with the genius of that extraordinary man?"

[From the Richmond Enquirer.]

GENERAL COURT.—*John Randolph's Will.*—On Friday, the argument on the Will was continued—Mr. John M. Patton appeared as counsel for the committee of Henry St. George Randolph, the nephew of John Randolph. Mr. P.'s object was to set aside all the Wills which had been offered for probat. Gen. Walter Jones closed the argument on Friday, in opposition to the Will of January 1, 1832. On Saturday, Mr. Chapman Johnson concluded the argument in support of the Will.

Yesterday, the Court proceeded to pronounce their opinion on the validity of the Will of 1832—but without assigning their reasons.

The following Judges, decided in favor of the Will, viz: Judges Saunders, Parker, Field, May, Duncan and Estill. The following Judges decided against the Will, viz: Judges Smith, Lomax, Scott, Thompson and Clopton.

The Will has, therefore, been admitted to probat by a majority of one. But an appeal has been taken to the Court of Appeals.

IN THE NAME OF GOD, AMEN.—I, John Randolph, of Roanoke, in the county of Charlotte, and Commonwealth of Virginia, do ordain and appoint this my last Will and Testament, hereby revoking all other Wills and Testaments and codicils whatsoever, in manner and form following; that is to say: On the first day of January, one thousand eight hundred and thirty-two, to which I have set my hand and affixed my seal, binding my heirs and assigns forever.

I give and bequeath all my estate, real and personal, in possession or action, reversion or remainder, to John C. Bryan, only son of John Randolph Bryan and Elizabeth Coalter his wife, daughter of my dear sister Fanny, for and during the life of the said John C. Bryan, with remainder to his eldest son, in fee simple, to him and his heirs forever: and in defect of such issue, then to the son of Henry St. George Tucker, called John Randolph, after me, for and during his natural life, with remainder to his eldest son; and, in defect of any such issue, then to Tudor Tucker, brother of the aforesaid Randolph Tucker, for and during his natural life, with remainder to his eldest son.

And I do hereby appoint my friends, Wm. Leigh of Halifax, and my brother, Henry St. George Tucker, President of the Court of Appeals, Executors of this my last will and testament, requiring them to sell all the slaves and other personal or perishable property, and vest the proceeds in Bank stock of the Bank of the United States, and in default of there being no such Bank, (which may God grant, for the safety of our liberties,) in the English three per cent. Consols, and in case of there being no such stocks (which also may God also grant for the salvation of Old England,) then in the United States three per cent. stock, or in default of such stock, in mortgages on land in England.

From the sale of my perishable property I except my library, books, maps, charts, and engravings included, my pictures, plate, household linen, and the furniture of my bed chamber in the old house, and all the furniture in the new house, wines, together with such other articles as my said Executors may deem proper to keep for the benefit of the heir. And my will and desire is, that my said Executors may select from among my slaves a number, not exceeding one hundred, for the use of the heir, the remainder to be sold. I also desire that my Bushy Forest Tract of land may be sold

and made chargeable with such debts and legacies as hereafter I may see fit to give, when I shall have more leisure to make my Will—this being made in consequence of having cancelled a former Will this night, in presence of William Leigh aforesaid, the sole Executor under that Will, and joint Executor under this Will, which I make to guard against the possibility of dying intestate.

I have in the Bank of Virginia upwards of 20,000 dollars, of which sum I desire payment to be made for the land purchased by me the day before yesterday, of Elisha E. Hundley; and I bequeath the remainder to be equally divided between my said Executors, Wm. Leigh and H. S. C. Tucker, Esquires; and I further charge my Bushy Forest estate with a further legacy to John Randolph Leigh, youngest son of Wm. Leigh aforesaid, of five thousand dollars.

And it is my will and desire, that no inventory be taken of my estate, except of slaves and horses, and that no security be given by, or required by my said Executors, having full faith in their honor, neither shall they be held to account to any Court or persons whatsoever, for their discharge of this trust so confided by me in them.

To Dr. John Brockenbrough I leave all my French plate, now in Richmond at J. P. Taylor's. Also my chariot and harness, and the horses called John Bull and Jonathan, alias John W.

To John Wickham, Esquire, my best of friends without making any professions of friendship for me, and the best and wisest man I ever knew, except Mr. Macon, I bequeath my mare Flora, and my stallion Gascoigne, together with two old-fashioned, double-handled silver cups and two tankards, unengraved—the cups are here and the tankards or cans in Richmond, and I desire that he will have his arms engraved upon them, and at the bottom these words, "From J. R. of Roanoke to John Wickham, Esquire, a token of the respect and gratitude which he never ceased to feel for his unparalleled kindness, courtesy and services."

To Nathaniel Macon I give and bequeath my oldest high silver candlesticks, my silver punch ladle with whalebone handle, a pair of silver cans with handles and my crest engraved thereon, my hard metal dishes that have my crest of J. R. in old English letters engraved thereon, also the plates with the same engraving, the choice of four of my best young mares and geldings, and the gold watch by Roskell, that was Tudor's, with the gold chain; and may every blessing attend him, the best and purest and wisest man I ever knew. To my brother Henry Tucker, my gold watch by Barwise.—The chronometer by Arnold, and knives and forks, &c. from Rodgers, to go to the heir. To William Leigh, all duplicates of my books, and my brood mares Last Chance and Amy. To H. Tucker, Young Whalebone and Young Never Tire, also Topaz and Janus, and Camilla, and Marcella.

JOHN RANDOLPH, of Roanoke.

PROGRESS OF AMERICAN MANUFACTURES.—We have just seen the exhibition card of American buttons, manufactured by Ives, Scott & Co., Waterbury Ct.—of whom Clark & Walton are the agents—and certainly, no where, we apprehend, can more finished specimens of the different varieties of buttons be seen, than this card exhibits.—So successful, indeed, has this manufacture become, that it now, as we understand, defies competition from abroad.

NORFOLK, July 19.—*Naval.*—It is rumored that Com. Morris will be ordered to the North Carolina 74, at present undergoing repairs at the Navy Yard, Gosport. That Com. Elliott, will be detached from the Constitution, and take the place of Com. Morris in the Navy Board. Capt. Shubrick, will be ordered to the Constitution. Purser Etting has also been detached from the Constitution, and Purser John N. Hambleton ordered to that ship.—[Beacon.]

NAVAL.—The United States ship Erie, Captain Percival, sailed from Buenos Ayres, June 1, for Mont Video and Rio Janeiro.

The Commencement of Union College (Schenectady), took place on the 23d instant. The degree of A. B. was conferred on eighty-eight members of the graduating class.

The honorary degree of A. B. was conferred on Wm. Belden, Jr. of Brooklyn, N. Y.

The honorary degree of A. M. was conferred on

Amos W. Brown, Adam Crounce, Lyman Cobb, and Caleb Tichenda. The same degree was conferred on 20 of the Alumni of the College.

The degrees of D. D. was conferred on the Rev. John Breckenridge; that of L. L. D. on Roger B. Taney, of Washington City, and Abraham Van Vechten, of Albany.

We learn by the ship Hope, which arrived at New Bedford on Friday last, from Talcahuana, that the people at that place are busily employed in rebuilding the town, which had been totally destroyed by an earthquake. The editor of the N. Bedford Mercury says—"It is an old saying with the Spaniards in that country, that earthquakes do not visit them but once in a century; therefore they feel full confidence that they shall not be disturbed again in the present generation, and the rest they leave to posterity. The style of building, streets, &c. is to be much improved.

UNITED STATES AND RUSSIA.—The Globe of Wednesday contains the following article:—"It will be recollected that a Convention was concluded between the United States and Russia in April 1824, regulating various matters connected with the commerce and navigation of the two nations on the northwest coast of America. By the 4th article it was stipulated that the ships of both nations might, during a term of ten years, frequent, without hindrance, the interior seas, gulfs, harbors, and creeks of each nation on that coast, for the purpose of fishing and trading with the natives of the country. The ten years expired in April, 1834; and we understand that formal notice has been given by the Governor of the Russian Colonies, to the masters of the American ships then trading there, that they could no longer claim, under the Convention, the right of landing at all the landing places, without distinction, belonging to Russia on that coast. Those interested in the trade will not fail to observe that, under the 2d article of the Convention, it is necessary for all American vessels, resorting to any point on that coast, where there is a Russian establishment, to obtain the permission of the Governor or Commander."

LINE OF PACKETS BETWEEN CHARLESTON, S. C., AND LIVERPOOL.—We learn from the Charleston Courier, of 20th inst., that active efforts are making to form a joint stock company, with a capital of \$150,000, for procuring four packet ships, to sail at stated intervals, between that city and Liverpool. The shares are \$500 each. Mr. Wm. Seabrook, of Charleston, had undertaken to furnish one ship—subscriptions sufficient for another had already been received, so that one half of the stock may be considered as taken.

A STRANGE FISH.—A sea monster has been caught somewhere in the neighborhood of Norfolk, which is thus described by the Norfolk Beacon:

"Its general outline is that of a turtle, the fins or flappers being much longer. The whole fish is covered with a shining black cuticle or outer skin, (easily removed,) with the exception of the top of the head and the spinous processes of the back, which are white, with irregular outlines, as if it had been rubbed in three places. Immediately under the skin is a bony covering, extending over the back and down the sides, ridged with seven or nine bony prominences or spines, running nearly parallel with the back bone. The head is that of a turtle, with the upper lip or bill notched, so as to form two prominent pointed teeth or tusks. The throat and inner part of the mouth is fretted with spikes about two lines thick at the base, an inch long, of a horny substance, hanging loosely, but looking towards the throat, so as to permit a ready entrance, and completely preventing regurgitation, or egress. It measures eight feet in length, and nine feet from tip to tip across the fins.

It is said that as many as two thousand persons are now suffering at Baltimore, from the effects of a poisoned sugar. The disease baffles the skill of the doctors.

TEN TO ONE.—Strict attention to office hours is a duty incumbent on every public officer. We heard of a case once of an American Consul in a foreign country, who was not remarkable for his attention to duty. A gentleman calling upon him

one day, found his office shut, and a label sticking upon the door with these words: "In from ten to one." Having called again several times within those hours, without finding him, he wrote at the bottom of the label, "Ten to one he's not in."—[Philadelphia Gazette.]

THE JERSEY CITY GAZETTE.—We do not, in all our exchange list, receive a neater, better printed, or more carefully got up paper, than this semi-weekly from over the river. It is owned and edited by *Robt. U. Lang*. It is creditable, and we hope profitable, to him, and may too be looked upon as "a sign" of the growth and improvement of *Jersey City*, where it is printed.

CHICAGO, July 18.—**THE LAND SALES.**—The amount of money received at the Land Office in this town for lands sold from 28th May till the close of the land sale, is a little over \$386,500, of which about \$353,500 were for lands sold at auction, and the balance under the preemption law. The exact amount cannot, as yet, be ascertained.

[COMMUNICATED FOR THE N. Y. AMERICAN]
In the year 1801, Mr. and Mrs. B. visited the Highlands of Scotland. The previous year, the crops were bad, and of course they expected to hear of great suffering among the poor. Mrs. B. on being asked if this had not been the case, replied, "I have never known less distress than during the dear year, as it was called. All the distilleries were stopped by order of Government; of course the grain usually employed in them, was in the market for food. This put the price of liquor beyond the reach of the poor, and being sober they worked more, and were more healthy. No doubt the rich helped them but little, if any more, than in former years." X.

SHOEMAKING AT LYNN.—It is estimated that not less than two million pairs of shoes were made at this place during the past year—giving employment to nearly four thousand persons.

GOLD LEAVES.—About two millions of gold leaves are manufactured in London per week. The intrinsic value of each is about one half penny, or nearly a cent of our money.

LARGE FREIGHT.—The Steamer *Wm. Gibbons* which arrived on Wednesday from Charleston, brought about 200 passengers. Any packet to or from Europe would be thankful to earn as large a freight. The steamboat arrangement to Charleston is one of great public utility, and we are happy to see it so abundantly rewarded.—[Journal of Com.]

SINGULAR.—The Montreal Herald states that a laboring man named Hawkins, died in that city on the evening of Sunday, the 19th instant, from the effects of a sting on the cheek, from some venomous insect, on the previous Thursday. Before medical advice was resorted to, breathing was obstructed, and the swelling had extended over the greater portion of the body. He expired in a most dreadful state of agony, and has left a wife and six young children. What species of insect he was stung by, the Herald says, we could not ascertain, but he described it as having been very small.

EUROPEAN INTELLIGENCE.

FOREIGN NEWS BY THE ROSCOR.—We gave yesterday a brief abstract of the chief items of intelligence by this ship. A more deliberate perusal of our papers—since received—enables us to add some details.

The Morning Post of the 23d, discredited the rumor that *Zumalacarraguy* had been wounded, and the victory of *Iriarte*. The Courier seems to believe both. We, therefore, publish the accounts from the Paris papers, together with the notice, that the Carlists had actually undertaken the siege of *Bilboa*:

PARIS, June 20.—The *Journal de Paris* of last night contained the following intelligence:—
"A telegraphic despatch of this morning announces that on the 16th inst., *Zumalacarraguy* was grievously wounded in his right thigh, and resigned his command to *Erazo*. He has been conveyed to *Durango*.

On the 16th the siege of *Bilboa* was still going

on. Intelligence is expected from *Valdez*, who is advancing to the relief of the town."

This wound of *Zumalacarraguy* may be reckoned a victory for the *Christinos*, for almost all the defeats they have experienced, have been due to that brave and talented chief. *Erazo*, though a brave and clever officer, is vastly inferior to *Zumalacarraguy*.

Thus all the reports respecting the taking of *Bilboa* have turned out false; and it is very probable that it will not fall into the hands of the Carlists now that *Valdez* is hastening to its relief, and that *Zumalacarraguy* is no longer with his men to guide them to victory.

The Urban guard and the garrison of *Bilboa* are resolved not to surrender; they have sworn to bury themselves beneath its ruins rather than deliver up the town to their enemies. Heavy artillery has been sent them from *St. Sebastian*, and cannons have been posted in the streets to oppose the Carlists, should they attempt to force an entrance. This resolution will doubtless meet with success.

The latest intelligence (the Ministerial Bulletin excepted) which has been received from *Bilboa*, is of the 14th: at that time the town was blockaded by *Zumalacarraguy*, and several shells had been thrown into it. This news was brought to *St. Sebastian* by a steamer.

There is every reason to believe that the Queen's troops have obtained a decisive victory over the Carlists in the vicinity of *Vittoria*. There are, however, two versions of the action. I shall send you both, commencing with the one which I consider the most entitled to credit, and which is to the following effect:—

"On the 11th instant a serious encounter took place within two leagues of *Vittoria*. *Valdez* feigned to be retreating on *Vittoria*, and sent the major part of the 9,000 men he commanded to that town. The Carlists, whose forces consisted of twelve battalions, fell with great impetuosity on the *Christino* General's cavalry and infantry. *Valdez*, by a manoeuvre, which he had concocted previously, then made his troops come up with such rapidity that the attacking Carlists were instantly broken, and the field of battle covered with their slain; 400 Carlists were besides made prisoners by the Queen's troops."

This account was brought by the steamer I have just alluded to.

The other account is contained in a letter addressed yesterday evening to the *Messenger*, by the Spanish General *Mendez Vigo*. It gives no date, and asserts that *Zumalacarraguy* commanded the Carlists defeated on this occasion, and that from 3,000 to 4,000 prisoners were made by the *Christinos*, whose forces consisted but of four regiments of infantry and 600 horse, under the command of General *Iriarte*, who, it must be owned, is a gallant officer. The following is the extract from *Mendez Vigo's* letter:

"I have just received a letter from *Bayonne* of the 13th, stating that General *Iriarte* has fought a glorious action with *Zumalacarraguy* in person, within four leagues of *Vittoria*. This General, who was accompanying *Expartero* in his retreat from *Bilboa*, on battle being offered by the insurgents, put himself at the head of four regiments of infantry and 600 cavalry, and completely defeated the Carlist chief, from whom he took from 3,000 to 4,000 men, and all his artillery, which consisted of seven field pieces."

On the other hand, the garrison of *Bergara* has joined the Carlists. This has also been the case with 150 men of the garrison of *Villafraanca*; the remaining 230 have been escorted to *Bilboa* by the Carlists.

The garrison of *Eybar* is said to have surrendered as prisoners of war, and it is stated that the Carlists found in that town 4000 muskets, 7 cannon, &c., besides a good supply of ammunition, military stores, and provisions.

The *Navarre* Junta entered *Elisondo* on the 13th. There are 5 Carlist battalions in the neighborhood of that town.

The *Renovateur* of yesterday reported that the celebrated *El Pastor*, the Commandant General of *Guipuscoa*, has taken refuge in France. This must certainly be an error. The patriotism of *El Pastor* is well known. The brave General has several relations in the vicinity of *Bayonne*, and a visit to them has probably been converted by his enemies into a desertion of his duty. S.

[From the Messenger.]

PARIS, June 20.—The *Sentinelle*, of the 16th,

confirms the advantage gained by *Iriarte*. It says: "We learned yesterday, and we are assured, that General *Iriarte*, who was at *Vittoria*, seeing some Carlist battalions, with seven cannon, approach the town, resolutely sallied out to meet them, with 400 cavalry and some infantry. Having killed many of their men, and captured the seven cannon, *Iriarte* returned to *Vittoria*."

The first part of the following letter from our correspondent, may throw some light on the telegraphic despatch dated the 19th, and announcing the wounding of *Zumalacarraguy* on the 16th:

"**BAYONNE, June 16.**—The Carlists are besieging *Bilboa*, and many families who have quitted that city arrive here every moment. The most recent accounts that we have received are, that the firing on the town commenced the day before yesterday, at nine in the morning, with eight cannon and one mortar.

"The firing was pretty brisk till two o'clock in the afternoon; at that moment it suddenly ceased. We do not know where it was re-opened afterwards, or whether the arrival of *Valdez*, who is known to have marched in that direction, had rendered a battle or a retreat necessary.

We must soon learn the truth. *Valdez* was at *Vittoria* with 22,000 men, including the reinforcements brought by *Espartero*, and being only nine leagues from *Bilboa* would be inexcusable if he suffered a town of such importance to be attacked without making a vigorous attempt to succor it.

Bilboa has 5,000 men within its walls, and must have received some reinforcements from *St. Sebastian* and *Santander*, which set out the day before yesterday.

Colonel *St. Yon*, the officer commissioned by the French Minister of War to watch the progress of the insurrection in the North of Spain, had returned to Paris, and made his official report of what he witnessed, including his opinion of what force would be necessary to put an end to the conflict. He says that a force of at least 120,000 men, and a four years' occupation of the territory, would be required to crush the rebels, and even then there would be no security against future insurrections, after the withdrawal of the troops: but he adds, that there is no danger of the overthrow of the existing Government of Spain, because as soon as the Carlists cross the *Ebro*, they are in "an enemies country."

The border war between Ohio and Michigan, figures largely in the London papers, as though it might lead to something.

The present *Earl of Devon*, (the successor of Lord Courtenay) was a deputy clerk of Parliament when the title fell to him.

The death of *Cobbett* is variously commented on by the London press, the language of eulogy being chiefly used in regard to him, by the *Tory* papers!

His death seems to have been occasioned by inflammation of the throat, and consequent debility.

We have among our miscellaneous extracts inserted a notice of this extraordinary man from the *Morning Chronicle*.

COTTON FROM ALGIERS.—Some specimens of the cotton grown in *Algiers*, which have recently been sent to Paris, have excited considerable surprise. The cotton is superior to that imported from *New Orleans*. It is finer and stronger, and will bear comparison with either the cotton from *Bourbon* or *Cayenne*.—[Le Voleur.]

FROM FRANCE.—By the *Champlain*, *Havre* papers of 17th ult., with Paris accounts of the 16th, are received. We have examined the *Havre Journal* of the 16th and 17th, politely put at our disposition by the *Daily Advertiser*, but find nothing of interest.

The *Moniteur* contains officially the law for the payment of the American claims, agreeably to the votes of the two Chambers. A sketch of the debate in the Peers on the day the bill passed, may be found below,

CHAMBER OF PEERS—Session of June 12.
 Presidency of the Count Portalis (Vice President.) Messrs. Duperré, Maistre, de Broglie and Duchatel are on the Minister's Bench.

The order of the day calls for the discussion on the report of a law for carrying into effect the American treaty.

M. de Barante applies himself to justify the report of the Committee, and to reply to the objections made yesterday by the adversaries of the law. He closes with persisting in the conclusions of the committee who proposed the adoption of the law.

The Chamber proceeded to take up the different articles of the law.

Article 1, is put to the vote.

M. Dubouché complains that the power of the Chambers has been entirely misunderstood, and requires that the interest should not accrue before the day on which the Chambers may have adopted the law.

M. de Broglie in a few words replies to M. Dubouché. No further debate ensued, and the article is adopted.

M. the Baron Mounier, made some observations on Art. 2. He requires that Government shall not lose sight of the interests of those who have ceded land in Louisiana, and thinks that 1,500,000 francs reserved will not be sufficient to meet the claims which will arise. M. de Broglie replies, that the Government will continue to support these claims as it has always done.

Articles 2 and 3 are adopted.

The Chamber proceeded to vote on the whole Bill. The following is the result. Votes 147—white balls 135, black balls 23. The law is adopted by the Chamber.

The Chamber of Peers on the 16th was occupied all day with trying the prisoners of April.

Rumors of the success of the Carlists, in different parts of Spain were circulating, and had affected the French Funds a little. *Bilbao* was said to have fallen into their hands—and at *Burgos*, the republic was said to be proclaimed. Nothing authentic, however, is given.

The dates from Madrid are of the 11th. By a decree of the 10th, the Queen accepted the resignation of *Martinez de la Rosa*, and named Count *Torreano* President of the Council of Ministers for foreign affairs, *ad interim*.

The Monitor has the following:—"It being the intention of the King to authorize all such Frenchmen as wish to enter into the service of the Queen of Spain, to do so without losing the quality of their citizenship to France, all demands for such authorization must be addressed to the Ministers of Justice, conformable to Art. 21 of the Civil Code."

[Gleanings from European Papers.]

A Lyons paper of the 12th states, that at *Menandria*, in Piedmont, on the 5th, some eighty persons of the Jewish persuasion being assembled in the third story of a building, to celebrate a wedding, at the moment of beginning a dance, the floor gave way, carrying with it all the company, and breaking through the 2d and 1st floors, buried them beneath the ruins. Thirty-six of the number were dug out dead, and twelve others died the next day of their wounds. Among the dead was the Colonel of a regiment in garrison there, and the Jewish Rabbi.

Lord COURTENAY—who passed some years in this country, and has since lived in France, recently died there. He had become Earl of Devon during his forced exile.

His English property goes to a nephew in England, but his beautiful estate of *Dravett*, near Paris—well and happily do we remember it, in other days, when owned by an American—with all its furniture, he left, as we learn by the Paris papers, to a servant. This legacy is estimated at two millions of francs. The brother of the legatee keeps an English eating house in Paris.

It is said that a marriage between the Duke of Orleans, and a princess of Wittenberg is seriously agitated, and that the Emperor Nicholas, whose

influence at the Court of Stutgard is paramount, far from opposing, favors such an alliance.

CHEAPNESS OF BOOKS IN FRANCE.—Capt. Ross's two guinea and a half volume, of his artie residence is re-printed in Paris for five francs, about one twelfth.

Mr. Glover, an English Artist, has gone to *Van Deimen's Land*, for the purpose of taking views of its peculiar scenery—and sending them home for exhibition.

Lord Gosford, the newly appointed Governor of the Canadas, has been created an English Peer by the title of *Baron Worthingham*, of Beccles, in the county of Suffolk.

BUENOS AYRES.—By the Braganza, dates from Buenos Ayres to the 9th of June have been received.

Captain Pierre Espiaux, of the French frigate *Thisbe*, died at Buenos Ayres on the 17th of May, and was buried with military honors on the 19th. Among the attendants at his funeral were Mr. Dorr, the United States Consul, and Capt. Percival and the officers of the United States sloop of war *Erie*.

The British sloop of war *Acteon*, Lord Edward Russell, commander, arrived at Buenos Ayres on the 31st of May, having sailed from Plymouth on the 23d March.

Some interest appears to have been created by the detention of a French brig—the *Hermione*—on suspicion of having smuggled goods on board. A long correspondence ensued between the Government and the French Consul, the result of which was, that the brig was allowed to sail, merely, however, as an indulgence—the laws having been much relaxed heretofore—but notice is given that henceforth they will be most rigidly enforced.

A splendid ball was given by Mr. Hamilton, Minister Plenipotentiary of his Britannic Majesty, on the 28th of May, in honor of the King's birthday. Captain Percival, and Lieutenants Pope, and Eagle, of the *Erie*, were among the guests.

The America, at Boston, from Calcutta, whence she sailed March 19, reports that Lord Wm. Bentick, Governor General of India, left Calcutta two days previous in H. B. M. ship *Curacoa*, for England. Sir Charles Metcalf, Governor General of Arga, acts as Governor General of India, until a new appointment.

Love in the Dew.

A maiden went forth at the twilight hour,
 To meet her true love in a dewy bower.
 Where the rose and sweet briar and jessamine grew,
 And the humming bird kissed from their flowers the dew
 She was bright as that bird of the glittering wing,
 And pure as the dew-drop, and gay as the spring.
 And there in the shade,
 The youth wooed the maid;
 But the moon rose high,
 In the cloudless sky,
 Ere she gave her consent and received the ring.
 And then she flew,
 From love and from dew,
 To dream of them both the long night through
 The night has fled, and the dew is gone,
 The maiden sits in her cottage alone:
 She is thinking of love and moonlight hours,
 Of dewy kisses and jessamine bowers;
 And she wonders if rings and vows are true;
 Or as cold as night, and as fleeting as dew,
 But her hope is bright,
 And her heart is light,
 And still she sings
 Of bridal rings,
 Of rose-buds and vows the long night through.
 And all her theme
 Is that bright dream,
 That came o'er her heart by the moon's pale beam.
 The maiden is clad in her bridal dress,
 The priest is there to unite and bless;
 And beside her the bridegroom has taken his stand,
 To taste of her lip and to touch her hand,
 And to wed in the face of the world the maid
 Whom he wooed at night in the jessamine shade.
 No eye more bright,
 No heart more light,

Than her's, the bride,
 Who smiles in her pride,
 For the ring is here, and the vow is paid.
 But maidens beware
 Of the dew and night air,
 Not always are truth and gold rings found there.

[FOR THE NEW-YORK AMERICAN.]

Musings.—By *Flaccus*, in the Country.

ABSENCE—A SONG.

The heart no deeper gloom can know,
 Than absence's tomb-like solitude—
 I better bore thine anger's glow
 Than the dull peace which has ensued—
 Give back mine eyes, thy form again!
 Give but mine ears, thy quick'ning voice
 And though thy glances flash disdains,
 And words speak daggers, I'll rejoice!—
 For oh! reproach I could forgive,
 Howe'er it jar'd my brain to hear;
 And e'en thy fury's gaze outlive,
 To know but this, that thou wert near—
 A charm, thy words and looks contain,
 That numbe their power to harm, or kill;
 Like painted rage, or charmed pain,
 'Tis beauty, and 'tis music still—
 For, shot through eyelids plumed like those,
 Thy glance must of itself softness share;
 And through those lips, the curse that flows,
 Comes sweeten'd from the honey there—
 I must return!—though doubly curs'd—
 Though all thy lightnings scathe my brain,
 I care not—I have known the worst—
 For absence owns no master-pain.—
 No. 6. W.

[From the *Cazenovia Rep. Monitor*.]

ORIGINAL POETRY.—The following lines are the production of a lad of 13 years, a student in one of our literary institutions. They were suggested by viewing an engraved representation of *Fingal's Cave*, in the possession of his room mate. The reader will better understand the argument of the poem, and better appreciate the talents of the juve; nile author, by being informed that *STAFFA* is a small island of Scotland, one of the Hebrides; and is accounted one of the greatest natural curiosities in Europe, if not in the world; the whole south-west end being supported by ranges of basaltic pillars, mostly above 50 feet high, and four feet in thickness. The magnificent cavern, called *Fin-macoul*, or *FINGAL'S CAVE*, is on this island, and extends 250 feet in length. Its entrance is a natural arch, 53 feet wide and 116 high, from which the cavern is lighted, so that its farthest extremity may be seen. It is supported on each side by ranges of columns, and roofed by the fragments of others that have been broken off in forming it. The bottom of the Cave is filled by the sea, reaching to the extremity, and in very calm weather a boat may sail into it.

Staffa.

I've gazed on Nature in the sleepy lake,
 The green-clothed field, and wildly tangled brake;
 I've heard her whisper in the flowering trees,
 Sing in the brook and murmur in the breeze,
 Until her quiet music, to my heart
 Would love and peace and happiness impart,
 And every fretful feeling die away,
 Like lover's frowns before his loved one's lay.
 And then I've turn'd, on wilder scenes to brood,
 And court thee, Nature, in thy sterner mood;
 Have seen the cloud-envelop'd mountain ride,
 The tranquil forest sleeping on its side,
 But not those scenes such pleasing fear impart,
 As *STAFFA'S* rugged isle, where Nature scorns at Art!
 Here, on the bosom of the dark blue sea,
 That longs to trespass on earth's boundary,
 'Neath lowering skies, amid whose twilight grey,
 The joyous sunbeams seem afraid to play—
 Serenely calm, in solitary pride,
 A glorious pile reposes on the tide:
 From ocean's depths the giant columns rise,
 And lift the self-born structure to the skies.
 Firm on its rocky base each pillar stands,
 No chisel'd shaft, no work of mortal hands.
 Ere man had ceased in savage woods to dwell,
 (Roots for his food, his drink the crystal well,)
 Ere yet he knew the joys of social life,
 And scarcely sought his fellow but in strife,
 Ere cities grew, or Parian marble shone,
 Those columns stood, and stand while *they* are gone!
 Yet many a broken pillar strewed around,
 And many a vista level'd to the ground,
 Proclaim, that not e'en Nature's works are free,
 All conquering Time, from thy same mastery!
 Then, mortal, blush, to own the selfish grief
 Which prompts a murmur if thy days be brief:
 When Nature's brightest glories disappear,
 Shall thy mortality demand a tear?
 Mark where the portal, yawning o'er the wave,
 Reveals to view the beauties of the Cave:
 Majestic columns rise on either side
 The arched canopy above the tide,
 Which, mildly glittering with a sparry light,
 Shines like the apangled firmament of night.
 'Tis Nature's palace. Scorning to abide
 In temples built in reverence reared then pride—
 The surge's roar more grateful to her ear,
 And tempest hymns, than hollow voices of prayer—

She fled, disdaining of a Doric fan,
And built her chapel on the Atlantic main!

Still as we gaze, a feeling more intense
Grows with each look, and steals on every sense;
The frowning arch above, the sea below,
The time-cemented pillar's sacred row,
The ocean wrestling with the pile in vain,
That hurls its breakers back in calm disdain,
Blend in a scene so solemn, yet so fair,
That man seems almost an intruder there!
Each hollow blast that slowly dies away,
Sounds like some spirit's melancholy lay;
And as the harmonious cave sends forth its song,
You scarce would start to see an airy throng;
Of mermaids flitting o'er the unruined wave,
And breathing low, soft dirges through the cave:
There is a stillness—but not of the grave—
A breathless life within that wondrous cave—
A deep contentment, a mute harmony,
A holy presence that we cannot see,
But yet can feel; for Ocean murmurs on,
As if in prayer, his deep-toned orison;
And winds without, that rage in lawless din,
Are hush'd to music as they enter in!

Oh! let the skeptic on whose doubting eyes
In vain the beauties of creation rise—
Who, while he views the loveliness of earth,
Can yet disown the power that gave it birth,
Here let him gaze, and say 'twas chance alone
That rear'd the pile and nicely carved the stone—
That lent each shaft such noble symmetry—
Alas! it mocks his poor philosophy,
Tells him a truth he little dream'd before,
Man was not made to question, but adore.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of eight pages, devoted mainly to the subject of internal improvements, in all its various modes and forms. Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, in advance. Previous volumes same price; full set of four volumes, \$12.

RAILROAD AND CANAL MAP,

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country Price \$2

MECHANICS' MAGAZINE, AND REGISTER OF INVENTIONS AND IMPROVEMENTS.

This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, in advance. Previous volumes \$1.50 each.

THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—It is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

* All letters must be postage paid. Eleven num-

bers sent to one address for \$5,—and TWENTY THREE for \$10. D. K. M.

NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given. Vols. 6 and 7, or 1 and 2, new series, \$3 per volume.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street; Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,

35 Wall street, New-York.

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-17

RAILROAD IRON.

500 Tons Railroad Iron, 2 inch by 1/2, with Spikes and Spiking Plates to match, for sale by WM. G. BULL & CO. 74 Wall-st. 26-31p

NOTICE

Is hereby given, that an Assessment of Ten Dollars on each share of the Capital Stock of the Boston, Norwich and New London Railroad Company, has been laid payable on the 15th day of August, 1835, at the Office of the Company, No. 52 Wall street, New York; or at the Quinsbaug Bank, Norwich.

THOMAS ROBINSON, Treasurer.

Norwich, July 11th, 1835. 17-16. 1A13

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-17 feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water. Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 12-17

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831. Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 325 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. 172am

H. BURDEN.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J3617

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

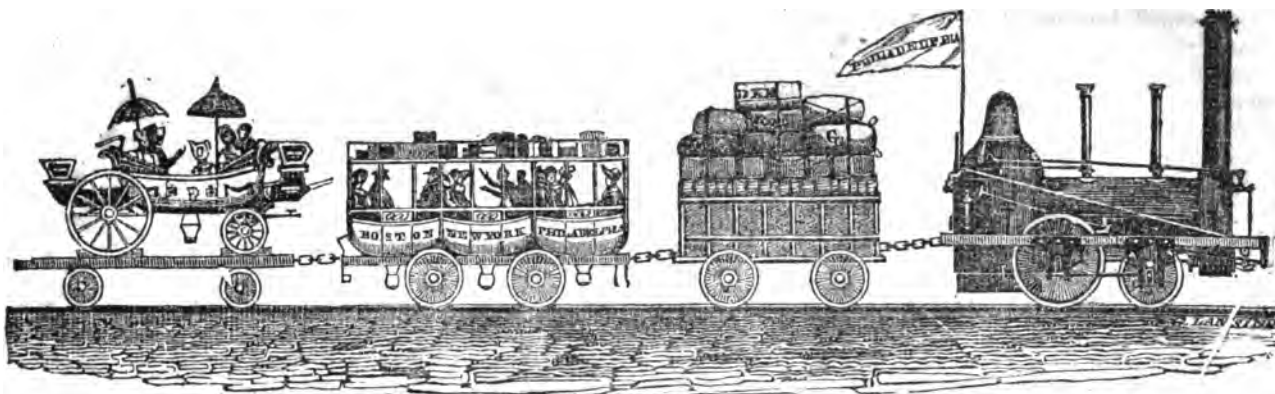
Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 200 do. 1 1/2 do. 14 to 15 feet, counter sunk 40 do. 1 1/2 do. 14 to 15 feet, counter sunk 800 do. 2 do. 14 to 15 feet, counter sunk 800 do. 2 1/2 do. 14 to 15 feet, counter sunk 800 do. 3 do. 14 to 15 feet, counter sunk 800 do. 3 1/2 do. 14 to 15 feet, counter sunk 800 do. 4 do. 14 to 15 feet, counter sunk 800 do. 4 1/2 do. 14 to 15 feet, counter sunk 800 do. 5 do. 14 to 15 feet, counter sunk 800 do. 5 1/2 do. 14 to 15 feet, counter sunk 800 do. 6 do. 14 to 15 feet, counter sunk 800 do. 6 1/2 do. 14 to 15 feet, counter sunk 800 do. 7 do. 14 to 15 feet, counter sunk 800 do. 7 1/2 do. 14 to 15 feet, counter sunk 800 do. 8 do. 14 to 15 feet, counter sunk 800 do. 8 1/2 do. 14 to 15 feet, counter sunk 800 do. 9 do. 14 to 15 feet, counter sunk 800 do. 9 1/2 do. 14 to 15 feet, counter sunk 800 do. 10 do. 14 to 15 feet, counter sunk 800 do. 10 1/2 do. 14 to 15 feet, counter sunk 800 do. 11 do. 14 to 15 feet, counter sunk 800 do. 11 1/2 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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, AUGUST 8, 1835.

[VOLUME IV.—No. 31.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 8, 1835.

GRAND JUNCTION RAILWAY.—We have been favored with the perusal of a manuscript copy of a report of Joseph Locke, Esq., engineer of this important railroad in England, in relation to the form of rail to be used on that road, furnished by the President of that company to the President of the New-York and Erie Railroad Company. It is accompanied by two sheets of drawings, exhibiting in full size the different kinds and shapes of rails used on the Liverpool and Manchester Road, as well as several other kinds of rail now in use in England. It will soon, we are gratified to be able to say, be published in pamphlet form, when we shall take an early opportunity to re-publish it entire in the Journal.

SAWING MACHINE FOR FELLING TREES.—It is pleasing to know that ingenuity and enterprise are appreciated and rewarded. Mr. James Hamilton has, we understand, met with an unprecedented sale of the right to use and vend his machine for cutting down trees, having sold a large portion of the Union, in States. Those who desire to obtain the right for its use, should apply soon if they desire to have it at first prices. Mr. Hamilton resides at 157 Crosby street, New-York.

Died, at Columbia, Pa., on Thursday 30th ult., Wm. H. McCUTCHEM, Engineer, upon the Pennsylvania Canal, aged 26 years.—[Philadelphia Commercial Herald.]

THE [WORK GOES BRAVELY ON.]—Books were opened in this city last week, and also in New-Haven and Hartford, Conn., to receive subscriptions to the stock of the New-Haven and Hartford Railroad. The importance of the route, and the favorable report of Mr. Twining, the engineer, caused an unusually large subscription. The amount required was \$1,000,000, and the subscription amounted to over \$5,700,000, or nearly six times what was required. At such a result we are not at all surprised. The enterprising and business character of the inhabitants of the country through which it passes, together with the certainty of its being continued to Springfield, and thence to Worcester, in Massachusetts, thus opening an easy communication with Boston; and the almost, as others believe, but as we believe, positive, certainty of its being extended far up the valley of the Connecticut, at least to Haverhill, in New-Hampshire, and most certainly to Burlington, Vermont, must make the road between Hartford and New-Haven one of the most productive railroads in the country. It cannot be otherwise.

THE NEW-JERSEY RAILROAD.—We are happy to see that this great work, so important to the interest of this City, is rapidly progressing. The contractors and men are engaged along the line from Rahway to this city. The road from Rahway to Newark is already graded, and only awaits the laying of rails to perfect it. We learn that it is the intention of the Directors to have it completed to New-Brunswick during this year. Our city will then be in the vicinity of New-York, with all the advantages of cheap living here and all the benefits of the New-York market. We hazard little in asserting, that, upon the completion of this road, enterprise and wealth will not find any place in New-Jersey, or in the vicinity of New-York, with superior advantages to New-Brunswick for their profitable exercise and investment. We also learn that the travelling over the road from Newark to New-York is immense, and that the proceeds of that part of the road will yield a handsome return for the capital required for the completion of the entire route to this city.—[Fredonian.]

[From the Newark N. J. Daily Advertiser.]

MORRIS AND ESSEX RAIL ROAD.—The Engineer, Judge Wright, having completed his surveys, has laid before the Directors his profiles, surveys, and estimates, which we understand are favorable to the prospects of the Company, and entirely satisfactory to the Board.

Of the several routes surveyed, the two most practicable would each make the whole distance 23 miles, from Morristown to Newark, both passing through Springfield. Leaving Springfield, one of the two surveys named passes through Lyons Farms to the south end of Newark, and the other proceeds north through Orange. The situation of the hills on the route of the present turnpike from Springfield to Newark render that route, it is said, impracticable. On either of these routes the highest grade will not exceed an elevation of 70 feet per mile, for 3 miles on the eastern slope of the Short Hills: 60 feet is the maximum of the rest of the route.

The estimate of the whole cost of putting the road in perfect readiness for the cars is—

By the southern route,	\$217,345
Orange, or northern route,	219,193

including a bridge over the Passaic, at Chatham, which is estimated to cost \$20,000, all told. The cost of the road itself, without a bridge, would therefore be at the rate of 8000 per mile, single track with necessary turn-outs.

That the estimate is a liberal one, may be inferred from the fact that an offer has been made to the Directors of a contract for the whole road at the estimate, with ample security for its fulfilment. But it is believed that the actual cost will fall short of the estimate—the right of way being conceded by the land holders, as it probably would be.

CANAL BREACH AT PORT BYRON.—We have been furnished with the following letter, from A. Burt, Esq., Canal Superintendent, to the Comptroller.—[Alb. Argus.]

"Port Byron, Thursday, M., July 30.
"Dear sir—A breach was made in the aqueduct at this place yesterday about noon. We are making great exertions, and hope to have it repaired so as to let in the water to-morrow morning. It will probably cost 300 or 350 dollars to repair it."

The Quebec Gazette, of July 25th, states that Captain Youle, of the Royal Engineers, arrived there on Saturday afternoon, from Montreal, having been ordered from Quebec by the Commander-in-Chief, in compliance with the Address of the committee of the citizens appointed to promote the construction of the Railway to Maine.

Dr. David M. Reese, of New York, has been appointed to the chair of Chemistry, &c., in the Washington Medical College of Baltimore.

Who that has travelled on railroads in this country has not also been annoyed from the same cause? We give the following communication, hoping that a remedy may result from discussion.

[For the American Railroad Journal.]

MR. EDITOR,—I have been very much annoyed while travelling behind locomotive engines, (where wood, coal, or coke, has been used for fuel,) with the dust and cinders flying in my eyes, and soiling my clothes, and am very much surprised that no remedy has yet been attempted or suggested. The following plan I think will remedy the evil:

Place a cylinder of wire gauze, or other material, in a horizontal position over the locomotive, and similar ones over each of the cars. The one over the locomotive may have a wider mouth than the others. Those upon the cars may lie flat; the tops of the cars, forming the lower part of the cylinders, it may not be necessary that they should lap; and it is possible that they will answer when placed some inches apart. As the cinders are emitted from the chimney top, they will be immediately drawn within the cylinders, through which there will be a current of air sufficient to drive them to the rear of the train. The rush of air to fill the vacuum caused by the rapid passage of the cars, will have no effect upon the cinders passing through the cylinders.

Respectfully your obedient servant,
THOS. SYMINGTON.

N. B.—Letters patent will be taken out for the foregoing invention. T. S.
Baltimore, July 30, 1835.

The annexed inquiries are of great importance at this period; and we are very desirous that experienced practical engineers should give answers.

[For the American Railroad Journal.]

MR. MINOR,—Please, through the medium of your useful paper, put the following queries to engineers. The answers of practical men might elicit information on an important subject.

1. Would or would it not be better to lay the tracks of railroads wider apart, say six or seven feet?

2. Would it not be better to construct the wheels of railway cars much larger, say five, six, or seven feet in diameter?

3. Would not large wheels be less likely to break stone sills, and bend wooden ones?

4. In the use of large wheels and narrow railways, would it not be better to suspend a part of the burthen under the axle?

5. Could not a railway be constructed upon the undulating principle, as the ground will best suit, say with planes of 50 to 100 feet in the mile ascent and descent, and accompany the cars with a locomotive that should condense atmospheric air into a receiver in descending, which condensed air, used as steam, by reversing the motion of the engine, would assist the propelling power in ascending the next plane? Would not this idea, improved upon, lessen the necessity of such expensive graduation?

The full and explicit answers of engineers to any or all of the above queries, whether as objections or approvals, would gratify
AN INQUIRER.

We are very much obliged to "A Young Engineer" for the following communication, and hope to hear again from him.

To the Editor of the Railroad Journal:

SIR,—Having been employed in November last to ascertain the number and capa-

city of the steam engines then in use in this city; for the various manufacturing purposes with which our city abounds, and thinking that an abstract would be interesting to many of your readers, I have prepared the following, namely:

Whole number of engines in daily operation, 76*; aggregate number of horse powers, 858; aggregate number of gallons of water used per day, of 10 hours, 60,385.

Which, in the event of your deeming worthy of an insertion in your columns, will not only be a source of gratification to me, in having added to your useful work, but will be the means of eliciting some further contributions, at no very distant period, from
A YOUNG ENGINEER.

New-York, July 20, 1835.

[From the American Journal of Science and Arts.]

On Turnouts in Railroads, with Flexible Moveable Rails. By THOS. GORTON, Civil Engineer.

At a time like this, when railroads are being rapidly introduced in various parts of the United States, it is believed that any improvement relating to the various parts of their construction will be acceptable to the public.

Up to the present time all turnouts upon railroads, (so far as the writer's knowledge extends,) have been constructed with stiff moveable rails. When these stiff rails are moved round so as to make a communication with the turnout and main line, a rectilinear angle of several degrees is formed by the stiff rail and main line, which subjects cars passing through the turnout to much jar and lateral friction. This friction is so great as to injure both cars and railroad. In a late conversation with Mr. E. Miller, superintendent of machinery on the Portage railroad, he informed me that they proposed using *flexible* moveable rails for their turnouts. The rail adopted on that road is the parallel edge rail, eighteen feet long, and weighing forty pounds per yard. I understood that the plan of their turnouts was not fully matured, but that it was contemplated to have about three feet of the rail made fast in two heavy chairs, and the other fifteen feet to be sprung into a curved form, when it was desired to pass into the crossing or turnout.

This at once appeared to me to be a decided improvement, in as much as turnouts might be made on this principle, so that cars might pass through them with the same facility as in the curved parts of the main line. In examining the subject, the first requisite is, that the rail at the moveable end should be deflected so as to leave a sufficient distance between the rail of the main line and the fixed part of the turnout. Then, secondly, let the radius of curvature for the turnout be determined; it will be seen that these two requisites determine the length of the moveable rails. These rails may then be laid down in the following manner.

Let about one foot of that part connected with the main line be made fast in a heavy cast iron chair, by a wedge, and by a bolt passing through the chair and rail. The moveable part of the rail

may be supported on chairs; these chairs to rest on cast iron seats, having a ledge on one side for the chairs to slide against when the rail is sprung round into the turnout. The seats consequently must be laid down in the curve form which the rail is to assume in the turnout. If it is thought that the chairs on this part of the rail will work out of place, they may be bolted to it, or secured in some other manner by guides on the seats. The two moveable rails of a turnout should then be connected by two or three stiff coupling bars, to give them permanence, and preserve the proper distance between them. The rails may then be worked by a vertical lever of a suitable length. This lever, with a ball placed upon its top, will serve as an index to persons travelling the road, by pointing out the position of the moveable rails, that the cars may be stopped in time, if the rails are not right.

The result of some calculations for rails of different lengths will now be given, together with the length of a turnout for each kind of rail. These calculations are made for a double track of railroad, the distance between the rails of each track being 4.75 feet, and the distance between the inner rails, including the width of each rail, five feet. But as railroads in general do not differ much from this in outline, the length of a turnout will not be affected much by such difference.

The following table will be understood from the explanation given therein.

Radius of curve in feet.	Length of moveable rail not including that part in the heavy chair.	Deflection at end of rail in decimals of a foot.	Angle of crossing plate and sine of arc at each end of turnout, in feet.	Feet of straight line in the centre of turnout.	Length of turnout in feet.
310.	15 ft.	0.38	7° 37.78	40	115
350.	16	0.36	7° 42.65	35	120
400.	17	0.36	7° 45.75	30	128
410.28	17	0.35	7° 50.00	29.3	129.6
450.	18	0.36	7° 54.84	23	133
500.	19	0.36	7° 60.93	17	139
550.	20	0.36	7° 67.03	11	145

In the above table, fractions of a foot have been omitted in the last two columns, the object being to give sufficient information in a tabular form, from which a comparison of the advantages and disadvantages may be made for turnouts with moveable rails of different lengths, and arcs of different radii. An angle of 7° has been adopted in this table for the crossing plate. Increasing this angle would shorten the turnout but little. It is hardly necessary to mention, that the plan of the turnout proposed here is that of an inverted curve, with a piece of straight line in the centre.

It is believed that a turnout of from 400 to 500 feet radius, with flexible moveable rails, will be found to answer a much better purpose than those in use at the present time. Several important railroads have curves as abrupt as this. On the Baltimore and Ohio railroad there are two sharp curves, one of 337, and the other of only 318 feet radius.

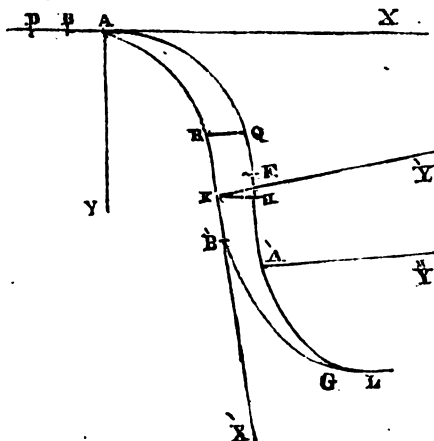
* From 8 to 12 have been erected since.

[For the American Railroad Journal.]

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points.
By J. S. VAN DE GRAAFF.

(Continued from number 24.)

27. The preceding articles, with their obvious combinations, embrace all the cases which can occur in the field, by a method of computation rigorously accurate, and of convenient application. But before closing this part of the subject, the following example will be here given, as a general illustration of the method to be pursued when an alteration is proposed in a line after the completion of a location.



Let D A F A' G L represent a located line having the following character: D A, a tangent; A F, a curve, modulus of curvature $2^\circ 3'$, and length 18 chains; F A', a tangent, length 9 chains; A' G L, a curve, modulus of curvature of the part A' G, $2^\circ 52'$, and length of the same part, 15 chains. Now, it is proposed to remove the origin A 4 chains back upon the tangent line D A, to a station B; and to lay a curve B R 15 chains, with the same modulus of curvature, $2^\circ 3'$; and it is required to know what would be the direct distance R Q between the two curves from the point R. And if a tangent R X' be laid from the point R, it is also required to know the proper position in that tangent line, for the origin B', and the necessary modulus of curvature, in order to trace a new curve B' G in such a manner as to pass again into the original line G L with a common tangent at the station G.

Because B R = 15 chains, and B A = 4 chains, the difference is 11 chains, and the curve A Q will therefore obviously contain more than 11 chains when R Q is normal to the tangent R X'. Hence, taking the station Q at the extremity of 13 chains, the data for computing the line R Q by means of (XXV.), will be, $T' = 2^\circ 3'$, $n = 13$, $m = 15$, and $\alpha = +4$; or, $2nT = 53^\circ 18'$, and

$$2mT = 61^\circ 30'; \text{ and therefore } w = \frac{-0.1022}{-0.0256}$$

$$-4 \times \frac{.87882 - .80178}{.03577} + 16 \left\} \frac{1}{2} = (4.00$$

$$-4 \times 2.153 + 16) \frac{1}{2} = \sqrt{11.288} = 3.38$$

$$\text{chains nearly} = R Q. \text{ And by (XXVI.),}$$

$$\text{Cos. } P = \frac{1.076 - 4}{3.38} = -.8651; \text{ that is,}$$

$P = 210^\circ 6'$. Hence, the angle Q R X' will evidently be expressed by $2mT + 210^\circ 6' - 180^\circ = 91^\circ 38'$; which being nearly a right angle, proves that 13 integer chains in the curve A Q, corresponds most nearly with a true normal line Q R. The length of the line Q R furnishes the data by which to

judge of the situation of the ground at the point R.

The origin, and curvature of the new curve B' G, will now be investigated by means of (XVII.) and (XVIII.) Let any arbitrary point K be selected for the origin of a system rectangular axes K X', K Y'; and compute the values of the co-ordinates A' H', H' K, of the origin K, taken with reference to the rectangular axes which have their origin at A'.

In such a case as the present, it would be most convenient to take the point K coinciding with the station R; but in order to retain the results given in a former example, take R K = 12 chains; and the values of the required co-ordinates will then be, A' H' = +1.37 chains, and H' K = +1.58 chains.

The co-ordinates of the point G, taken with reference to the axes K X', K Y', may now be computed by means of (XXI.), after the co-ordinates of the same point, taken with reference to the axes at A', have been determined by (VII.) To find these latter co-ordinates, the given data are, $T = 2^\circ 52'$, and $n = 15$; or, $2nT = 86^\circ$. Hence, by

$$(VII.), x = \frac{.99756}{.10002} = 9.98 \text{ chains, } y = \frac{.93024}{.10002}$$

= 9.30 chains. Now, the data necessary for computing the new co-ordinates by means of (XXI.), are, $\alpha = +1.37$, $\beta = +1.58$, $z = +12^\circ 18'$, $x = 9.98$, and $y = 9.3$. Hence, $x' = 10.88 \times .2130 + 11.35 \times .9770 = 2.32$

+ 11.09 = 13.41 chains, $y = 10.88 \times .977 - 11.35 \times .213 = 10.63 - 2.42 = 8.21$ chains. The inclination of a tangent at G, to the tangent F A', is expressed by $30 \times 2^\circ 52' = 86^\circ$; and therefore the inclination of a tangent at G, to the tangent R X', is expressed by $86^\circ - 12^\circ 18' = 73^\circ 42'$. The given data by which to compute the position of the new origin B' by means of (XVIII.), will therefore be $X = 13.41$, $Y = 8.21$, and $D = 73^\circ 42'$; that is, $\alpha = 8.21 \times 1.334 - 13.41 = 10.95 - 13.41 = -2.46$. The required origin B', of the new curve B' G, will therefore be situated 2.46 chains in advance of the selected point K; that is, the length of the new tangent R B' is 14.46 chains. By (XVII.), $\text{Sin. } T = \frac{.71933}{.1642} = .4381$; or, $T = 2^\circ 30' = \text{modu-$

lus of curvature of the required new curve B' G.

SCHOLIUM.

When the curves under consideration are long, and also embrace portions of circumferences greatly exceeding 20° or 30° , the trigonometrical formulas investigated in the foregoing articles become of the utmost importance in the field. But there are several well known approximative formulas which will sometimes be found useful auxiliaries in the first location of a line where short and frequent curves are introduced; and they will also very often be convenient when certain alterations are proposed in a known line, and a new line is required to be selected by computation. It is therefore the design of the remaining part of the present inquiry to show how those approximative results may be easily deduced from the rigorous formulas already given.

28. By means of (VI.), we have $y = \text{Sin.}^2 nT$; and therefore the quantity $n^2 \times \text{Sin. } T$ will always exceed the value of y .

Hence, $n^2 \times \text{Sin. } T$ will express the value of some ordinate oblique to the axis of x . Let this oblique ordinate be denoted by K ; and the following expression will obtain:

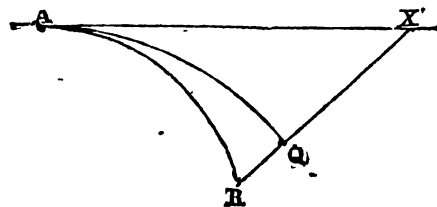
$$K = n^2 \cdot \text{Sin. } T. \quad (\text{XXXVI.})$$

But by putting $q = 0.01745$, which is the length of an arc of one degree, to a radius unity, and supposing the angle T to be

measured in degrees, and decimal parts of a degree, the result will be, that $q \times T = \text{Sin. } T$ very nearly. The value of the oblique ordinate K will therefore be nearly expressed as follows:

$$K = qn^2 T. \quad (\text{XXXVII.})$$

29. Suppose T and T' to denote the respective moduli of curvatures in degrees of two curves A Q and A R, which are laid from the same point A, and upon the same tangent line A X; and let each curve contain an equal number of chains represented by n . It is proposed to find an approximate value for the distance Q R.



Let Q X and R X be the two oblique ordinates whose values are expressed by $qn^2 T$, and $qn^2 T'$, respectively. If, then, those two ordinates be supposed to coincide with each other, which will not be far from the truth, then their difference in length must express the required distance Q R. Hence, taking w to represent the line Q R, the following formula is evidently the result:

$$w = qn^2 \cdot (T - T'). \quad (\text{XXXVIII.})$$

The formula thus obtained is an exceedingly near approximation of the true length of the line Q R, when the curves A Q and A R do not contain more than 20° or 30° each; but its application in the field is confined to that particular case only in which those two curves contain each the same number of chains. And although the length of the line w , as thus computed, will not differ so much from the true quantity as to produce a material inconvenience in the location of a line in a slightly undulating country, even when the two curves embrace portions of circumferences greatly exceeding 20° or 30° , yet, in such cases, if the result were even rigorously true, a knowledge of the length of the line w will be of little use in the field when the obliquity of that line remains unknown. The formulas (XXIII.) and (XXIV.) must, therefore, in such a case, be resorted to, in order to discover the true position of one of the curves when the other is given; but when those two curves each embrace only a small part of the whole circumference, it will be sufficient in practice to measure the line w as a normal to either curve, in which case the expression (XXXVIII.) will be highly useful.

It is sometimes required to find the modulus of curvature of one of the curves, when the other curve and the line w are given data; in which case the following formula obtains:

$$T' = T \pm \frac{w}{qn^2}. \quad (\text{XXXIX.})$$

This expression is immediately derived from a transposition of the one preceding.

Three examples will be now given, the first of which will be a case where the formula (XXXVIII.) is not at all applicable; the second will explain a case where that formula can not be used alone, with advantage; and the third will show an instance in which the same formula will be very useful in the field.

Example 1. Let a curve whose modulus of curvature is $2^\circ 45'$, be traced 20 chains of 100 feet each, from a given point and from a given tangent line. Now it is proposed to lay another curve from the same

origin, and from the same tangent line, and whose modulus of curvature is 3° . How far would this latter curve pass from the extremity of the former?

Here, by (XXXVIII.), $w = .01745 \times 400 \times \frac{1}{4} = 1.75$ chains = 175 feet = the required distance as determined by the approximative method. But this result is too far from the truth to be of any practical utility, as will appear from the following accurate calculation. Taking the extremity of the 19th chain for the termination of the new curve, the given data in (XXIII.) are, $s = 20$, $m = 19$, $T = 2^\circ 45'$, $T' = 3^\circ$, and $\text{Sin. } 110^\circ = .93969$
 $\alpha = 0$; that is, $x = \frac{2 \text{ Sin. } 2^\circ 45'}{1 - \text{Cos. } 110^\circ} = \frac{.0960}{1 + .34202} = .079$; $y = \frac{1.34202}{.0960} = 13.98$; $x' = \frac{\text{Sin. } 114^\circ}{2 \text{ Sin. } 3^\circ} = \frac{.91355}{.1047} = 8.73$; $y' = \frac{1 - \text{Cos. } 114^\circ}{2 \text{ Sin. } 3^\circ} = \frac{1 + .40674}{.1047} = 13.44$; or, $x - x' = 1.06$, and, $y - y' = 0.54$. Hence, $w = \sqrt{(1.06)^2 + (.54)^2} = \sqrt{1.236 + .2916} = \sqrt{1.5276} = 1.19$ chains = 119 feet = true distance from the extremity of the given curve, to the station at the termination of the 19th chain in the proposed curve.

(To be continued.)

[For the Railroad Journal.]

PROBLEM.

To determine a grade, which will produce the same consumption of power, in a rectilinear railway, as is produced by a level curvilinear track of 800 feet radius, with a given degree of motion.

Solution.—Let V denote the velocity of the car in feet per second; R the radius of curvature in feet; W the weight of the car; m the distance in feet, through which a heavy body will fall in the first second of time near the earth's surface; G the required grade per mile in feet.

Agreeably to the laws of centripetal forces, $\frac{V^2}{2mR} \times W =$ the centrifugal force of the car; and which expression will consequently exhibit the lateral pressure on the side of the rail very nearly. Hence, agreeably to the laws of friction, $\frac{V^2}{8mR} \times W =$ that part of the moving power which is consumed in consequence of centrifugal force.

From the science of mechanics we therefore have, $5280 : G :: W : \frac{V^2}{8mR} \times W$, and consequently, $G = 680 \times \frac{V^2}{mR} = 41 \times V^2 R$ nearly.

From the above formula it is easy to compute the following table, exhibiting the grades which are equivalent to a curve of 800 feet radius, with different degrees of motion.

Radius of curvature in feet.	Velocity of the car in miles per hour.	Corresponding grade in feet.
800	2	0.440
800	4	1.760
800	8	7.040
800	12	15.840
800	20	44.000

[From the N. Y. Mechanics' Magazine.]

MR. BURDEN'S SPIKES. — The public has already had the means of knowing that the above named enterprising individual invented, some years since, a machine for making spikes of wrought iron, chiefly for the purposes of being used in constructing ships and railroads; but their value, compared with other spikes, seems to be but very sparingly known. These spikes, to any competent judge, will show themselves to be far superior to any spikes ever manufactured, or which can be manufactured for the above purposes, for the following reasons. The iron being selected by Mr. B. himself, and in large quantities of the first quality, no other being used, its uniform excellence must infinitely surpass that of common spikes, which are made of such small lots of iron as come to hand promiscuously; the body of these spikes being of exactly even and uniform size, and without hammer strokes, when once entered they have no tendency to split the wood, and, having a square chisel shaped edge, they cut their passage instead of forcing it.

But Mr. B. is emphatically an experimentalist, and he wished to test the comparative value of his spikes by some precise data. He wished to ascertain first with what degree of safety his spikes might be driven into wood without splitting; second, what was the tenacity of the iron; and third, what power it would require to draw them out.

To test the first point, he took a piece of seasoned white oak joist, 3 by 6 inches, and sawing off 3 inches, produced, of course, a piece 3 inches square and 6 inches long, but with the grain running crosswise. In one end of this block, he entered, without boring, the point of a spike 5 inches long, with the edge of its point across the grain, and drove in the whole length without splitting the block.

To ascertain the second and third points, he drove another and similar spike into a similar block, leaving its head a little distance out, and securing the block in a firm situation, and gripping the head by a strong instrument similar to a pair of wire tongs, he suspended to the tongs 100 56-pound weights, equal to 5600 pounds, and these neither breaking the spike nor drawing it out, he took a sledge and struck forcibly upon the apparatus attached to the head of the spike, when it drew out and left the spike and the wood unbroken.

These experiments were made at the store of Messrs. I. & J. Townsend, in this city, in presence of the President and Directors of the Albany and Schenectady Railroad Company, and if they do not remove all doubts as to the superiority of these spikes for ships and railroads, I know not what would.

S. B.
Albany, June 15, 1835.

ARITHMETIC BY MACHINERY.—A cabinet-maker of Milan has invented a machine with cylinders, which executes any sum in the first three rules of Arithmetic, for which the Institute of Milan has awarded him a gold medal.

[From the London Penny Magazine.]

Lead. — The appearance of this substance in its metallic state is undoubtedly familiar to every one. It is one of the most useful of mineral substances, and forms one of the most valuable products of the mines of Great Britain. Its specific gravity is considerable, being more than eleven times the weight of an equal bulk of water. It is malleable, and with ease may be reduced into very thin plates; but it is liable to crack under the hammer. It is so far ductile as to be capable of being drawn into wire $\frac{1}{16}$ part of an inch in thickness, but its tenacity is very low; for a wire of that diameter breaks with a weight a little exceeding eighteen pounds. As it possesses no elasticity, it is incapable of compression, and differs in that respect from all the other ductile metals, which diminish in volume, and, consequently, increase in density, under the hammer; but lead has the same specific gravity when it is simply melted as when it is beat or rolled out into plates. It is the least sonorous of all the metals. It is easily fusible, melting at 612° , or a heat less than three times that of boiling water; but not so easily as tin, which melts at the temperature of 442° . When first melted, or when cut, it has a brilliant lustre; but this shining surface, however, is soon tarnished by attracting oxygen and carbonic acid from the air: but this coating of carbonated oxide, once acquired, protects it from further change. Water has no action upon it: and hence its usefulness for cisterns and pipes. When exposed to the continued action of a stream of hot air, it rapidly acquires oxygen, and is converted into a substance which is called "litharge."

Lead has been sometimes found in the pure, or native state; but very rarely, and always in small quantity. It is one of the metals which is found in the greatest variety of combinations: but there is only one kind of ore which is very abundant; the rest are chiefly known as objects of interest to the mineralogist; many of them afford very beautiful specimens for the cabinet. The common ore is a combination of eighty-six parts of lead and fourteen of sulphur, and is called usually by the name of *Galena*, or sulphuret of lead. It very often contains silver, and in sufficient quantity to pay the expense of a process for separating it. That of the north of England contains from 2 to 24 ounces of silver to the ton, and the average quantity is $11\frac{1}{2}$ ounces. The galena of the mine Huel Pool, in Cornwall, yielded 60 ounces; of Guarnock Mine, near Truro, 60 ounces; and a mine near Beeralstone, in Devonshire, yielded galena so rich as to give 135 ounces of silver to the ton. A great proprietor of lead mines in the north of England had a splendid service of plate made of the silver so separated from the lead ore.

In geological position, lead is most abundantly met with in the lower strata of the secondary sedimentary deposits, especially in the carboniferous limestone. It is found also in considerable quantity in the strata below these, in the grauwacke, clay-slate, mica-slate, and even in gneiss, which is the lowest of the stratified rocks. It is found also, but more rarely, in the unstratified rocks, both in granite and in trap; but in all the instances that have been mentioned, the granite and trap have always been associated with stratified rocks containing lead ore. It is occasionally found in the coal-measures, but not hitherto in any of the strata above the coal. Galena, next to pyrites, or sulphuret of iron, is the most common of the metallic ores, and it is found in almost every country of the globe; but

There are large tracts without any deposits of it in sufficient abundance to be worked.

England produces annually nearly three times as much lead as all the other countries of Europe put together. The chief mines are in the north of England, in Derbyshire, North Wales, and Devonshire, on the borders of Cornwall. The great seat of the north of England mines is that high district around the mountain of Cross Fell, where the counties of Northumberland, Cumberland, Westmoreland, the North Riding of Yorkshire, and Durham, meet, as it were, in a central point, and from which they radiate. The mines first become of importance on Muggleswick Moor, on the borders of Northumberland and Durham, about twenty-seven miles from the east coast of Sunderland, and at Blanchland, on the river Derwent, a little to the west of Muggleswick; and they continue to the summit of Cross Fell. Aldstone Moor, in Cumberland, and Dufon, in Westmoreland, are important places in this district; and there are mines in Weardale, Teesdale, Allendale, and Askendale. Mr. Forster reckons that, in this part of England, there are no less than 175 lead mines, which either have been or are now worked. The prevailing rock is the carboniferous limestone,—that great deposit which lies immediately under the coal strata in most parts of England. It is associated with strata of sandstone and slate; and there are about twenty different beds of limestone which the miners distinguish by different names. The series of strata at Aldstone Moor, according to a section given by Mr. Winch, consists of about sixty alternations of slate, sandstone, and limestone, in 159 fathoms, or 854 feet. The whole are covered by the coarse sandstone commonly known by the name of "millstone grit." The above dimensions are only a part of the strata where they are bored through in sinking the well, or shaft of a mine; but if we include the whole deposit from the upper surface of the old red sandstone, on which the series rests, we obtain a total thickness of nearly 2800 feet. Beds of trap, one of which is particularly designated the "Whin Silt," a miner's term, are interposed between the strata in several places. The lead ore occurs in veins, which traverse the strata in various directions, and in many irregular ways, sometimes being very slender, at other times extending to great widths. They are usually of larger dimensions in the limestone than in the slate and sandstone: one vein, which is seventeen feet in a limestone stratum, contracts to three feet in the sandstone below; and they are always much richer in ore, even in proportion to their magnitude, in the limestone. That part of the series which is richest in lead does not exceed 300 feet. The mineral substances which accompany the ore, forming what is called the "vein-stone," are calcareous spar, fluor spar, quartz, and a few others of less frequent occurrence. The mines in this part of England have yielded, of late, on an average, about 25,000 tons of lead annually, which is more than one-half of the whole produce of Great Britain; and of that amount nearly a third is obtained from the mines belonging to Greenwich Hospital. In the year 1831, 28,000 tons were raised from the mines of Cumberland, Northumberland, and Durham.

The lead mines of Derbyshire are situated in the north-western part of the country, extending as far south as the neighborhood of Matlock. That district is almost wholly composed of the carboniferous limestone, which is surrounded on all sides by the

millstone-grit that lies above it. The limestone is very much disturbed in its stratifications, and is intersected by dikes and beds of trap. There are limestones of various qualities and colors in the series, chiefly of a grey and fawn color, but sometimes quite black; and several of the beds being of a texture which receives a good polish, they are used as marbles for architectural and ornamental purposes. The limestone-beds contain numerous great caverns, which are often visited by travellers. The ore is galena; but it contains in general too little silver to repay the cost of extracting it. The vein-stones that accompany the lead ore are usually calcareous spar and fluor; the latter being the substance which is so generally known by the name of "Derbyshire Spar,"—a beautiful mineral, and capable of forming handsome vases, and such like ornaments. This mineral is a compound of lime with a peculiar acid, which, from having been first found in it, was called "fluoric acid." Farey, in his 'Mineral Survey of Derbyshire,' enumerates no less than 280 mines, which had been, or were then (1811,) working.

Next in importance to the mines of the north of England, those in North Wales, in Flintshire, and in Denbighshire, are the most productive: a small quantity is raised in Shropshire, and in the neighborhood of Tavistock in Devonshire. Lead ore has been found in different places in the Isle of Man, and mines were worked there in the reign of Henry IV.; they were even in some activity as late as the early part of the last century, but they are now almost given up. It is found in the counties of Down and Wicklow in small quantities, sufficient, however, to be worth working. The lead mines of Scotland are more productive. The most important are those situated in the grauwacke, or slate-rocks, composing the range of hills which runs quite across the south of Scotland, from St. Abb's Head, north of Berwick, and in that part of it called Lead Hills and Warlock Head, on the borders of the counties of Lanark and Dumfries, north-east of Sanquhar. These mines were discovered in the year 1540, and have yielded large revenues to the proprietors ever since. The veins traverse the grauwacke rock from north to south, and very considerably in thickness, some of the principal ones being from four to ten feet in width. At one time, the Susannah vein exhibited a mass of solid ore no less than fourteen feet thick; this was probably a junction into one of several small veins. Some years ago, the mines of Lead Hills and Warlock Head together yielded about 2400 tons annually. Lead has been wrought at Tyndrum, in Argyleshire, where the ore is found in a bed of quartz, which is part of a series of strata of the primary rock, mica slate; and also at Strontian, in the same county, where the galena traverses gneiss, the oldest of the primary strata. The produce of the different lead mines in Scotland was at one time estimated to amount to 4800 tons, but it has, of late years, fallen off very considerably. Mr. Taylor, in his 'Records of Mining,' gives an account of the quantity of lead raised from the mines of Great Britain in the year 1828, which, he says, was the result of a careful inquiry among those best acquainted with the subject. It is as follows:

	Tons.
North of England Mines -	26,700
Derbyshire and Shropshire -	4,800
Devonshire and Cornwall -	2,000
Flintshire and Denbighshire	12,000

Scotland -	1,000
Ireland, Isle of Man, &c.	500

47,000

Five years prior to this, the whole amount was only 36,000.

Method of obtaining the Metal from the Ore.—The ore, after having been properly broken, and separated as much as possible from the vein-stones, is roasted in a furnace, with a small quantity of coal, in order to expel the sulphur, and any other volatile matter which it may contain. After undergoing this process, it is taken to a blast furnace, of a peculiar construction, called an "ore-hearth," where, by a powerful heat, the ore is melted, and the metal separated from the dross, or slag, which swims on the surface; the mass being frequently stirred, to facilitate the separation, for a period of from twelve to fifteen hours. There are various manipulations during the process, and these, together with a supply of fuel and of lime (which is added to facilitate the reduction), are modified according to the nature of the ore, and require much skill and tact on the part of the workman. The slags, still containing a portion of lead, are subjected to another process of smelting with coke in another furnace. In all these operations a considerable quantity of the ore is volatilized, and condenses in the chimneys of the furnace: this, which is called "smelters' fume," is collected from time to time, and the lead is extracted from it.

The quantity of silver contained in the greater part of the lead ore raised in the north of England is sufficient to render its extraction profitable. The separation of lead and silver is effected by the different degrees of attraction which the two metals have for oxygen, the silver remaining unaltered, when exposed to the air of the atmosphere at a high temperature; whereas lead, under the same circumstances, becomes rapidly converted to a protoxide;—that is, becomes a new substance, composed of lead and a minimum quantity of oxygen, and which is commonly known by the name of "litharge." The lead to be refined is placed in a furnace so constructed as to admit of the ready separation of the litharge as it is formed; it is melted and farther heated till it becomes of a bright red, and then the blast of air is made to pass over it. This not only supplies the oxygen, but is sufficiently strong to sweep away the oxide as it is formed, by which means a fresh surface of the melted lead is exposed: more lead is supplied, from time to time, as the operation proceeds, and, at the end of the process, a cake of silver is found at the bottom of the furnace. The lead is recovered from the litharge, by a very simple process, which consists in mixing it with coal, and exposing it to a strong heat: the carbon of the coal has a stronger attraction for oxygen than lead has, and therefore separates it from the litharge, leaving the pure metal, which is run out into moulds to form the pigs, or bars, in which shape it is brought to market. This process of extracting the silver from the lead was not introduced in the north of England mines till the reign of William and Mary.

The working of lead mines in Great Britain dates from a remote period. The mines in Derbyshire, it is supposed, were wrought in the time of the Romans; the proofs of which are derived from blocks or bars of lead which have been found with Roman inscriptions upon them. A bar of this kind was discovered on Cromford Moor in the year 1777, and the interpreta-

tion of the inscription which has been given is the following: "The Sixth Legion inscribe this in memory of the Emperor Adrian." Another bar was met with near Matlock in 1783, the inscription of which has been translated as follows: "The property of Lucius Aruconius Verecundus, merchant of London." The Saxons and Danes, it is supposed, were also engaged in working the mines of Derbyshire, from the designation of the Odin Mine, at Castle-ton, which it is conjectured was so called from the name of the northern deity.

Uses of Lead.—Besides the various purposes to which it is applied in its pure state, lead is employed in many different ways in combination with other substances. The sulphuret of lead—that is, the common ore, galena—is made use of, without any previous preparation, as a glazing for coarse pottery. The protoxide, or litharge, enters largely into the composition of flint-glass, which it renders more fusible, transparent, and uniform. Combined with another proportion of oxygen, it forms *Red Lead*, which is also used in the manufacture of flint-glass, and as a paint. *White Lead*, which is so extensively used as a paint, is a combination of the metal with oxygen and carbonic acid. *Sugar of Lead*, which is used very largely in several manufactures, particularly in calico printing, and also in medicine as an external application, is a compound of lead and acetic acid, or vinegar. It is so called from having a remarkably sweet taste: it is well known, as well as most of the combinations of lead, to be a deadly poison.

Of the 45,000 tons of lead which may be estimated as the average produce of the mines of the United Kingdom, about one-third is exported. In the year ending January 5, 1833, the exports were as follows:

	Tons.
In pigs, and rolled, and shot, -	12,181
Litharge - - - - -	433
White Lead - - - - -	652
Red Lead - - - - -	396
Lead Ore - - - - -	236

Total - - 13,898

The countries to which that quantity was exported were,—

	Tons.
United States of America - - -	4,896
East Indies and China - - -	2,930
Russia and Sweden - - -	1,951
Germany - - - - -	634
Brazil - - - - -	526
West Indies - - - - -	514
British North America - - -	480
The Netherlands - - - -	456
Cape of Good Hope and Africa -	435
New South Wales - - - -	223
Italy and the Levant - - -	226
Spain and Portugal - - -	226
Other places in lesser quantities	351

Total - - 13,898

No species of property, perhaps, has undergone so great a deterioration in so short a time as that of lead mines. In the year 1809, the market-price of lead in bars was £31 3s. per ton; and, according to the tables given by Mr. Macculloch in his 'Commercial Dictionary,' the average price for the ten years ending 1810 was £27 14s. 6d. It rose to £31 in the year 1814, when speculations at the close of the war raised the value of many of our native products; but the average of the ten years ending 1820 was £23 6s. 6d. A sudden fall took place five years afterwards, for in 1825 the price was £25 6s., and the following year it fell to £19; and it kept falling

till 1832, when it was down to £13 10s. From that extreme depression it has partially recovered, the present market price being about £18 per ton. This extraordinary fall was occasioned by a sudden increase of supply from the lead mines of Spain. These mines are situated in Andalusia, partly in a range of mountains to the north of Jaen, near Linares, but chiefly in another range which lies between Jaen and the city of Granada, and on the southern slope of them. We know little about these mines beyond their locality, for the geology of Spain is as yet very imperfectly understood. Bowles, who wrote in the year 1776, describes the mines to the north of Jaen to have been worked by the Moors, and says that the mountains are pierced by shafts in all directions; that there are two great veins which pass through granitic rock, which vary considerably in richness; and that at one time one of the mines produced in a year more than all the lead mines of Saxony together had done in twelve years. But it is the mines in the mountains of Granada from which the recent great supply has been obtained. The ore lies near the surface, and is therefore obtained without much exercise of skill, or expense of labor and machinery. Mr. Witham says, that "the metalliferous limestone of the south of Spain is so rich in galena as to furnish, even in the present imperfect state of mining in that country, about 20,000 tons of lead annually. France has some lead mines in Brittany, Languedoc, Alsace, and other parts of her territory, but imports the greater part of her consumption, and chiefly from Spain; England having sent only 70 tons to France out of the 13,898 exported in 1832. There are many lead mines in Saxony, Bohemia, Silesia, and other parts of Germany. Although the exports to the United States from this country are so considerable, they are not without ores of that metal in their own country. The mines are situated in Pennsylvania, Massachusetts, and on the Fever and Missouri river in the Western States; the richest being in the latter country. The total produce in 1829 exceeded 6000 tons.

[From the New-York American.]

COOKING BY GAS.—This new application of Gas seems to us of great promise, for economy, comfort and safety. We had heard nothing of it until a few evenings ago, on the invitation of Mr. L. Suydam, President of the Manhattan Gas Works, we had an opportunity, at his house, both of seeing the process of cooking, and verifying the fact that what was thus cooked, was "well done," even though not "quickly done."

The apparatus is of great simplicity. A circular or elliptical burner of such dimensions as may be needed—in a large family several of different dimensions would be required—is constructed, pierced with numerous and very small apertures, so that all the gas that passes may certainly be consumed. In the centre of the circle, is a permanent perpendicular spit, on which the joint to be roasted is impaled, a sheet iron funnel-shaped chimney, large enough at the bottom to include the lights, and tapering upwards so as to concentrate and reflect the heat, is then placed over the whole, and the cook may go about any other business, for the next two or three hours, fully assured on coming back at the end of that time, of finding the meat well cooked. But this is not all. Over the funnel shaped chimney is placed a large tin vessel divided horizontally into two compartments—the lower one serving as a kettle to boil water, the upper as a vessel in which to boil meats or vegetables,

and the same fire and the same time required for roasting, will also suffice for boiling the water, and cooking the vegetables. The cost for fuel of such a fire, as we saw, by which a 12lb piece of beef was roasting, was stated by the superintendent, Mr. Barlow, at two cents an hour—or six cents for the whole period for cooking dinner—add to this the further economical advantage, that you only light your fire when you want it, and extinguish it the moment it has fulfilled its purpose, and we have a strong argument on the score of cheapness.

It is obvious that any number of these burners may be arranged—all to be supplied by one main leader—and as the cost of these fixtures is small, and only the gas actually used is paid for, it would be expedient always to have several of them.

Of course the value of this new application of gas depends upon proper care in the use of the apparatus, and on the part of the company, in the preparation and purification of the gas. As to the first, the whole thing is so simple, that except through wilfulness there could be no mistake, and as to the purification of the gas, the interest of the company would be so great in seeing to that, as upon its freedom from smell and brightness in burning, its general use would essentially depend—that little need be apprehended on that score.

Upon the whole we confess ourselves amazingly taken with this kind of fuel—and recommend to our friends to ascertain, at the works of the Manhattan Gas Company, the cost, and the advantages particularly in hot weather, of such kitchen fires!

HYDROSTATIC PRESSURE ON THE EYES OF WHALES.—Admitting a cubic foot of fresh water weighs sixty-five pounds, and the same measure of sea water, sixty-six and a half, the pressure on the bodies of marine animals must indeed be great. Were a cubic foot of the latter to weigh exactly sixty-six pounds, at the depth of 8400 feet, the pressure must be the enormous weight of 554,400 pounds. Whales have occasionally run out fourteen warps of a hundred fathoms each, which, if the descent be perpendicular, is just equal to 8400 feet. However, it is probable that this course is usually at an inclination of between seventy and eighty degrees from a vertical line, but arriving nevertheless, at depths much beyond ordinary soundings. Supposing the eye of the whale exposes to the water six square inches in its entire superficies, when the monster dives to the depth to which it has been assumed that he has the power of going, the hydrostatic pressure on the eye will be equal to 23,100 pounds. Six square inches are the twenty-fourth part of a square foot; and at 8400 feet, the weight being 554,400 pounds, it follows, therefore, that the eye resists the force or pressure of just 23,100 pounds.

When a tightly corked bottle is sunk one hundred fathoms, at sea, the cork has invariably been forced in, and the bottle found full of water, when brought to the surface. If the cork be capped with sealing wax, on coming up it will be inverted, the sealed end being downward. On the other hand, if nothing is applied, then the cork will generally have a horizontal position. These experiments, however, have been so frequently made, that they have ceased to be interesting to philosophers.—[Sc. Tracts.]

TABLE.

1	5.	31	27.83	61	39.05	91	47.69
2	7.07	32	28.28	62	39.37	92	47.95
3	8.66	33	28.72	63	39.68	93	48.22
4	10.	34	29.15	64	40.	94	48.47
5	11.18	35	29.57	65	40.3	95	48.73
6	12.24	36	30.	66	40.62	96	48.98
7	13.22	37	30.41	67	40.92	97	49.24
8	14.14	38	30.82	68	41.28	98	49.49
9	15.	39	31.22	69	41.53	99	49.74
10	16.81	40	31.62	70	41.83	100	50.
11	16.68	41	32.01	71	42.12	105	51.28
12	17.32	42	32.4	72	42.42	110	52.43
13	18.2	43	32.83	73	42.72	115	53.61
14	18.72	44	33.16	74	43.01	120	54.77
15	19.36	45	33.54	75	43.3	125	55.90
16	20.	46	33.91	76	43.58	130	57.
17	20.61	47	34.26	77	43.87	135	58.07
18	21.21	48	34.71	78	44.13	140	59.16
19	21.79	49	35.	79	44.41	145	60.2
20	22.35	50	35.35	80	44.72	150	61.23
21	22.91	51	35.7	81	45.	155	62.24
22	23.45	52	36.05	82	45.27	160	63.24
23	23.97	53	36.41	83	45.55	165	64.22
24	24.13	54	36.74	84	45.82	170	65.19
25	25.	55	37.08	85	46.09	175	66.12
26	25.5	56	37.41	86	46.36	180	67.08
27	25.98	57	37.71	87	46.63	185	68.
28	26.45	58	38.07	88	46.9	190	68.92
29	26.92	59	38.4	89	47.17	195	69.82
30	27.15	60	38.72	90	47.4	200	70.86

AUGUSTUS GREEN.

The whey that drained from the curd, during the process of cheesemaking, is put into trendles (a sort of tub) and suffered to remain till the next day, when it is skimmed. From this whey butter is made, and the residue is given to pigs. The

rennet is made by mixing salt and water till it will support an egg, and then boiling it half an hour. When it is cold, four calves' stomachs are put to a gallon of the brine, with bay leaves and slices of lemon. In six weeks it is fit for use.

For single Gloucester cheese, the vats, which are made of elm, are thirteen inches in diameter, and about two inches and a half in depth: for double Gloucester cheese, the same diameter, and twice, or more than twice the depth. All the dairy utensils, after being used, are washed with tepid water, and then scalded. In making the double Gloucester cheese, and those that are called "truckles," the same method is pursued, except that more care is used in pressing the curd into the vats, which, for such cheeses, have three perforations to let the whey drain off; and bandages of cheese-cloth are put round when the curd is above the vat. Sage-cheese is made by pounding sage and straining the juice into a pail of milk, to which rennet is then added. The same process is observed as for other cheese till the time when the warm whey should be poured upon it, when it is broken up with as much of the simple curd as the milk-maid considers necessary, and treated as other cheese. To make the richest cream-cheeses, the thickest cream must be taken, and put, with a little salt, into a straining-cloth, which is hung up twelve hours, in order that the whey may drop from it. When it is taken from the cloth, it is put between two pewter-plates, with a weight on the upper one, and turned daily during five or six days. These cheeses can only be made in this manner in warm weather. The milk that the cows give when they are first turned into the fields in the spring, and when they are afterwards pastured in fields that have been newly mown, yields nearly as much curd again as at any other period; and it is also much richer. The principal season for making the thin cheese is from April to November; and that for making the thick, May, June, and the beginning of July.

In different districts, the produce of cows differs very much; but, in the Vale of Gloucester, from 3½ to 4½ cwt. per cow is considered a fair annual average return. The same cow, on different pastures, will yield milk of very different qualities; from one will be made rank and unpleasant cheese, while the other will be fine and rich. An estimate of the profit and expenses of a farm for twenty cows can be, from the continual variation in the state of the times and local circumstances, of course only an approximation towards the truth. But the following, made in the Vale of Gloucester in 1835, where the land is rich and excellent, is as accurate an annual average statement as the nature of the subject will admit:

Rent of 40 acres, at 50s., for pasture.....	£100	0	0
— 20 acres for hay.....	50	0	0
— 2 acres of arable, for potatoes.....	5	0	0
Making hay, 12s. an acre.....	12	0	0
Carrying and rickling.....	2	10	0
Expenses of raising potatoes and seed.....	15	9	0
Tithes, 3s. 6d. in the pound.....	27	2	6
Poor and other rates, 3s. 9d. in the pound.....	29	2	11
Dairymaid, 7l. a year (besides board).....	7	0	0
Dairymen, at 7l. a year (besides board)....	7	0	0
Wear and tear of dairy utensils.....	10	0	0
Wash.....	10	0	0

Annatto, 4s. a-pound.....	1	0	0
Rennet and paint.....	1	4	0
Interest of money laid out in stock and im- plements, reckoning each cow at from 8l. to 10l., and chance of loss.....	20	0	0
Profit.....	87	11	7
	£366	0	0

Cheese, 4 tons, at 4 cwt. each cow, and at 44s. per cwt.....	£176	0	0
Value of whey.....	20	0	0
Pasture of colts and sheep.....	20	0	0
Profit of calves.....	30	0	0
Butter.....	90	0	0
Pigs.....	5	0	0
Potatoes.....	25	0	0
	£366	0	0

The capital necessary for the purchase of stock for such a farm would, according to present prices, be about 300l.; but as it is not prudent that the whole of the capital should be expended, a man who had only that sum should take a smaller farm, and reserve a part for the payment of work-people, and other incidental expenses which would be required before much profit was derived from the farm. From the depressed state of agriculture, the present time is not by any means auspicious for the commencement of business as a dairy-farmer. The requisite dairy utensils will cost about 25l.

Bement's Improved, Triangular, Expanding Cultivator, or Horse Hoe. [Communicated for the New-York Farmer, and American Gardener's Magazine.]



The above drawing is taken from one made for Mr. Bement's own use, with only three shares or teeth, and made very light, to be drawn by a small pony. The usual size has three shares and two scarifiers. The shares are double pointed, having one point at the top and another at the bottom, and are attached to the stock by a small screw-bolt and nut in the middle, so that when one point breaks, or is worn out, by turning the other end down, a new point or share is presented. A larger or smaller share may also be attached to the stock as occasion may require. The shares may also be replaced by scarifiers.

By the peculiar construction of the clevis,

the roller or wheel, and with it the beam, can be regulated to any height required; and by raising or towing the hook, the line of draught can be adjusted accordingly.. The sides may also be set wider or narrower, to suit any occasion.

In putting in such grains as are proper to be ploughed in, as barley, oats and peas, the larger shares may be used. The shares can be replaced by scarifiers, which are useful for cleaning out quack and other troublesome weeds, as well as scarifying meadows, previous to a top dressing of manure.

This cultivator or horse hoe is, in proportion to its cost, perhaps as valuable an implement as can be had on a farm, serving, as it does, a variety of uses, and being in all cases light and convenient to use; and I should think by the number of orders Mr. B. is receiving, it is coming rapidly as well as deservedly into use.

Improved Short Horns. By H. C. [For the New-York Farmer.]

The British Farmer's Magazine, for April, 1835, has been received, but is rather barren of interesting matter. A considerable portion as heretofore is occupied with British statistics and politics, by a writer who seems to be endued with an inexhaustible ductility of writing, and whose speculations, which have no interest here, remind us of the calculations of the extent to which a single grain of gold may be drawn or hammered out, if the means of its extension were equal to its capacity.

This number, however, contains a letter from an American correspondent, whom we are not able to identify, but who shows himself an inquisitive and experimental agriculturist. The subject is the "Acclimation of the Improved Short Horns." As the letter touches on matters of much interest and curiosity, we subjoin it. It is addressed to the Rev. Henry Berry, the editor of the Magazine.

"SIR,—The only apology I can offer for this intrusion on both your time and attention, must rest on the interest and sympathy common to those who are pursuing the same subject with the same views; and when an individual like yourself is so much in advance of his contemporaries, he necessarily becomes subject to the tax of inquiry. Under these impressions have I ventured on a correspondence in which I feel there is but too much of selfishness, though I sometimes indulge the hope that you may possibly feel an interest in the progress of your favorite animals, the improved short horns, in this country, together with the wonderful facility with which they have adapted themselves to a climate whose variations will sometimes range as much as 50° of the thermometer in twenty-four hours; whose winter is rigorously cold and protracted, and whose summers are excessively warm and debilitating; the one sinking the mercury of Fah. thermometer 10° below zero, and the other raising it to 85° and 95° of heat in the shade! Add to this the fact that little or no provision of succulent food, roots, &c. is made for stock in this country, and that they are consequently confined to dry hay for above

seven months in the year, which is generally "fed out" to them on the snow, without even a hovel to stand under by day or by night. To such exposures and hardships was I obliged to submit my cattle, before I could convince the farmers around me that their fine appearance and high condition were not the result of pampering care and attention. Ignorance and prejudice were both arrayed against me, and envy stood close at their heels in case of success.

"I consented to place a very fine young cow on the farm of a neighbor, there to be wintered with his two-year-old stock, and in all respects to fare as they did. She was placed with the young cattle in September, and in October they were driven on to a side hill, with a western aspect, there to winter on the snow, fed with nothing but hay, which was fed out to them twice a day, without house, shed, or barn of any description, to shelter them. The situation was well chosen for the object; it was a cold and bleak exposure, in full view of the village, and at the crossing of two roads which were much travelled. By the 10th of November our winter commenced in earnest; the ground was covered with snow; and remained so until the 19th of March; nor was the cow released from her winter quarters until the 10th of May, when she was turned out to grass in *precisely the same high condition* as when first driven to her winter station. So much for acclimation and fine constitution.

"From my childhood I have been enthusiastically fond of animals, and have communed much with them; from the puerile objects of pigeons and poultry, I passed to the more important stock of a farm, where in turn my hands have been occupied by the unpromising Alderney, the pretty Devon, the imposing Hereford; and at present by the valuable family of improved short horns; which latter have been drawn from the yards of — and —. These are the sources from which I have drawn my present stock, with an occasional cross from the imported bull Admiral, sired by North Star, dam by Comet, which was sent by Sir Isaac Coffin a present to the state of Massachusetts. You will perhaps hardly be prepared for the fact, that the animals derived from —'s stock are decidedly superior to those from —'s — better in constitution, in form, and in their dairy qualities.

"I am, sir, thus particular in my history of these animals, not because they are mine, but because you are well acquainted with the yards from which I drew them; and the knowledge of how they have proved in this country, compared with —'s, may be useful, as all facts are to an inquiring mind. —'s stock have been remarkable for their deep milking—more so, I think, than that of any other in the country.

"I have been much embarrassed by a bull's (from —'s stock) great uncertainty, and I much doubt if he ever sired over a dozen or fifteen calves in a season. A son of his is but one degree better; and so it has been with others of this family after they have become three years old. I think you once owned the dam, Is

there any in-and-in breeding about her, that would account for such inability? My bulls are not kept high; they are put to hay in October, and are kept up until the middle of August, and then run to grass about two months. I do not grain them, or bestow any particular management on them during the season. I should feel greatly indebted to you for any advice you are disposed to give me in relation to this subject; or if willing to give me an account of your own method of raising, feeding, and treating a bull calf, it would be exceedingly valuable to me, and I should consider it a great favor. If attended with less trouble to yourself than a private letter, perhaps you will favor the readers of the British Farmer's Magazine with an article on the subject of the want of vigor so often found in high-bred animals. It would be interesting to trace the course of in-and-in breeding step by step, in its effects on the animal economy. I have sometimes thought that its effects were perceptible on the frame or bone of the animal, then on the muscles, then on the glands, afterwards on the general constitution, and lastly on the very intestines themselves; but with me this is little more than Yankee guessing; with you it is matter of science and experiment. Your several most valuable essays on improving and breeding stock, I have; but I think none of them describe the course of in-and-in breeding. I have myself, with pigs, watched this in-and-in breeding as far as it has been practised, six times between brothers and sisters, and the last produce fatted easiest; this I do not understand.

"Residing as I do in a country scarcely acquainted with the first principles of breeding, and where indeed its science is almost matter of ridicule, I feel at times an anxiety lest I am losing ground; and that some general defect may creep into my herd until it becomes a characteristic feature no longer to be detected by comparison, for such I believe is frequently the case with those whose opportunity of comparing is, either from circumstances or conceits, confined to their own yards. Of course I can see but very few high bred animals, and my own are seldom seen by any who are competent to criticise the nicer and more finished points of high breeding. You will not therefore wonder at the anxiety and distrust consequent on my insulated situation; and the value I attach to correct portraits of approved animals, which at once address the eye, and leave so much less than the *most able* description could do to the filling up of the imagination. And here, sir, let me acknowledge the great assistance I have received from the excellent portrait of one of your cows, which appeared in the August number of the British Farmer's Magazine, which, while it afforded me a clear comprehension of your beautiful idea of a short horn, was an admirable illustration of your valuable remarks on compactness of form, and that *symmetry* of parts which really constitutes weight; whereas, it is but too often the case, that the animal of extravagant disproportion in some one or more points, catches the unpractised eye, and captivates the uneducated judgment.

"The best, the most elaborate description of form, is, after all, very unsatisfactory, as it is still to be embodied by the imagination of the reader; and could these creations of the fancy be seen, they would generally be the fac-similes of some favorite figure or style of animal at home. It is, therefore, that I attach so much importance and value to the pencil, as the best possible mode of conveying a correct idea of excellence in form; and feel exceedingly anxious that all the portraits published in that valuable work, the British Farmer's Magazine, should possess the same fidelity and correctness as that which there represents your own cow.

"I have just received, from Mr. J. Ellman's flock, half a dozen most beautiful ewes, and a very fine stout large yearling ram, and judging from this animal I should think he had regained the vigor and constitution which were so deficient in his father's, and that too, he says, without recourse to the "Hampshire cross." I mention this because I remember your five days' visit to Mr. Coke's, where you make allusion to his flock of South-Down breed. I had intended pursuing the same course; but the ram will give the constitution and hardiness necessary for this climate. The ewes are most fashionable and finished specimens of high breeding, and may not perhaps stand our severe seasons. Animals, however, become wonderfully acclimated, and, I am inclined to think, *much hardier*, here, after a few years, than they are when imported. Our horses most certainly endure what would kill an English work-horse. The merino sheep suffered much at first, but our present flocks are as healthy as such formed animals can be. And the short-horns of earliest importation do better than those of more recent arrival—of course I speak of the descendants, and not the animals themselves, though these even become hardier. And with these facts, I have thought that when the blood has been kept pure and the stock not depreciated in this country, that the English breeder might make perhaps an importation or an exchange with this country, that would materially add to the hardihood of his animals. The very suggestion may sound like presumption to an English herder; but I pray you to remember that I have reference *only* to the effect of *climate here* on your *own* excellent materials. For instance, Mr. Ellman has sent what he considers a good selection of animals suitable to breed together. Now, I have no doubt that in three, or rather in five years, I shall have infinitely hardier sheep than any in Mr. Ellman's own flock. And I presume I have better constituted short-horns than those in England; for though I feed no hay *liberally*, with a few raw potatoes to correct the state of the animal's bowels, yet I never pamper or feed high; and though I house them at night, I turn them out all day on the snow, where they run and frolic with the real enjoyment of animal life. Nor are they pinched or drawn up by our cold and severe seasons, but are straight and upheaded.

"Since my arrival of South-Downs, there seems to be a strong desire to import more; and I have suggested to one gentleman,

that he should take his sheep from Mr. Coke's flock, and breed against me; and he so far listens to it as to request I would ascertain the cost of half a dozen yearling ewes, and a buck of his best. Perhaps, should you find time to favor me with a line, you would mention the cost, if you know it.

"Where is Coate's supplement to his Herd Book? I look for it impatiently.

"Very respectfully yours,

"State of New-York, U. S.,
Nov. 1834."

This letter was a private letter, and as such we forbear any extended comment upon it. Under these circumstances we are at a loss to know on what principle the editor could satisfy himself in giving it to the public; excepting as he may have felt himself at liberty to follow the prevalent fashion; for all honorable confidence seems in a great degree broken up, and private letters and letters of the most confidential character are daily, and without compunction, under a new code of morals, given to the public. This letter, it cannot be denied, is sufficiently fanciful to satisfy the most imaginative.

The wintering of the short-horn cow upon a snow bank, under a bleak and most inclement exposure, and her coming out in the same high condition in which she began the winter, does not appear very decisive for the object for which it is referred to, as it seems the cow, though of foreign stock, was a native of the country, and so from her birth was accustomed to the climate of the country; nor is it without good reason that we wish to be informed whether the other young cattle wintered with her came out in proportionally good condition. If they had not, we think the fact would have been stated.

The want of vigor, or power of procreation, in the high bred bulls, is a well understood fact; and a pretty serious inconvenience, as some of us have found to our cost. That this defect is to be attributed to the system of breeding in-and-in is not so well established, though we are not disposed to controvert it; but the "yankee guessing," by which this writer, who certainly is an intelligent man, proposes to trace the effects of this system of breeding in-and-in upon the animal economy, and concludes that "its first effects were perceptible on the frame or bone of the animal, then on the muscles, then on the glands, afterwards on the general constitution, and lastly on the very intestines themselves," can scarcely be considered as any thing else, we design no offence, than pure moonshine.

The assertion "that —'s stock have been remarkable for their deep milking, more so, I think, than that of any other in the country," is a bold assertion, and one to which we at once demur. It is too late in the day to establish this point by a simple declaration,—we ask for, we demand, the proof; and if gentlemen expect to be believed, they will be prompt to give it. Not long since I respectfully requested of the liberal and munificent proprietors of the

improved short horns in this country, to give us some exact and authenticated statements of the produce of their fine cows in milk and butter and cheese. Why do they not do it? It is a matter of easy ascertainment, and the result is of great public importance. I took occasion at that time to give a list of native cows, most of which had come under my own observation, with detailed and fully certified statements of their product. Let the champions and owners of the improved short horns show one like it if they can. I for one shall be glad to see it. I have no prejudice against this stock; my prejudices have all been the other way; but I confess myself entirely skeptical as to their value for the dairy. I have some facts in this matter which I shall give to the public, when I think there is occasion. I can only say, that I have had seven of the are made. If this article should attract the attention of a very intelligent writer for the Genesee Farmer, who, under the signature of *Ulmus*, often gratifies and instructs the readers of that admirably conducted periodical, we wish he would by actual facts within his own knowledge vindicate the claims of a race of animals of which he comes forward as so ardent a champion. We know he is well read on this subject, but we want facts under his own accurate personal observation.

That the estimation of the short horns as a dairy stock has very much depreciated in England, seems hardly to be doubted. There is in this very number a notice of Shirreff's "Tour through North America" for agricultural information. Shirreff is spoken of by the editor as "his talcows; and there is not a single property in relation to thrift or dairy produce, in which they have been superior, or indeed equal, to other stock in my yard. In respect both to quantity and quality of milk, they have been quite inferior. I have no question that there are very superior individuals among them; but I believe none that have surpassed some of the instances which I gave. As a race, are they superior for the dairy? We will not say we doubt it, but we question it; and we question it in no improper spirit, but solely with a view to ascertain the truth, and that the agricultural public may know how far they may rely upon the representations which entered correspondent." He says further of him, that "Mr. S. is a farmer of the first rank, a natural philosopher, a statistician, politician, and a citizen of the world. Few persons could be better fitted for the task of giving a view of the infant agriculture of America." Yet Mr. Shirreff, in describing the live stock of a farm he visited, says, "There was a fine short horn bull intended to improve the dairy stock, which I did not see. This contemplated improvement originated from perusing the writings of the Rev. Henry Berry of England. I took the liberty of advising the cross to be tried on a small scale, believing the short horns the worst milking breed in Britain."

We are often entertained with the account of Mr. Charles Colling's sale of short horns in 1810; and of the magnificent sale of the famous bull Comet, for one

thousand guineas. Why do not gentlemen report some later sales? In the absence of this information I shall take the liberty of giving two accounts of recent date.

"At the Rev. Henry Berry's fourth sale of improved short horns, on the 11th February, 1834, the following prices were obtained:

Lot 1, 2 years old, -	£24 3 0
2, do. -	36 15 0
3, do. bought in, £45 bid.	
4, 3 years, do. do.	
5, 3 years, -	29 18 0
6, calf sold with the above.	
7, 3 years, -	30 9 0
8, 3 years, -	38 17 0
9, 8 years, -	33 12 0
10, 9 years, -	26 5 0
11, heifer calf, -	15 15 0
12, 10 years, -	36 15 0
13, 10 years, -	48 6 0
14, 2 years old bull, -	39 18 0
15, 1 year old do., -	45 3 0
16, bull calf, -	15 15 0
17, do. -	31 10 0
18, do. nine weeks old,	32 11 0

These prices among us of course would be deemed extravagant, but they are evidently below what was expected, from some of the stock having been bought in; and they bear a very small comparison to the prices in Colling's sale.

The present number of the British Farmer's Magazine contains an account of a sale of improved short horns, made on 25th of February, 1835, and the two following days. We quote the sales of the cows and of the bulls.

cows.		
Rosette, 9 years old,	21	guineas.
Fable, 9 do.	18	"
Vicissitude, 8 do.	21	"
Vicia, 8 do.	12	"
Theresa, 7 do.	22	"
Volumnia, 7 do.	26	"
Rosalia, 6 do.	30	"
Pastime, 6 do.	27	"
Vermeil, 6 do.	13½	"
Twinkle, 5 do.	11	"
Valentine, 5 do.	14	"
Vestal, 4 do.	9½	"
Vauxhall, 4 do.	21	"
Violetta, 4 do.	15	"
Aqua Marine, 4 do.	29	"
Victoria, 4 do.	10½	"
Token, 4 do.	25	"
Fabulous, 3 do.	31	"
Truelove, 3 do.	20	"
Imogene, 3 do.	40	"

BULLS.		
Anur, 8 years old,	11	guineas.
Ambo Dexter, 5 years old,	50	"
Ainsty, 3 years old,	30	"
Tullochgonun, 2 do.	20	"
Belshazzar, 2 do.	43	"

YEARLING BULL CALVES.		
Pastor, -	26	"
Roscius, -	50	"
Vulcan, -	43	"

BULL CALVES. 1834.		
Blast, -	29	"
Falstaff, -	18	"
Tommy, -	30	"
Plenipo, -	26	"

This sale shows, we think, pretty clear-

ly, a depreciation in the value of this stock, though prices may have been materially affected by local or temporary circumstances, with which we are not acquainted.

The value of the improved stock for beef is a subject upon which I shall not now enter. Two pairs of very superior cattle of this stock were last spring sold in New-York market, which were raised and fattened in Albany. One of the oxen was a very uncommon animal. At some future time perhaps we shall notice this subject more particularly; but we regret to state, which we do upon competent authority, that the reported enormous weight of these cattle was a gross exaggeration. It is said that some English gentlemen, who saw these fine cattle, condescended to say that they had seldom seen much finer cattle than these at Smithfield; and they thought, if we continued to progress as we had done, we should presently in the character of our beef equal their markets. This was John Bullism "up to the hub." We will take the reports of the Smithfield market; and we have no hesitation in saying that the average quality of the beef cattle sent year by year to Brighton market is quite equal to that of Smithfield, or any other part of the world; and though not so familiar with them, we have no doubt that the cattle of New-York and Philadelphia are fully equal to those of Brighton. Besides most of our stall-fed cattle, at least in the Connecticut valley, are fattened upon Indian meal and the very best of hay. Most of the English beef is made of straw and turnips; which can never produce so fine beef as the feed which we are accustomed to give them. H. C.

Meadowbanks, July 10, 1835.

NEW-YORK AMERICAN.

AUGUST 1-7, 1835

LITERARY NOTICES.

ELIA, by CHAS. LAMB. N. Y., GEO. DEARBORN. The four numbers of the *Republic of Letters*, containing these charming essays of Chas. Lamb, have been formed into a separate pamphlet, of some 125 pp., which is presented at the extraordinary price of 25 cents. When the neatness and distinctness of the typography is considered, the capital white paper, and the amount of matter, this is indeed an extraordinary price. We need not add, that a more agreeable or a more unexceptionable collection, than this, cannot, at this locomotive period of the year, be packed away for hourly use, in one's travelling sack.

HISTORY OF THE LIFE AND VOYAGES OF CHRISTOPHER COLUMBUS AND OF THE VOYAGES AND DISCOVERIES OF THE COMPANIONS OF COLUMBUS. By WASHINGTON IRVING. 3 vols. 8vo. Philadelphia, Carey, Lea & Blanchard.—We have here a new and handsome edition of this great American work; which will live, while the language in which it is written, and the continent revealed by its Hero, last.

The Life of Columbus has undergone, as we learn from the publishers, a complete revision by the author, and new matter has been added to the appendix.

Vol. 3 presents, in a uniform style with that of the other two volumes, the Lives and Voyages of Columbus's Companions, and together they constitute a mass of historical information and documents,

prepared and arranged by one of our own countrymen, which all reading Americans should possess. We extract from the Appendix in Vol. II., the last note—referring to the signature of Columbus—of which the details, will be new probably, and interesting, to most of our readers:

As every thing respecting Columbus is full of interest, his signature has been a matter of some discussion. It partook of the pedantic and bigoted character of the age, and perhaps of the peculiar character of the man, who, considering himself mysteriously elected and set apart from among men for certain great purposes, adopted a correspondent formality and solemnity in all his concerns. His signature was as follows:

S.
S. A. S.
X. M. Y.
XPO FERENS.

The first half of the signature, XPO, (for CHRISTO,) is in Greek letters; the second, FERENS, is in Latin. Such was the usage of those days; and even at present both Greek and Roman letters are used in signatures and inscriptions in Spain.

The ciphers or initials above the signature are supposed to represent a pious ejaculation. To read them one must begin with the lower letters and connect them with those above. Signor Gio. Batista Spotorno conjectures them to mean either Christus (Christus) Sancta Maria Yosephus, or Salve me, Christus, Maria, Yosephus. The North American Review, for April, 1827, suggests the substitution of Jesus for Yosephus, but the suggestion of Spotorno is most probably correct, as a common Spanish ejaculation is "Jesus Maria y Jos6."

It was an ancient usage in Spain, and it has not entirely gone by, to accompany the signature with some words of religious purport. One object of this practice was to show the writer to be a Christian. This was of some importance in a country in which Jews and Mahometans were proscribed and persecuted.

Don Fernando, son to Columbus, says that his father, when he took his pen in hand, usually commenced by writing "Jesus cum Maria sit nobis in via;" and the book which the admiral prepared and sent to the sovereigns, containing the prophecies which he considered as referring to his discoveries, and to the rescue of the holy sepulchre, begins with the same words. The practice is akin to that of placing the initials of pious words above his signature, and gives great probability to the mode in which they have been deciphered.

FRANCESCA CARRARA, by the the author of Romance and Reality, &c. 3 vols. Philadelphia, E. L. CAREY and A. HART.—An Italian love story, carried through three volumes and two brilliant courts, that of Louis XIV. and that of the restored Charles—during the course of which, figure the historical personages who make up the ordinary *dramatis personæ* of the tales of that period—is here presented to us by L. E. L. It is hard reading—and we frankly admit that we have not mastered it.

DACRE, a novel—EDITED BY THE COUNTESS OF MORLEY. 2 vols. Philadelphia, CAREY, LEA & BLANCHARD.—This is a novel of our day and generation, though not of our country. It is agreeable, sprightly, and as to the chief characters, *Dacre* and *Lady Emily*, well conceived and sustained.

It is some time since this novel appeared, and was well received in London—and we are surprised, as times and tastes go, that it was not republished here before.

FOUR YEARS' RESIDENCE IN GREAT BRITAIN, from 1831 to 1835, by C. COLTON. N. Y., HARPER & BROTHERS. We are not destined to fame, we fear, as tourists in foreign lands. These volumes from the pen of a clerical gentleman—attached we believe to the naval service—differ indeed essentially from those of a brother chaplain, Mr. Stewart, by not recording or seeking to record, in "rose colored" phrase, the experiences of the writer in high society, but they are liable to the

same objection, of want of originality and vigor. The style of Mr. Colton is negligent, and—the he speaks of being embarrassed by the copiousness of his materials, so much so that we are to have another work from him, under the title of *London*, descriptive of that great metropolis—there is in his pages a most undue quantity of extracts from guide books, newspapers, and legends of childhood—the story of Prince *Levellynn* and his dog *Gelert* for instance.

That portion of the second volume which treats of the Established Church of England, seems to us, objectionable in spirit, and exceedingly partial in its selection of facts. It is, indeed, little more than a recapitulation of the partizan charges, in their most exaggerated form, used by political or personal opponents—fortified by a copious selection from the Irish press of the enormities—not softened in the relation—to which the exaction of tithes too frequently leads in that ill-governed country—and without any glimpse of the other side of the question. Such a mode of treating such a subject, does not appear to us either just, philosophic, or christian.

A good book of travels in England, by an American, is yet to be written—for the capital volumes of *Simond* hardly belong to us, though the writer was an adopted citizen.

ORATION DELIVERED ON THE 4TH JULY, 1835, BEFORE THE CITIZENS OF BEVERLY, WITHOUT DISTINCTION OF PARTY, by EDWARD EVERETT,—published by request; Boston, RUSSELL ODIORNE & Co.—The character of Washington is, after an eloquent exordium and introduction, made the topic of this July oration. A happier one, as in such natural association with the day, and so susceptible of brilliant illustration, could not have been selected,—and justice has been done to it.—We can only find room, however, for a comparatively brief extract. After describing the conduct of Washington on the fatal field of *Braddock's* defeat, his daring efforts, his conspicuous figure, his miraculous escapes, the orator proceeds:

From this period, the relation of Washington to his country was sealed. It is evident that his character, and conduct, and preservation,—though he was scarcely twenty-three years of age,—had arrested the public attention, and awakened thoughtful anticipations of his career. I confess there is something, which I am unable to fathom, in the hold which he seems already to have gained over the minds and imaginations of men. Never did victorious Consul return to republican Rome, loaded with the spoils of conquered provinces,—with captive thousands at his chariot wheels, an object of greater confidence and respect,—than Washington, at the close of two disastrous campaigns, from one of which he was able to save his regiment, only by a painful capitulation,—in the other, barely escaping with his life and the wrecks of his army. He had formed to himself, on fields of defeat and disaster, a reputation for consummate bravery, conduct, and patriotism. A sermon was preached to the volunteers of Hanover County, in Virginia, by the Rev. Samuel Davis, afterwards President of the Princeton College, in which he uses this memorable language: "As a remarkable instance of patriotism, I may point out to the public that heroic youth, Colonel Washington, to whom I cannot but hope Providence has hitherto preserved, in a signal manner, for some important service to his country."

The entire completion of this extraordinary prediction was of course reserved for a future day, but from the moment of its utterance its fulfilment began. Terror and havoc followed at the heels of *Braddock's* defeat. The frontier settlements were broken up,—the log-cabins were burned,—their inmates massacred, or driven in dismay across the mountains.—A considerable force was raised in Virginia, and Washington was appointed its Commander-in-chief. But the councils of England were weak and irresolute, and no efficient general head as yet controlled those of the colonies. The day star of Pitt was near, but had not

yet ascended above the horizon. Disaster followed disaster, on the frontiers of Virginia, and Washington, for two years and a half, was placed in precisely the position, which he was afterwards to fill in the revolutionary war. A reluctant and undisciplined militia was to be kept embodied by personal influence; without pay without clothes, without arms. Sent to defend an extensive mountain frontier with forces wholly inadequate to the object,—the sport of contradictory orders from a civil governor inexperienced in war,—defrauded by contractors,—tormented with arrogant pretensions of subaltern officers in the royal army,—weakened by wholesale desertions in the hour of danger,—maligned,—the youthful Commander-in-chief was obliged to foresee every thing,—to create every thing,—to endure every thing,—to effect every thing, without encouragement, without means, without co-operation. His correspondence during the years 1756, and 1757 is, with due allowance for the difference of the field of operations, the precise counterpart of that of the revolutionary war, twenty years later.—You see it all,—you see the whole man,—in a letter to Governor Dinwiddie of 22d April, 1758:—

"Your honor may see to what unhappy straits the inhabitants and myself are reduced. I am too little acquainted, sir, with pathetic language, to attempt a description of the people's distresses, tho' I have a generous soul, sensible of wrongs and swelling for redress. But what can I do? I see their situation, know their danger, and participate their sufferings, without having it in my power to give them farther relief, than uncertain promises. In short, I see inevitable destruction, in so clear a light, that unless vigorous measures are taken by the assembly, and speedy assistance sent from below, the poor inhabitants that are now in forts must unavoidably fall, while the remainder are lying before a barbarous foe. In fine, the melancholy situation of the people,—the little prospect of assistance,—the gross and scandalous abuse cast upon the officers in general,—which is reflecting on me in particular for suffering misconduct of such extraordinary kinds,—and the distant prospect, if any, of gaining honor or reputation in the service, cause me to lament the hour, that gave me a commission, and would induce me, at any other time than this of imminent danger, to resign without one hesitating moment, a command from which I never expect to reap either honor or benefit; but on the contrary, have an almost absolute certainty of incurring displeasure below, while the murder of helpless families may be laid to my account here! The supplicating tears of the women, the moving petitions of the men melt me into such deadly sorrow, that I solemnly declare, if I know my own mind, I could offer myself a willing sacrifice to the butchering enemy, provided that would contribute to the people's ease!"

And here I close the detail. You behold in this one extract your Washington, complete, mature, ready for the salvation of his country. The occasion, that calls him out may come soon or it may come late, or it may come both soon and late;—whenever it comes, he is ready for the work. A misguided ministry may accelerate or measures of conciliation retard the struggle; but its hero is prepared. His bow of might is strung and his quiver hangs from his shoulders, stored with three-bolted thunders. The summons to the mighty conflict may come the next year—the next day; it will find the rose of youth on his cheek, but it will find him wise, cautious, prudent, and grave: it may come after the lapse of time, and find his noble countenance marked with the lines of manhood, but it will find him alert, vigorous, unexhausted.—It may reach him the next day on the frontiers in arms for the protection of the settlement; it may reach him at the meridian of life, in the retirement of Mount Vernon; it may reach him as he draws near to the grave; but it will never take him by surprise. It may summon him to the first Congress at Philadelphia; it will find him brief of speech, in matter weighty, pertinent, and full, in resolution firm as the perpetual hills, in personal influence absolute. It may call him to the command of armies; the generous rashness of youth alone will be chastened by the responsibility of his great trust, but in all else he shall exhibit unchanged that serene and godlike courage, with which he rode unharnessed through the iron sleet of Braddock's field. It may call him to take part in the convention, assembled to give a constitution to the rescued and distracted country. The soldier has dis-

appeared, the statesman, the patriot is at his post of duty; he sits down in the humblest seat of the civilian, till in the assembly of all that is wisest in the land, he by one accord is felt the presiding mind. It will call him to the highest trust of the new formed government; he will conciliate the affections of the country in the dubious trial of the constitution; he will organize, administer, and lay down the arduous duties of a chief magistracy unparalleled in its character, without even the suspicion of swerving in a single instance from the plan of rectitude. Lastly the voice of a beloved country may call him for a third time, on the verge of three score years and ten, to the field. The often sacrificed desire for repose,—the number and variety of services already performed;—his declining years might seem to exempt him, but he will obey the sacred call of his country in his age, as he obeyed it in his youth. He gave to his fellow citizens the morning, he will give them the evening of his existence;—he will exhaust the last hour of his being, and breathe his dying breath, in the service of his country.

A DISCOURSE ON NATURAL THEOLOGY, showing the nature of the Evidence and the advantages of the Study, by HENRY LORD BROUGHAM, F. R. S., and Member of the National Institute of France. 1 vol. Philadelphia, CAREY, LEA & BLANCHARD. —The extraordinary man who is the author of this treatise, seems to have a capacity for work, and a reach of subjects, beyond any living person. This discourse, as we learn from a prefatory address to his friend Lord Spencer, (late Lord Althorp,) was chiefly written in 1830 and 1831, in the midst of an active professional and political life. Some additions were made in 1833, and others in 1834, while Lord Chancellor—and the whole has been revised since his retirement from that high station.

A more remarkable contribution to the cause of sound and just thinking on natural Religion, considering the ordinary pursuits and subjects of the investigation of the author, has never, probably been made public—and they who may dislike Lord Brougham as a politician, or distrust him as a philosopher, will find it difficult to resist his power as a theologian, deriving his arguments in favor of the existence of a Deity, even more from the intellectual qualities of man, than from the physical structure of the universe. And herein consists one of the chief novelties of this work, that it argues from the mind itself, to the existence of the great first cause.

THE AMERICAN MONTHLY MAGAZINE—for August—D. K. MINOR & T. & C. WOOD.—Punctual to the hour, this periodical, for August, is just laid upon our table. We had only time to glance our eye over the capital *Five Island Ana*.

EUROPEAN INTELLIGENCE.

LATER FROM EUROPE.—By the *Troy*, from Liverpool, papers of 1st July from London are received.

The intelligence of greatest interest by this arrival is that of the death of the Carlist chief, Zumalacarraguy, which—such is the interest always inspired by heroism, and the development of great resource and ability in adverse circumstances—we confess we heard with regret, though we desire the success of the young Queen's cause, and abhor the cruelties which Zumalacarraguy too often practised.

From an article in the *Journal des Debats*, on the intervention in Spanish affairs, it would seem that a more national character is to be given to the efforts both of England and France, by the expedition to the coast of Spain of vessels of war of both nations, and by France, of the foreign legion in mass, and under French officers, now serving in Algiers. On the other hand, it would seem, that

the Northern powers disapprove this intervention and if, as has before been said, enlistments and money for Don Carlos should be furnished by those Powers, the chief nations of Europe would find themselves in presence and in hostile array on the soil of Spain—and a fierce contest, wholly foreign to the original cause in which they embarked, would probably soon embroil the whole Continent.

Another change has been made in the command of the Queen's troops. Valdez, the late Minister of War, who quitted his seat in the Cabinet to take command of the army, having been recalled. The death of the great Carlist partizan, however, is more likely to serve the Queen's cause, than the efficiency of her own commander.

Matthews, the comedian, is dead.

Lord Durham has been appointed British Minister to the Court of St. Petersburg.

Deuz, the Jew, who betrayed the Duchess de Berry into the hands of the French Government, has published a pamphlet detailing an account of his treachery on this memorable occasion.

Baron Gras, the celebrated historical painter, whose pencil adorned the cupola of the Pantheon, committed suicide on Friday last. His body was found in the Seine on Saturday. He had left a letter in his writing desk announcing his intention; and had sent his last will for safe custody to his attorney.

The Emperor of Austria has invited the northern Sovereigns to a conference at Toplitz, and they have accepted the invitation. The meeting will take place in the latter end of October. Preparations are made with the greatest activity for the review at Kalisch; the Russian troops are expected at Dantzic on the 1st and the 4th of August; and the Emperor and the Empress will arrive on the 16th.

According to the last accounts from Naples, Vesuvius continues to throw out stones and cinders, and a grand eruption is expected. Some slight shocks of an earthquake have lately been felt in the south of Italy.

THE LADIES.—Mr. Grantly Berkeley gave notice, on Thursday night, in the House of Commons, (for July 16th,) of a motion for a select committee to consider the best means of setting apart and adapting a portion of the strangers' gallery for the admission of ladies during the debates.

EMIGRATION.—The total number of emigrants from the United Kingdom in the last year, was 76,222, being an increase of 13,695 on the number of the former year. Of these, 32,799 sailed from Ireland. The Irish emigrants of the last year exceeded those of the former by 10,604.

Mehemet Ali has withdrawn his opposition to the expedition of Colonel Chesney on the Euphrates, which arose solely from his not having received instructions from the Porte. The Malta Gazette contains an account of the disembarkation of the expedition at the mouth of the Orontes. Hassan Pasha Begter, Bey of Tunis, died on the 29th of last month, and is succeeded by his brother, Sidl Mustapha. It is supposed that Turkey, or to speak more truly, Russia, will deal with Tunis as with Tripoli.

Zumalacarraguy is dead.

This is the most important intelligence that has been communicated from Spain since the commencement of the civil war. In him was concentrated the hope of the Carlists, and with him sinks the cause of which he was the chosen champion. The death of Zumalacarraguy was communicated to the French government by telegraph. The fact was thus officially announced on the Paris Bourse on the afternoon of Saturday:

"TELEGRAPHIC DESPATCH.

"BAYONNE, 27th June.

"General Harispe to the Minister at War and the Minister of the Interior.—Zumalacarraguy died on the 25th inst., at 11 o'clock, in the morning, in consequence of his wound.

"DE RICHELIEUX."

Zumalacarraguy was personally one of the bravest officers in Spain, but like most of his chivalrous countrymen, his valor was stained by an innate love of cruelty, which he too often indulged at the expense of the lives of the unfortunate prisoners who fell into his hands. His talents were altogether military; nor had he the remotest idea of the pop-

sibility of governing men by any other means than the influence of well grounded fear. As a soldier, he was a strict observer of discipline, and exacted from those under him a blind obedience to his commands. It is asserted, however, that notwithstanding the cruelty of his disposition, he refused to carry the war beyond the banks of the Ebro, and that his real object was to secure the franchises of the Basque provinces by separating them from the rest of the kingdom of Spain, and elevating them into an independent State, of which Don Carlos was to be proclaimed King. On the other hand, it has been maintained that Zumalacaregui prevented Don Carlos from capitulating, and almost kept him prisoner, from an apprehension that he himself would be sacrificed to gratify the vengeance of the Queen Regent and her government.

Letters from Madrid to the 21st inst. announcing the recall of General Valdez from the command of the army in the North, have been received. The late Captain General is succeeded in the command by General Murillo, assisted by General Sarco del Valle, who has been appointed chief of the Staff, and is now on his way to Pampeluna, the head quarters of the Constitutional army. No cause is assigned for the removal of Valdez, but we have reason to know that his want of energy greatly dissatisfied the Queen's Government.

Madrid was tranquil up to the date of the letters just received. The discovery of the Carlist conspiracy in the capital a few days before, was really fortunate, as its ramifications had been extended in several dangerous directions. The ringleaders of the plot have been secured.

By command of the Spanish Government, his Britannic Majesty's Order in Council of the 10th of June, suspending the Foreign Enlistment Act, has been posted up on the Madrid Bourse.

The French Journals of Saturday bring a report of the death of General Erasó, Zumalacaregui's successor in the command of the Carlists, who is stated to have been killed by a fall from his horse. Erasó was a man of courage, but his flight from France, where he was a prisoner on parole, reflects a deep stain on his character both as a soldier and a man of honor. We regard the rumor of his sudden death as premature, although repeated in several letters dated from the Spanish frontiers.

Correspondence of the London Morning Herald.

ATHENS, May 31.—The 4th of May was hailed by the Greeks as a national fête; the bones of Karaiskaki were brought from Salamis, and landed at the Piræus under a salute of minute guns, from whence conducted to the spot in the rear of the Phælonion, where it is thought he fell. A very neat monument had been erected (about 300 paces from the new roads), alongside of which the King, accompanied by the whole Corps Diplomatique, and a very numerous staff, received the procession; the funeral oration was read by M. Rizos, the Minister for Foreign Affairs, and his Majesty was addressed by one of the old Capitani, recalling to mind Karaiskaki's last words. His Majesty most graciously took off the Grand Cordon of the Saviour, which he wore himself, and placed it on the remains, regretting that he had not had the opportunity of paying the honor to him while alive which he had paid to his remains, and ordered that this cross should remain to the family as a memorial of their ancestor's virtues: this highly delighted the Greeks, who enthusiastically rent the air with "Long live King Otho." The daughters have received a portion of land and 6,000 drachms as a dowry.

A number of the Capitani and old Philhellenes of those present in the different battles about Athens gave, a few days ago, a Palicari dinner in the Olive-grove to the King, and as divers rumors were afloat as to who should remain with the King, they studiously avoided inviting General Heideck, but on their return in the evening they assembled before Count Armanberg's door, sung national airs, and cried out, "Long live the King," "Long live Armanberg." This was a pretty good hint of the wish of the nation, as they were most of them leading men, and men of all parties. It is said M. Kleutze, the Architect, is preparing at Munich a machine, with which he is to return here to raise the fallen columns of the Parthenon; the Government had just laid a tax on those who visit the Acropolis, by way of making them contribute to its repairs.

Sir Josias Rowley is still at Salamis, with the squadron, but it is rumored on the arrival of the packet they will sail for the East.

Every vessel that comes from the Black Sea men-

tions that great preparations are making at Sebastopol, said to be for a summer cruise.

M. de Jenison arrived a few days ago to compliment the King on his coming to the throne on the part of the King of Bavaria; it is said he goes from this Bavarian Ambassador to Paris.

Captain Sir Edward Lyons arrived here three days ago in 11 days from London; his arrival has excited considerable interest here; his being so generally liked in Greece has made every one believe that he has brought some good news, but as yet we only know he was bearer of despatches.

The Greeks, who are naturally such a lively set and fond of news, have been greatly disappointed that their young King should be so diletant in deciding; it has but just been settled, at the last moment, that Count Armanberg should remain, but we know not in what capacity. This has been a busy week. The Demarchos has at last been named. Streets have been opened for the procession of the King's going to Church, and the programme of the ceremony that is about to take place has just been made public. This evening at sunset 26 guns will be fired, and 75 to-morrow at daylight. At 8 o'clock, A.M., the troops will line the different streets. At half past 9 o'clock, the Greek functionaries, headed by the Ministers, repair to the palace, when the King, seated on the throne, will receive the Regency. Count Armanberg will deliver a speech suitable to the occasion. The Regency is then to declare that it deposes its power into the hands of His Majesty. The Minister of the King's household takes charge of this declaration. His Majesty then retires to his private apartments; a herald is to proclaim the accession of His Majesty to the people, and couriers sent off to all the departments and provinces. At half past 10, His Majesty, accompanied by the Ex Regency and Greek Ministers, &c. proceeds to the church prepared for the occasion, where he will be received by the corps diplomatique, and the admirals and captains of the vessels anchored at Salamis and in the Piræus. During the Te Deum a salute of 101 guns is to be fired, after which the King returns to the palace in the same order, when he will receive the felicitations of the corps diplomatique, the Greek Ministers, other functionaries, &c. At sunset another salute of 101 guns will be fired; the town is ordered to be illuminated in the evening. We are to have reviews, and during the three days an imitation of the Olympic games. We are in expectation of a change of Ministry, a long list of promotions, &c., nothing yet having transpired.

The coronation is put off until the King's marriage, partly for want of a crown and sceptre, those ordered in Paris not having arrived in time, and partly on account of the expense.

ACCESSION OF PRINCE OTHO.

Otho, by the Grace of God King of Greece, to the Greeks:

Greeks,—When by the confidence of the high mediators of your independence, and by your free choice, I was called to the throne of Greece, I abandoned my parents and my country, I left all that I had dear to me, and, impelled by the desire to fulfil my duties, I hastened in the midst of you to consecrate to you my endeavors, my cares, and my entire love. You have welcomed me with joy, with mutual love. You have answered my love to you! I called on you to be united; you all obeyed my call. Anarchy was overwhelmed. The unpardonable works of a few individuals ceased, without leaving a shadow behind, and tranquillity and order reigned throughout our beautiful land. Your families, your properties, found the protection of which for a long period of time they had been deprived.

Under the shadow of the throne, the culture of your lands flourished, your habitations rose from their ruins. The communes were drawn closer together, tribunals were organized, the foundations of many benefits laid, many wounds were cicatrized. Thanks to the Divine Providence that watches over you! Thanks to the Great Powers who have continued their favor and their succor to you! Thanks to your noble sentiments, by which the institutions of the Government were received with confidence and devotion!

Greeks, notwithstanding all the bounties which the favor of the Omnipotent has showered on Greece, there exists yet many wounds still bleeding from the events of past years. Notwithstanding all the progress which the country has made, it has yet need of innumerable ameliorations, of great cares, and of serious attention, before the traces of

the many sufferings which for numerous centuries have overwhelmed with unexampled destruction the fine soil of Greece, can disappear.

Greeks, I know your sufferings, your wants, your wishes. I know the unexampled sacrifices that you have made for your country, your magnanimity, the heroic bravery with which you have fought, the glory of your immortal ancestors, your own renown. I know the full extent of your just hopes of a more glorious and happy future.

Greeks I will remain firm amongst you. My regard shall be continually towards you—towards your good—towards your happiness. No labor shall weary me, no difficulty shall discourage me—I shall live among you, and for you. This day, the period at which I fully assume the reins of government—I again promise you to protect the holy religion of my subjects, and to be the sure support of their holy church—to grant justice to all—to be faithful to the laws—to protect with the divine assistance, your liberties, your rights, and your independence, from all attacks—and, in the whole of my administration, to have before my eyes your happiness and your glory.

With unchangeable firmness, I will preserve order and public tranquillity, for without these security cannot exist.

My Royal grace shall be granted to all those unfortunates who, by sentences of the tribunals, are at this time deprived of their liberty. But the rigor of the laws shall be put in force against those who in future shall dare to compromise the tranquillity of the country; the security of the kingdom demands this.

Far from you be all passions, all discord, and every unworthy action; be united forever.

I will take good care for the performance and perfection of the laws, and with all my power protect your property, your legitimate liberties, and endeavor to consolidate them gradually by institutions and laws adapted to the state of the country, and to the just wishes of the nation.

On every occasion I will evince my profound veneration for the Eastern Church; and on this point, in respect to the throne of Greece, as far as regards my posterity, I will take particular care and consideration.

I will devote my attention to the schools, and take especial care for their increase and amelioration. To the arts and sciences I will give every succor of which they can have need, that they may again revive in Greece, their ancient country and glory.

I will endeavor in every way to augment the happiness of the country, to encourage industry and commerce, to supply the defects of the Administration; especially will I take the greatest care for the improvement of the public resources, and with unwearied study endeavor, as soon as possible, to create an equilibrium between the revenue and the expenditure.

I will always have before my eyes the sacrifices that every one has made for his country, but the extent of my consideration must be limited by the means which exist.

Greeks my trust is in you—my love to you has no bounds. In your affections, in your confidence, I find the greatest gratification.

The task of government is heavy—I feel it and you must not be animated with unreasonable hopes. Gradually, and little by little, it is only possible to arrive at the goal of your wishes, which are also mine. With courage I assume the duties which the hand of the Omnipotent has imposed upon me, by the Divine grace, and your aid, I will fulfil them.

Your glory, your happiness, are my only objects. To succeed in these will be my greatest reward.

Athens, 20th May, [1st June,] 1935.

SUMMARY.

The U. S. Frigate Constitution is, according to the Gazette, under sailing orders for the Mediterranean.

OSWEGO LOTS.—A lot in East Oswego, of 60 ft front by 120 feet deep, was sold last week for \$25,000.

A new line of PACKET BOATS on the Canal from Utica to Oswego, now carries passengers and finds them for Fifty Cents.

BALLSTON SPA.—We have been requested by a

gentleman just returned from the Springs, to state that the house at *Ballston* is in fine order for the reception of company, and that every effort is used by its present proprietor, *Mr. Watrous*, to accommodate visitors.

To families and invalids wishing to spend a few weeks pleasantly in the country, few establishments, he says, offer greater attractions than *Sans Souci*.

FROM THE ROCKY MOUNTAINS.—*St. Louis, July 18, 1835*.—*Mr. Campbell*, of the firm of *Sublette*, and *Campbell*, reached this city on Wednesday last, from the Rocky Mountains. This gentleman left here on the 9th of April last, by land, with but two companions, to perform a journey of one thousand miles, through a desert land, untenanted save by savages. He returned on the 15th of July. If we deduct several days, during which time he was detained in the settlements, it will leave only three months for the accomplishment of this perilous adventure. The same route was never before travelled in so short a period. By the way, we shall think nothing of making excursions to the Mountains; and undertake them with scarcely greater inducements than govern the multitudes who flock to our places of fashionable resort in the summer months.

Mr. Campbell was not molested in any manner, by the numerous bands of Indians through whose country he was compelled to pass. He remained about fifteen days at the company's post at the foot of the Black Hills. Returning, he resolved to attempt the navigation of the Platte river, a means of transportation which has heretofore been, by the traders generally, deemed altogether impracticable. He accordingly constructed a *batteaux*, loaded it with a large number of packs of Buffalo robes, and by the occasional employment of small boats made of skins, he was enabled to descend the river a distance of six hundred miles in safety. The navigation of the Platte is made very difficult by its great width, its shallowness, the absence of a channel in any part of it, and its quick-sand bottom.

The traders and trappers in that country during the past winter, were generally successful. *Mr. Campbell* understood from some of the Snake Indians, and little doubt is entertained of its correctness, that a party of Indians of an adjoining tribe had murdered two of the trappers belonging to the New England expedition under *Capt. Wyeth*.—This is the only outrage known to have been committed during the year, in that country, upon Americans.

The U. S. Dragoons under *Col. Dodge*, were at the Grand Pawnee Village. They were in excellent health—had formed a very advantageous treaty with the Pawnees, and were shortly to proceed to the *Aurickaree* village, a nation particularly hostile to our people, for the purpose of holding a council with them. This tribe, to the number of a thousand warriors and about 4000 lodges, were four days travel from *Col. Dodge's* encampment. *Mr. Campbell* had an interview with them at their village—was hospitably treated, and informed by them of the position of the Dragoons, and of the expected visit. Preparations were being made to give them a favorable reception.—[*Republican*.]

[From the *Illinois Register*.]

FROM THE DRAGONS.—We have been politely furnished by *O. H. Browning, Esq.* with the following interesting extract of a letter addressed to him from *Cantonment Leavenworth*, by a gentleman who accompanied the U. S. Dragoons, in the summer of 1834, in their expedition to the Pawnee villages. The extract contains some new and entertaining historical facts, as also a graphic description of the scenery presented at the Pawnee Peaks; and we doubt not will be perused with interest by our readers.

"On the 19th of July we again resumed our march under the guidance of the above-named Pawnee Mohaw, who, to my mind, proved himself to be a treacherous villain; for he led us a circuitous route of three days, over an excessively rugged rocky country, and amid inconveniences of every description, when, on our return to the encampment, we traversed a beautiful prairie, and the distance not to exceed forty-five miles. Yet I, for one, did not regret it, for our way led through scenery not exceeded—I hardly believe equalled. I have read of the Alps, and have seen paintings of the most celebrated portion of Alpine scenery.—The Alps are higher; but in sublimity, grandeur,

and general effect, they must, and in time will yield the palm to the hitherto unknown, unvisited Pawnee Peaks. Here the gradual swell, the beetling precipice, the castellated battlement, the solitary tower, the glittering, roaring cascade, the shady vale, and opening vista, disclosing in its turn distant views of new grandeur—all, all the rich combinations of mountain scenery are here thrown together, forming an unrivalled whole, which, in years to come, will be the goal of all travellers on earth.

"On the evening of the 21st we reached the goal of our enterprise, the long-sought Pawnee village. Here was new matter of wonder. We approached a sweep of perpendicular mountains, whose tops are wholly inaccessible to the human foot from this side, and reached the village through the passage which leads to it, a narrow defile, which one hundred good men, with a proper armament, and a good engineer, could keep against the countless legions that Napoleon led to Moscow.

"After passing through this defile, we immediately entered the village, situated in a beautiful bottom, on the margin of a river, supposed, by some, to be main Red river, but which is only a principal fork of that stream.

"Like others of the southern rivers, its bottom is a flat bed of fine sand that maintains nearly the same level all the way across, the water now but a few inches deep; yet, unlike the water of other rivers, this is nearly as salt as the water of the *Ken-hava* saline. When this stream is full, it is 500 yards wide, and about ten feet deep. The natives say that the salt taste proceeds from great beds of rock salt about twenty miles above, and exhibited to us quantities that they had procured there. Our arrival here was timely; for we were hungry, and had nothing to eat. They had plenty of good corn just in good eating order, pumpkins, squashes, water and musk melons, together with dried Buffalo and horse meat. For supplies of these articles we gave them tobacco, tin cups, buttons, the yellow stripes from our pantaloons, &c.; but when we offered them money they laughed at us, for these unsophisticated beings knew not its value. When we could explain to them the use of any thing, they would trade for it; but as we could not make them sensible of the use of money, none of it would they have.

"They call themselves *Towea* Indians, and appear amiable and industrious. The women are beauties, yes, real first rate, light copper beauties, for devil take the ugly one that I saw, that was less than a "centurion," which word, a school mate of mine once defined to be a person one hundred years old, and got flogged for his pains.

"On the 22d and 23d, the *Kiewa*, *Waco* and *Camanche* Indians arrived, and our little band was surrounded by between three and four thousand warriors, yet we trembled not. On the 24th the treaty proceeded, and by it, among other things, we recovered from them a little white boy, the son of *Gabriel Martin*, a wealthy planter of Louisiana. He had gone up, with some friends, early last spring, on a hunting excursion to the *False Washita*, and whilst separated from the rest, was attacked by the Indians and killed, and his son taken prisoner. They concealed the boy on our approach, and he probably would never have been liberated, had it not been for a negro, likewise a prisoner, who informed us where he was concealed. He was seven or eight years old, and unusually intelligent."

INDIANA STATE LOAN OF 600,000 DOLLARS—5 PER CENT STOCK.—Viz. 400 thousand Dollars Bank Loan, irredeemable for 20 years, taken at a premium of 4 1-2 per cent., or 104 50-100 Dollars, for \$100 Stock.

200 thousand Dollars Canal Loan, part irredeemable for 25 years, and a part for 30 years, at a premium of 5 per cent. or 105 Dollars, for cash, \$100 Stock, was yesterday taken by Messrs. *J. I. Cohen, Jr. & Brothers*, of Baltimore, being a higher offer than any made by the New York capitalists.

[From the *Albany Argus* of yesterday.]

CHENANGO CANAL LOAN.—Yesterday was the day for opening the proposals for the *Chenango Canal Loan* of \$500,000 by the Commissioners of Canal Fund. The following offers were made for this loan, being 5 per cent. stock reimbursable after 1845, viz:

Thos. W. Olcott, Rich'd Yates, and Watts Sherman, a premium of 11 1-10 per cent.; the money loaned to be deposited in the several banks for which the bid was made, and the banks to pay in-

terest at the rate of 5 per cent. per annum for the deposits.

Prime, Ward & King, 8 per cent. premium for the whole loan.

J. J. Cohen, Jr. and Brothers, Baltimore, 12 per cent. premium for the whole loan.

Harman Hendricks, 12 per cent. for \$125,000, and to pay \$74,000 in 7 per cent. Erie and Champlain Canal stocks, at 24 per cent. premium, and the residue in cash.

The stock was awarded as follows, viz:—To *J. J. Cohen, Jr. and Brothers*, \$400,000.

To *Harman Hendricks*, \$100,000.

The premium on the whole loan amounts to the sum of \$60,000.

ARRIVAL OF THE EALMOUTH.—We learn from the *Norfolk Beacon* that the United States sloop of war *Falmouth*, *Charles S. McCauley, Esq.* commander, arrived there on Saturday, 1st August, in 17 days from Pensacola; officers and crew all well. The *St. Louis*, *Capt. Rosseau*, and the *Grampus* were both at Pensacola when the *Falmouth* sailed. The *Vandalia* was absent on a cruise to the Gulf of Mexico; and was expected to return to Pensacola about the 1st of August. We learn that the town and squadron enjoyed excellent health. It is expected that the *Grampus* will return to the North during the summer, as she is much in need of repairs. The other vessels will remain on the station.

The following is a list of officers attached to the *Falmouth*.

Charles S. McCauley, Esq. Commander.
Lieuts.—*Wm. Pierson, Arch'd. B. Fairfax, Henry K. Thatcher, Charles G. Hunter.*
Sailing Master—*Wm. Lambert.*
Fleet Surgeon—*Leonard Osborne.*
Assistant do—*W. A. Spotswood.*
Purser—*Nathanial Wilson.*
Passed Midshipmen—*Charles F. McIntosh.*
Midshipmen—*D. Ross Crawford, A. S. Whither, J. W. Bracket, W. H. Carnes, G. W. Grant, N. Collins, S. C. Barney, E. J. Donnellson.*
Captain's Clerk—*Leroy H. Anderson.*
Boatswain—*Samuel Stanley.*
Gunner—*Thos. Robinson.*
Sail Maker—*Samuel V. Hawkins.*
Acting Master's Mate—*Benj. Bunker.*
Purser's Steward—*S. D. Moulton.*
Passengers.—*Major Byrd C. Willis, Navy Agent at Pensacola; and Passed Midshipman Geo. W. McCreery.*

The *Boston Daily Advertiser* of Monday says, "the pleasure yacht *Wave*, *Captain John C. Stevens* (owner), arrived here on Saturday morning, from New York, for the purpose, so said, of engaging in a sailing match with the *Sylph*, of this place; but meeting with the *S. off Nantucket Shoal* on Thursday last, the trial took place on the spot, and resulted (as we are informed on board the *Wave*), in handsomely beating the *Sylph* in every position tried.

The *Providence Journal* also contains the following notice of "the *Wave*."—"A rare specimen of naval architecture made its appearance at Newport on Wednesday last. It was of about 93 tons burthen, schooner rigged, finished in a novel and beautiful style, and excited the admiration of all beholders; and is ready at all times to try its speed with any vessel in this country. A party of gentlemen, desirous of viewing the *Wave*, were received in a most cordial and gentlemanly manner by its owner and commander, *John C. Stevens, Esq.*, of New York, and its officers, Messrs. *Sands, Stevens, and Thompson*. It is expected the *Wave* will shortly visit this place, in company with the revenue cutter *Vigilant*; when those to whom we are incompetent to give any adequate description, may have an opportunity to see and admire its striking features."

COW CATCHING.—According to the *Boston Journal*, a circumstance, very near an accident, occurred to one of the railroad cars on Thursday evening, on its way from Providence, with the passengers of the Lexington. When in the farther part of Mansfield, they run into a drove of cattle, and soon found that their cow catcher which they have wisely placed on their night engine, had gathered together two of the herd, and was proceeding with them at a rapid rate, without any damage to the car or the knowledge of the passengers—till the engineer saw his new freight, and stopped to discharge.—[*Gazette*.]

MONUMENT BY THE BAR TO THE CHIEF JUSTICE.
The following proceedings of the Philadelphia Bar, with whom the happy idea originated of raising a suitable Monument to John Marshall, set forth the mode in which it is proposed to carry out the plan. They will be of interest to, and command the concurrence, of the New York Bar, which so promptly associated itself in the noble enterprise.

MARSHALL MONUMENT.—At a meeting of the committee appointed by the Bar of Philadelphia, on the 7th July, 1835, held at the Law Library Room, on the 31st of the same month, P. S. Duponceau, Esq., was appointed Chairman, and James C. Biddle, Esq. Secretary.

The following Resolutions were adopted:
Resolved, That a sub-committee be appointed to consist of five members, whose duty it shall be:

1. To proceed immediately to collect subscriptions for the Monument, from the bar of Philadelphia;
2. To cause subscriptions to be collected from the Bar of the other parts of Pennsylvania;
3. To promote subscriptions by the members of the Bar throughout the United States;
4. To correspond with such committees, and individual members of the profession throughout the United States as may be authorized or disposed to co-operate with us in the proposed object.
5. To confer on the part of the Bar of Philadelphia, with such committees or individuals as may be appointed or authorized to confer with them on the subject of their appointment or matters connected therewith.
6. To adopt such other measures as may seem to them expedient and proper for furthering the contemplated purpose.

Resolved, That desiring to make the subscription as extensive as possible, and to avoid inconvenience to those who may be willing to unite with them, it is the wish of the committee that individual subscriptions should be moderate, and that the required amount may be made up by the number of contributors, rather than by the magnitude of particular donations, so that the Monument may truly be the work of the Bar of the United States, and an enduring evidence of their veneration for the memory of the illustrious deceased.

Resolved, That it is the desire of the Bar of Philadelphia, that all who may contribute, shall have a voice in selecting the plan to be adopted, and at a suitable time arrangements will be made to give them an opportunity, by their delegates, to take a part in the selection.

Resolved, That before a plan can be adopted, it is necessary to know the extent of the means that will be furnished, and therefore, it is earnestly requested that subscriptions may be collected and forwarded with the utmost possible despatch.

Resolved, That Samuel Jaudon, Esq., Cashier of the Bank of the United States, be the Treasurer of the Marshall Monument Fund, to whom all monies collected, are to be forwarded.

Resolved, That we sincerely hope that our brethren throughout the United States, will immediately and actively exert themselves, within their respective spheres, to collect and forward subscriptions, in such manner as may seem to them best.

Resolved, That the sub-committee be instructed to receive no subscription from any member of the Bar of Philadelphia, exceeding ten dollars, and to inform the members of the Bar throughout the United States, that this regulation has been adopted here.

Resolved, That the editors of the newspapers throughout the United States, be requested to publish these proceedings.

The following gentlemen were appointed the sub-committee under the first resolution:

Mr. Duponceau, Mr. Binney,
Mr. Sergeant, Mr. Chauncey,
Mr. J. R. Ingersoll.

P. S. DUPONCEAU, Chairman.

J. C. BIDDLE, Secretary.

DANGEROUS BAGGAGE.—Our readers will probably bear in mind a fire which took place some time since on the Camden and Amboy Railroad, by which a good deal of baggage was injured. The directors then expressed an opinion that the fire was caused by the ignition of Lucifer matches, a large quantity of which was found among the con-

tents of the baggage car. The following, from the Easton (Pa.) Argus, will show that the suspicions were not groundless:—[Sun.]

"**Fire in the stage!**—On Saturday last, Mr. H. Hummaun, received from Philadelphia by the stage a box containing books and stationery, and among the rest a box of Lucifer matches. It seems that the friction occasioned by the motion of the stage caused the Lucifers to ignite, but fortunately for the want of air the fire was smothered. The whole contents of the box smelt strongly of burnt matches though the damage was inconsiderable."

TEXAS VS. MEXICO.

[From the New Orleans Bulletin of July 18.]

TEXAS.—Captain Moore, of the schr. Shenandoah, in a short run from Brazoria, reports that the Texonians had seized upon the fort at Anahuac, garrisoned by one hundred men, whom they captured and sent to San Felipe. A portion of the people thought that this step was pushing matters to extremities, and as one uncalled for, but all were determined to maintain their just rights should they be assailed by the Mexican powers.

Schr. Shenandoah sailed from Brazoria on the 10th, and the Brassos Bar 11th inst., left no vessels—reports that the people of Anahuac on the 7th inst. rose upon the Mexican soldiers quartered in that place, and captured their fort, which was no sooner done, than they offered to desert Santa Anna and join the Texonians, but instead of receiving them the people drove them far into the prairies towards Nacogdoches—and also reports that the people on the Brassos river were organizing a military force to proceed immediately to the defence of the town of San Antonio—great excitement prevailed among all classes of the inhabitants.

RUMORED DISTURBANCES IN COLOMBIA.—The following paragraph is from the books of the Philadelphia Exchange. As there are no papers from that city to day, we have nothing in explanation, confirmation, or contradiction of it.

Extract of a letter from the American Consul dated
St. Johns, P. R. July 17, 1835.

The disturbances on the Main continue, and have been of such a nature in Colombia, that the President and Vice President have left, and arrived at St. Thomas on Wednesday last—We have not learned the particulars.

PICTURE OF AFRICA.—It possesses not the charm of refined and intellectual society; its European inhabitants, with very few exceptions, professedly try to get money as fast as they can, that they may return to England; and yet when they do return, there is no place so dear to them as the land they have left. I could cite various examples of this, but two or three only will serve as a type for the rest. During our second voyage to Africa, we met with our dear friend Mr. M.—n; he was dying from consumption, and suffering dreadfully; and yet his pain, his approaching dissolution, were alike forgotten when Mr. Bowditch and myself would sit by his side and talk of the scenes and adventures we had known together in Fantee. The delicious fruits of Madeira were not to be compared with ours on the coast; the storms were not so grand; the hottest season there was much more intolerable; and the Portuguese servants not half so good as his own man, Black Jack, who used to beg him "not to take vex, but he wanted a bottle of wine particular;" the invalid's eyes would brighten, the color rush into his pale lips and cheeks, and a momentary strength would be imparted by these, and a multitude of happy recollections. Certainly no one ever suffered more in Africa than the intrepid Mr. Hutchinson, who died only a few months back at Leith, a victim to a northern, instead of a tropical climate; and yet he never was so animated or enthusiastic, in short so happy, as when recurring to the scenes of his past life. And so it is with myself. I have visited other lands, nay, lived in them, and my path has been broken and rugged. Still more thorny was it in Africa, and yet my thoughts and feelings incessantly recur with indescribable affection to those wild scenes; every minute circumstance vividly rushes before me as if it were the occurrence of yesterday, and my very dreams are of that magnificent land, where nature has lavished her treasures with such unlimited profusion. Perhaps these treasures form one of the secret links of that chain which binds us

all to her; and her lofty primitive mountains, her mighty rivers, her impenetrable forests, her deep blue sky where the sun and the moon sail in cloudless majesty, and banish all idea of darkness; the furious grandeur of her tempest; the strange and uncontrolled forms with which her wastes are peopled; her gay, laughing flowers; her juicy and exquisite fruits, which require no toil to bring to perfection; her children, rude and disgusting as many of them are, even form objects of compassionate interest, from the very curse under which they seem to labor; and all these, perhaps, create feelings in residents which, to those who have always dwelt in civilized nations, are inexplicable. There may be yet another cause, which is the constant excitement afforded by a life which often presents danger, and constantly requires contrivances for comfort and enjoyment.—[Mrs. Lee's Stories of Strange Lands.]

FEROCITY AND FANATICISM.—The less the designs of the Ismailites prospered by the sword the more successful and persevering were they with the dagger; and, however dangerous to the order the times might be, they were not the less so its most powerful adversaries. A long series of great and celebrated men, who during the grand mastership of Kiabusurgomid, fell by the pinnards of his Fedavi, signalized the bloody annals of his reign; and, as formerly, according to the fashion of oriental historians, there follows, at the end of each prince's reign, a catalogue of great statesmen, generals, and literati, who have either adorned by their lives or troubled it with their death; so, in the annals of the Assassins, is found the chronological enumeration of celebrated men of all nations who have fallen the victims of the Ismailites, to the joy of their murderers and the sorrow of the world.—The first under the grand-mastership of Kiabusurgomid was Cassim-ed-dewlet Akkonker Bourseli, the brave Prince of Mossul, feared alike by the Crusaders and the Assassins, as one of their deadliest enemies. Having fought his last battle with the former, near Maara Mesrin, he was, on the first Sunday after his return, attacked by eight Assassins, disguised as dervishes, as he was in the act of seating himself on his throne in the mosque at Mossul: protected by a coat of mail and his natural bravery, he defended himself against the wretches, three of whom he stretched at his feet; but before his retinue could hasten to his assistance, he received a mortal wound, from the effects of which he expired the same day. The remaining Assassins were sacrificed to the vengeance of the populace, with the exception of one young man from the village of Katernash, in the mountains near Eras, whose mother, on hearing of Akkonker's murder, dressed and adorned herself for joy at the successful issue of the attempt, in which her son had devoted his life; but, on his returning alone, she cut off her hair and blackened her hair, with the deepest sorrow, as he had not shared the murderers' honorable death. To such lengths did the Assassins carry their point of honor, and what may be termed their Spartanism. Moineddin, the vizier of Sultan Sandjar, was also murdered by an Assassin, bred by his enemy, Derkesina, the vizier of Mr.ammed, and a friend of the Ismailites. In order the better to attain his object, the ruffian entered his service as a groom. One day, as the vizier went into his stable to inspect his horses, the false groom appeared before him without clothes, in order to avoid all suspicion of carrying concealed weapons, although he had hid his dagger in the mane of the horse, whose bridle he was holding. The horse reared, and, under pretence of quieting him with cresses, he snatched his pinnard and stabbed the vizier. If Bourseli, Prince of Mossul, stood on the list of the victims of the Ismailites, solely because he was a rival to their power and an obstacle to their greatness, we shall not be surprised at finding the name of Busi, the Prince of Damascus, by whose orders the vizier Masdeghani and six thousand Assassins had been massacred. The slightest pretence was sufficient to cause the blood of princes to flow beneath their stilettos; how much more when their own called, as in this latter case, for revenge. To escape was beyond the power of prudence, as they watched for years, for time, place, and opportunity. Busi, the son of Togtegin, was, in the second year after the massacre, attacked by his avengers, and received two wounds, one of which healed immediately; the other was, however, mortal the following year.—[Von Hammer's History of the Assassins.]

Musings.—By Flaccus in the Country. ELEGY.

MARSHALL!—Thy name is written on the rock,
Where Freedom raised her standard in despair;
But braved triumphantly the tyrant's shock,
And drove the baffled lion to his lair.

For thee thy country mourns—departed worth!
Whose hand upheld her from her childhood's years;
For thee her guide, her guardian from her birth
The grateful orphan sheds her generous tears.

Thine, is the double glory, to sustain
The prize of Liberty, as well as sin;
With open foes to triumph on the plain,
And thwart the plots of treacherous friends within—

Yet some there are, would boldly blast thy name;
(The base would e'er revile the noble dead)
Or praise in whispers what they should proclaim—
Peace! their curse, it cannot reach thy head.

Dogs bay the moon, but heaven's majestic queen
Rolls on, regardless of the yelping crew—
So shall thy fame shine on its course serene,
Nor heed the hounds of malice that pursue.

Remnant revered of Freedom's holy band!
Who linger'd long, yet bade, too soon, adieu—
Ah! whither now shall turn thy widowed land?
In danger's hour, whose hand shall guide her through

Feeble, and few, thy hoary mates appear,
Who drank pure Freedom from her fountain-head;
What now is left, to keep the current clear?
What, save the bright example of the dead?—

In storms of war, in every civil strife,
When license threatens Freedom with its blight;
We'll use the spotless pages of thy life,
And read the lesson that shall lead us right—
No. 7. W.

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

New-York, June 27, 1835.

D. K. MINOR.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of EIGHT pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

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Terms, \$8 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$32.

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with Morocco cover, or in paper cover, and may be sent by mail to any part of the country Price \$2

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THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year, for 12 numbers—by D. K. MINOR.

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D. K. M.

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These works may all, or either of them, be had of S. Bladenburgh, 96 North Pearl street, Albany; D. Yale, 144 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher, D. K. MINOR

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thorough printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

NOTICE

I hereby given, that an Assessment of Ten Dollars on each share of the Capital Stock of the Boston, Norwich and New London Railroad Company, has been laid payable on the 18th day of August, 1835, at the Office of the Company, No. 52 Wall street, New York, or at the Quinebaug Bank, Norwich.

THOMAS ROBINSON, Treasurer.
Norwich, July 11th, 1835. jy.16. 1A13

NOTICE TO CONTRACTORS.

Sealed Proposals will be received at the Hudson and Berkshire Railroad Company's Office, in the city of Hudson, until the 5th day of September next, for excavating and embanking 14 miles of their Road from Arnold's shop, near Groat's, at Chatham Four Corners, to the state line, and also for constructing 8 Bridges, from 60 to 70 feet each, between the abutments. Plans of the masonry and superstructure of the bridges will be exhibited at the Railroad Office. Contractors will be required to furnish all the materials for bridges; and the masonry to be completed by the 1st of December next. The road to be graded for a double track, 24 feet wide. A part of the road will be heavy rock and gravel excavation. Profiles of this part of the route will be exhibited at the Railroad Office, in Hudson, and also at the Office of the Engineer, at Chatham Four Corners. The road will be divided into sections of one half and one mile each in length, and prepared for examination by the 10th of August.

Proposals will also be received for furnishing 500,000 feet, B. M., of White Oak Rails, 6 by 7 inches square, and 16 feet long. Also, 15,000 Oak or Chestnut Ties, 6 by 7 inches square, 8 feet long, or, if round, not less than 8 inches in diameter, at small end. Also, 500,000 feet of Chestnut, Pine, or Hemlock Sills, 4 by 10 inches, 13, 16, or 20 feet long.

The whole to be subject to the inspection of the Engineer, and to be delivered on the line of the road, by the 15th of April, 1836.

The remaining 18 miles of the route will be put under contract as soon as the line can be prepared.

Persons applying for contracts will be expected, unless personally known to the Engineer, to present with their proposals recommendations as to ability to perform their contract.

Any Information on the subject afforded at the Engineer's Office, Chatham Four Corners.

JAMES M'ELLEN, President.
GEORGE RICH, Chief Engineer.

Hudson, Aug. 1, 1835. 31—St

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 30 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfurt street, New-York.

JOHN BUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—St

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

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Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sep.18-1y

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RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J361f

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Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, ends cut at an angle
900 do. 2 do. do.	of 45 degrees, with splicing
600 do. 2 1/2 do. do.	plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 25, 26, 3, 34, and 34 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

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Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7imeowt

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The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1835.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most complete instrument adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

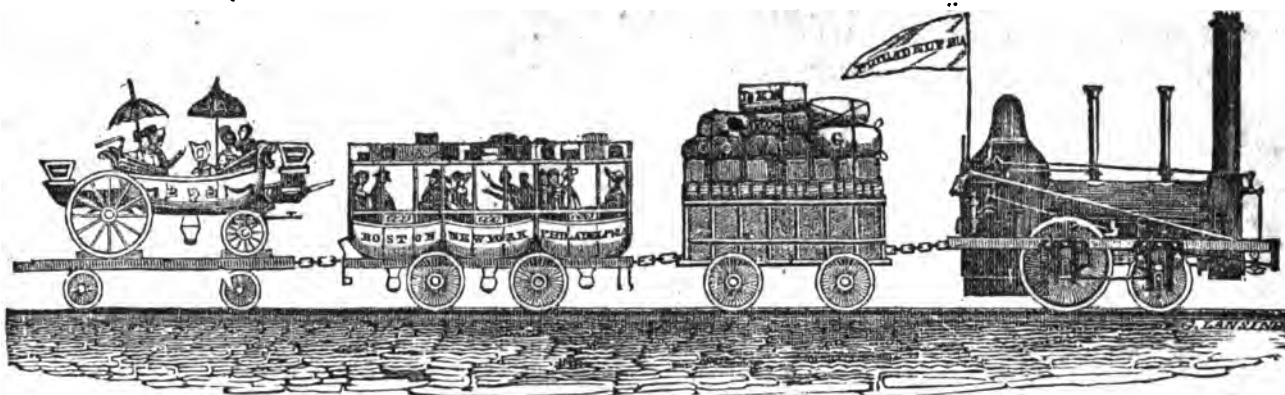
E. H. GILL, Civil Engineer.

German town, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for these purposes.

HENRY B. CAMPBELL, Eng. Philad.
German. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, AUGUST 16, 1835.

[VOLUME IV.—No. 32.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 15, 1835.

GRAND JUNCTION RAILWAY.—We devote in this number almost the entire space usually devoted to internal improvements, to the Report of JOSEPH LOCKE. It will be found worthy of an attentive perusal. We are indebted to the Directors of the New-York and Erie Railroad Company for a copy.

NEW-YORK AND ERIE RAILROAD.—We would call attention to the proceedings of the Railroad Convention held at Oswego, published in this number of the Journal. It was well attended, and attended, too, by delegates from Oneida county—from whence came much of the opposition in the last Legislature. That "truth is mighty and will prevail," in this, as in most other important matters, we have never doubted; and it is truly gratifying to those who look at, and advocate, this as a national work, to learn that there are daily and important conversions to its cause from its former opponents.

TROY AND BALLSTON RAILROAD.—We learn, by the Ballston Gazette, the Railroad from the city of Troy to that village is so far completed, that the new engine with a train of passenger cars will arrive there on Thursday or Friday from Waterford. Thus it is that one railroad after another is brought into use; and it will not be many years before the mode of travelling on all the great thoroughfares will be by railroad and steamboat.

PITTSBURGH.—The river is three feet above low water mark.

[From the Oswego Palladium.]

COMMERCE OF OSWEGO.—We lay before our readers the following statements obtained from the Custom House, relating to the navigation and commerce of the port of Oswego. We simply remark that these statements exhibit only the business of the port as connected with the navigation of the Lakes, and exhibit nothing of the immense increase of business connected with the Oswego and Erie Canals.

Second quarter of 1835.

	Tons.
American vessels entered from foreign countries	13,140
“ “ cleared for do do	12,572
“ “ entered from ports of the United States	18,231
“ “ cleared for do do	19,792
	63,735
Foreign vessels entered from foreign ports	23,041
“ “ cleared for do do	23,103
	46,154
Total foreign and domestic entries and clearances	109,879
Amount of duties collected, \$14,210 64.	

On comparing the transactions of the Custom House for the above quarter of the current year with the corresponding quarter of the year 1834, we have arrived at the following results, which we state in round terms:

The increase of American tonnage clearing for and arriving from foreign ports, is nearly 1500 per cent.

The increase of foreign tonnage arriving from and clearing for foreign ports, is 39 per cent.

The domestic entries and clearances for the 2d quarter of 1834, cannot conveniently be ascertained—but the increase for the corresponding quarter of the present year is known to be very great.

The increased amount of duties collected is nearly 1200 per cent.

The increased amount of imports is nearly 600 per cent.

And the increased amount of exports exceeds 700 per cent.

We have not now schooners enough to do the business of our lake, and there is every reason to believe that we shall have double the business next year that we have this. Where shall we find vessels to do it? Every schooner now which is well managed clears from fifty to one hundred per cent. on her cost yearly. No better investment can be made. We have timber in abundance—and when the business is such that they will pay for themselves every year or two, why can we not have a sufficient number to do all the freighting that may be required by the commercial operations of our lakes.

THE BOSTON AND PROVIDENCE RAILROAD.—Increased facilities to travellers are afforded by the

new arrangement of running three times a-day over this road. The change of hour to four o'clock, P. M., for the departure of the New York steamboats from Providence, will be found, it is thought, convenient to passengers from Boston, who may then take an early dinner in that city, and arrive here the next morning before business commences.

In the deep cut of the Chesapeake and Delaware Canal, a slide took place, during the recent rains, which will, says the National Intelligencer, entirely obstruct its navigation, for some time to come, and cost a large sum to remove. The Baltimore American, however, of yesterday, says the damage is not so great, and that two sloops had since passed through.

Several of the steam carriages of the British and American Intercourse Company have been running in the vicinity of town this week, in particular from Hyde-park-corner to Slough, (21 miles) is regularly done in an hour and 20 minutes.—Among the passengers have been Lord Darlington, Sir Hussey Vivian, Sir John Elley, Sir Henry Hardinge, Sir John Lambert, Sir Charles Dance, Colonels Grove and Thornton, Major Handley, M.P., and Mr. Cayley, M.P.

STEAM CARRIAGES.—Some of the members of the committee of the House of Commons now sitting, on steam carriages, having expressed a wish to be enabled to judge for themselves as to the practicability of a power so long suspended by legislative prohibition, in the shape of tolls, were invited a day or two since by Col. Sir Charles Dance, who is just returned from the continent, to accompany him in his steam-carriage on a trip to his house at Hartford, near Stanmore. The invitation being accepted, the carriage started with a party from Oxford street, at half-past nine in the morning. At Hartford a *dejeuner* was provided by the care of Sir Charles; after partaking of which, and witnessing some experiments in drawing heavy weights by a steam-carriage, (with a view to military purposes,) the party set off on their return to Oxford street, which they reached at half-past twelve, having accomplished the distance in forty-five minutes. On the journey out, the carriage went up Stanmore hill at the rate of eight miles an hour, although this is an ascent where the mail and stage coaches generally make use of six horses. Besides Lord Darlington and other members of the committee, the Master General of the Ordnance and several other distinguished persons were of the party.

RESPECT FOR THE ARTS.—A Danish fifty-gun frigate has arrived at Leghorn, to take on board and convey to Copenhagen a part of the finished works of Thorwaldsen. The artist himself intends to go to Copenhagen during the summer, in order to be present when they are put up in the places for which they are intended.

Report of Joseph Locke, Chief Engineer of the Grand Junction Railway between Birmingham and Liverpool, Eng.

To the Directors of the Grand Junction Railway Company,
GENTLEMEN:

In submitting for your consideration the following remarks on the subject of Rails and Chairs, I wish briefly to state the reasons that have induced me, (after you have already decided on the form of Rail,) to investigate the question. Under ordinary circumstances, I might have been justified in simply giving a preference to a particular form of Rail, without stating the grounds on which that preference was founded, but considering the present conflicting opinions on this very important subject, and the scarcity of data upon which to form a correct judgment, I have thought that by contributing the few observations I have made to the general stock, the cause in which you, as well as the public, are interested, might be advanced.

The longitudinal and transverse forms of Rail, the form of Chair and fastening, and the propriety of placing the Blocks further apart, are the subjects to which I have more particularly directed my attention.

The fish-bellied or elliptical form of Rail is already well known. It is deepest in the middle between the supports, and the material is so disposed that when uniformly loaded it is equally strong at all points.

The parallel Rail, on the contrary, is weakest in the middle, and, if loaded excessively, would break midway between the supports; and as it is absolutely necessary to give the requisite strength in the middle, it follows that at every other part the parallel Rail is unnecessarily strong.

The strength of a uniform bar of iron is as the breadth and square of the depth directly, and as the length inversely. In other terms, if the breadth be doubled, its strength is doubled; if the depth be doubled, the strength is quadrupled; and if the length or distance between the supports be doubled, then the strength is impaired one half.

If an elliptical Bar be $3\frac{1}{2}$ inches at the least, and 5 inches at the greatest depth, a parallel Bar of equal weight will be about $4\frac{1}{2}$ inches, and the relative strength in the middle, (supposing the breadth and distance between the supports to be constant,) being as the square of the depth, will be as 25 to 18.

This advantage, however, is only gained at one point, viz. midway between the supports; and it gradually diminishes, until it corresponds in depth with the parallel Bar, which, when the supports are 3 feet apart, is at 9 inches from the end, and at this point the two Rails are equally strong: but for the remaining distance to the support, the parallel Bar is the strongest.

I am aware that, theoretically speaking, the extra strength of the parallel Rail near the ends is of no advantage, because, as has been well observed, the efficiency of a structure can only be estimated at the weakest point,—but I wish that circumstance to be noticed, as I shall have occasion hereafter to direct your attention to it.

The formula for ascertaining the strength of iron beams are derived from experiments made upon peculiar sections, and with various kinds of iron. Some experiments have recently been made at Newcastle, on the strength of Railway Bars, and these therefore are more applicable to our purpose than any others, although they are not altogether free from objection. The deductions, which I think are very fairly drawn from these experiments, are,

That an elliptical Rail weighing 45 lbs. per yard is equal in strength to a parallel Rail weighing 50 lbs. per yard.

That when a weight of 96 cwt., was applied in the middle, with 3 feet bearings, the deflexion in the former was 1.20th of an inch, and in the latter 1.14th part of an inch,

The depth of the fish-bellied Rail in the middle was 5 inches, and at the end $3\frac{1}{2}$ inches. The depth of the parallel Bar was 4 inches.

Now if the two Rails had had similar sections, the parallel Bar ought to have been $4\frac{1}{2}$ inches deep, instead of 4 inches, and would have been 1.8th stronger.

However, I think there can be no doubt that, both theoreti-

cally and experimentally, of the two Rails with similar sections, the elliptical, with the same quantity of material, is strongest form.

But the question for consideration is, whether from the construction of Railways, and the effect of heavy bodies rolling along them at high velocities, we can safely apply theoretical or even experimental deductions? For my own part, I think that the experience obtained from the working of the Liverpool and Manchester, and other Railways, affords much safer data upon which to proceed; and although I would not reject experimental data, I would only apply it in connection with the more generally practical results obtained from these lines.

It is well known that a very considerable number of the elliptical Rails on the Liverpool and Manchester line has been broken, whilst on those lines where the parallel Rails have been used, there are few instances of a broken Rail. The causes that have led to this unexpected result will hereafter be considered.

By far the greater number of Rails have broken at about 7 or 8 inches from the Block, and, in nine cases out of ten, at 7 or 8 inches from the joint Block, or end of the Rail. This circumstance has induced a belief that the Rail is not of the true elliptical form, but that it is weakest at this point; it will, however, be found that the point where the greatest deviation from the elliptical form occurs, is not that at which the fractures have generally taken place.

The Rails used on the Liverpool and Manchester Railway weigh 35 lbs. per yard—the greatest depth is $3\frac{1}{2}$, least depth $2\frac{1}{2}$; now, the effect of any weight at different parts of the Rail is as the rectangle of the segments into which it is divided. If therefore it be necessary to have a 3 feet Rail, $3\frac{1}{2}$ inches deep in the middle, the depth at nine inches from the end will be as $18^2 : 8 \times 28 :: 3\frac{1}{2}^2 : 2.01^2$ inches; but the actual depth is 2.94 inches, therefore it is at this point about 1.30 of an inch too deep. The calculated and ascertained depths at other parts of the Rail are:

	Calculated depths	Actual depths.
At 6 inches from the end,	2.60	2.76
7	2.77	2.85
8	2.91	2.94
9	3.03	3.02
10	3.13	3.10
11	3.22	3.20
12	3.29	3.30
13	3.36	3.36
14	3.41	3.40
15	3.45	3.44
16	3.47	3.46
17	3.49	3.49
18	3.50	3.50

Thus we find, that up to 9 inches from the end the Rail is stronger than theory assigns, whilst from 9 inches to 12 it is a little weaker, but in so small a degree as not to be worth considering. The depth of the Rail, at 9 inches from the end, is equal to the depth due to a parallel Rail of the same weight per yard. And if the Liverpool Rails had been parallel instead of elliptical, and of the same weight, the fracture, instead of being near the end, would, according to theory, have been in the middle, and the number of broken Rails increased in the proportion of nearly 2 to 3. There have been no parallel Rails exactly of this weight made; therefore, whether this proportion would hold true in practice remains undetermined. If, however, a parallel Rail had been used, as deep in the middle as the elliptical Rail now is, viz. $3\frac{1}{2}$ inches, its weight would have been about 42 lbs. per yard, and the number of broken Rails ought to have been the same, the point of fracture only being changed.

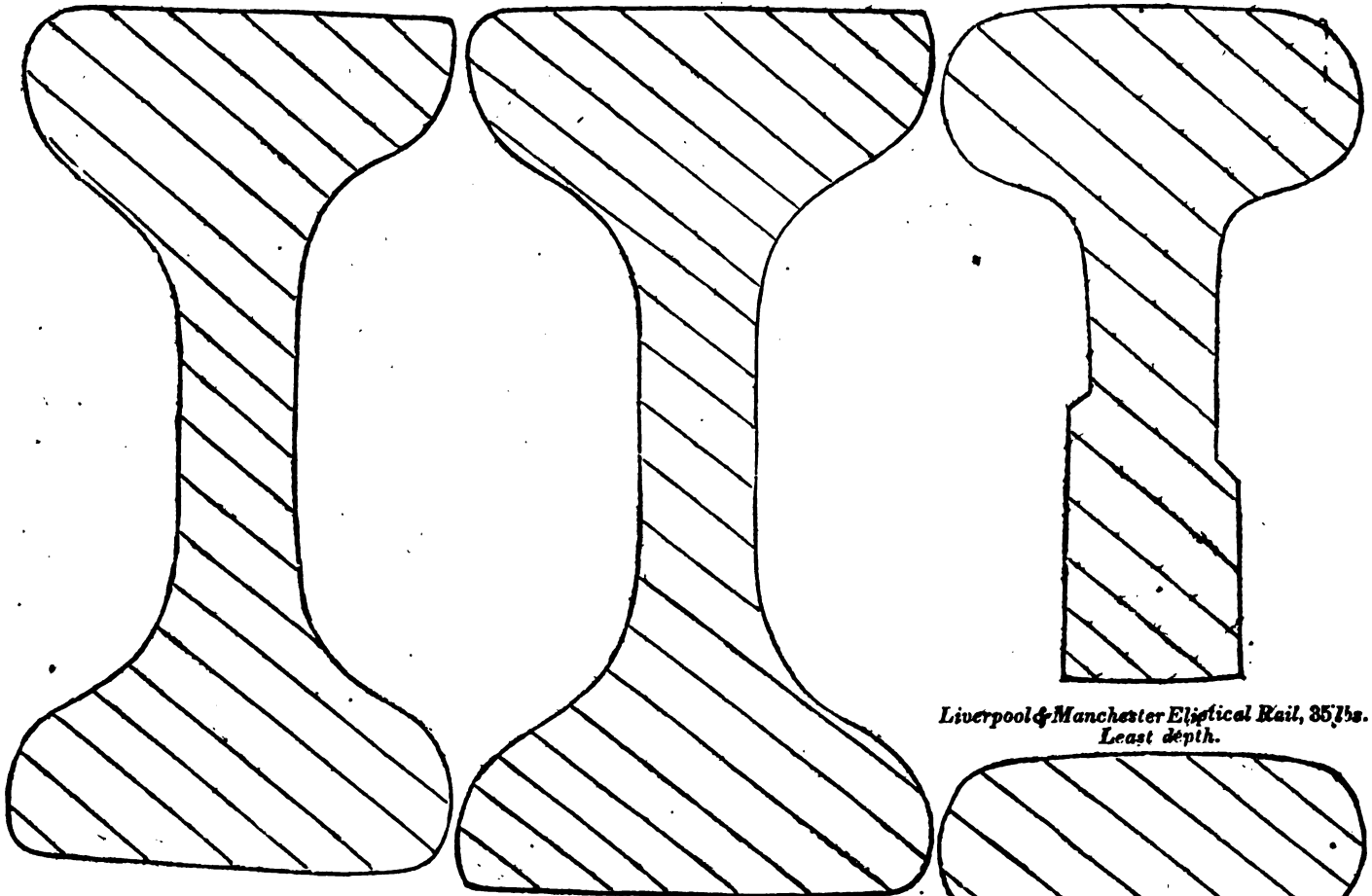
This reasoning, theoretically speaking, would be conclusive, had we not the experience of the Bolton, Wigan, St. Helens, and part of the Liverpool and Manchester Railways, wherein such Rails have been used, and where very few have yet been broken.

These Rails weigh $41\frac{1}{2}$ lbs. per yard and are $3\frac{1}{2}$ inches deep. May we not therefore fairly conclude that experience does not bear out the theoretical advantages of the elliptical Rail?

*Present Grand Junction Railway,
3.9 ft. bearings.*

*Proposed Grand Junction Rail,
4 ft. bearings.*

*Liverpool and Manchester Elliptical Rail, 35 lbs.
Greatest depth.*

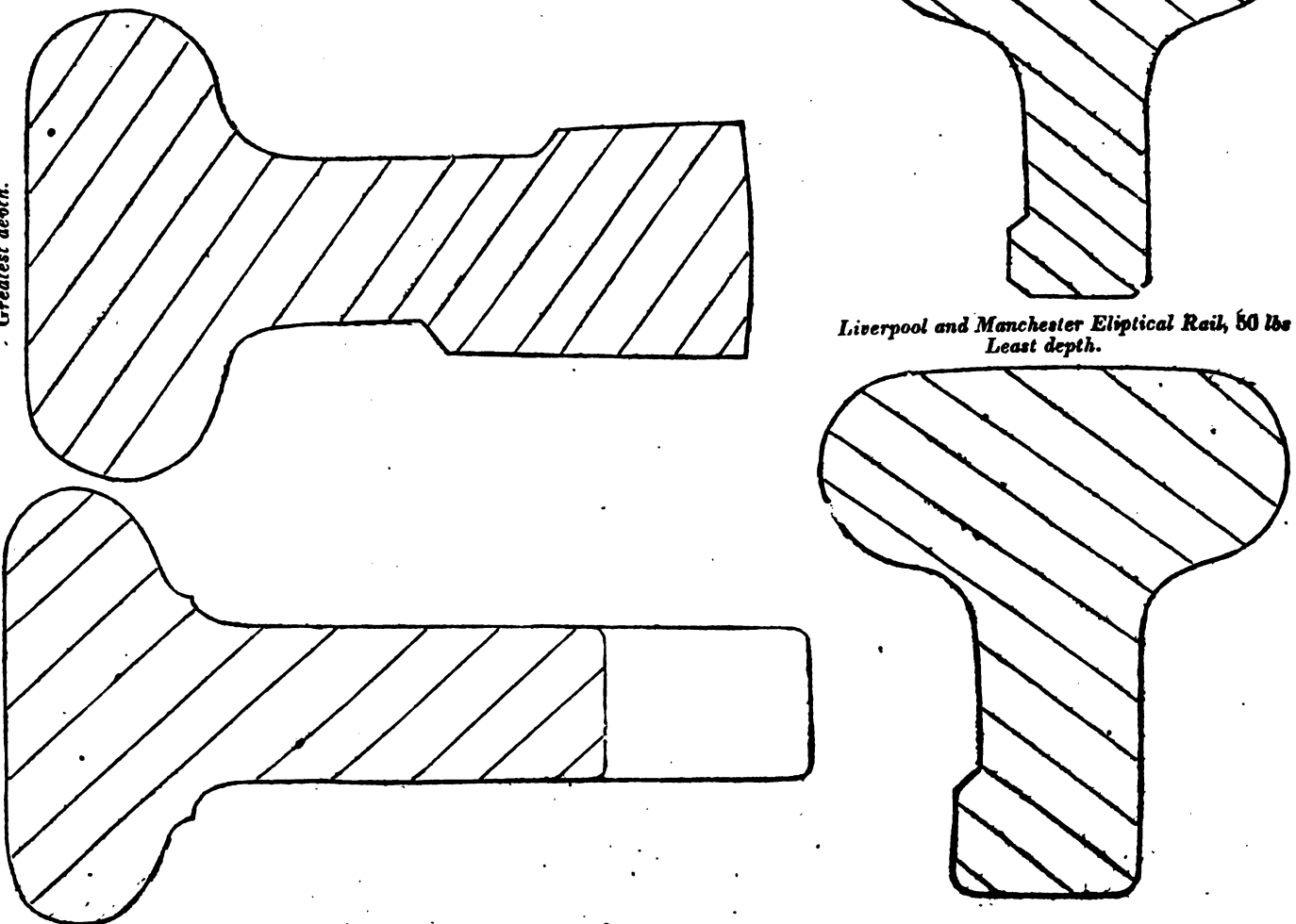


*Liverpool & Manchester Elliptical Rail, 35 lbs.
Least depth.*

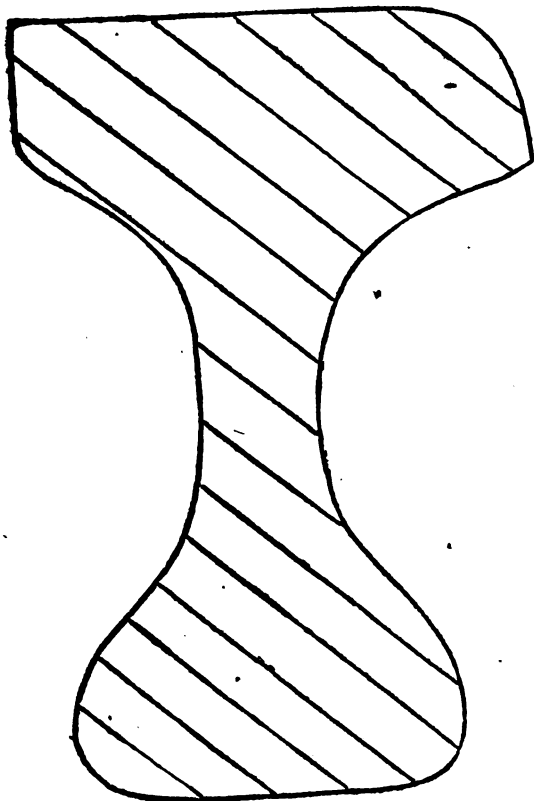
*Liverpool and Manchester Elliptical Rail, 50 lbs
Least depth.*

*Liverpool and Manchester Elliptical Rail, 50 lbs.
Greatest depth.*

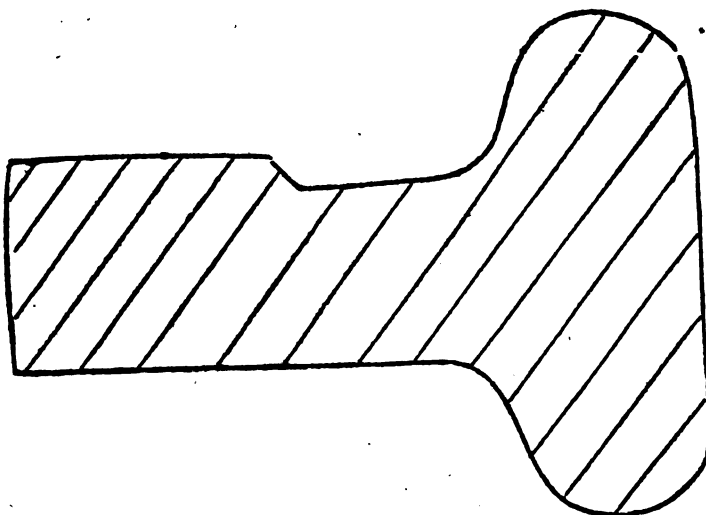
Mr. Stephenson's Elliptical Rail, 44 lbs.



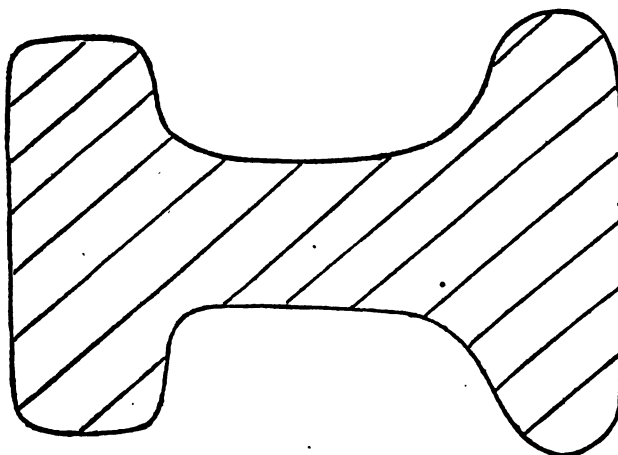
Liverpool and Manchester Parallel, 60 lbs.



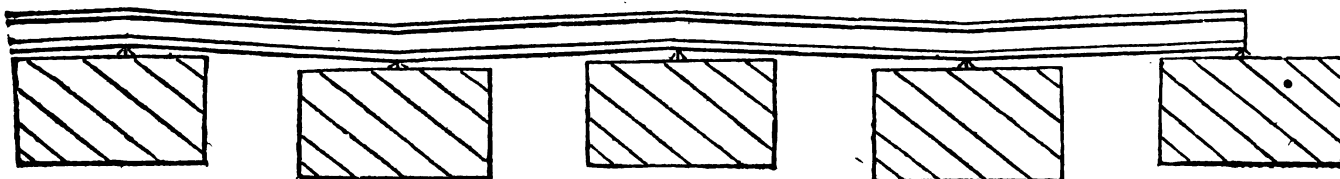
Liverpool and Manchester Parallel R. at, 50 lb. s.



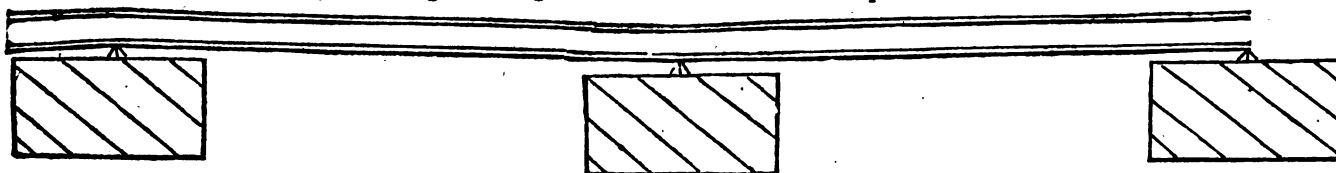
Dublin Parallel, 45 lbs.



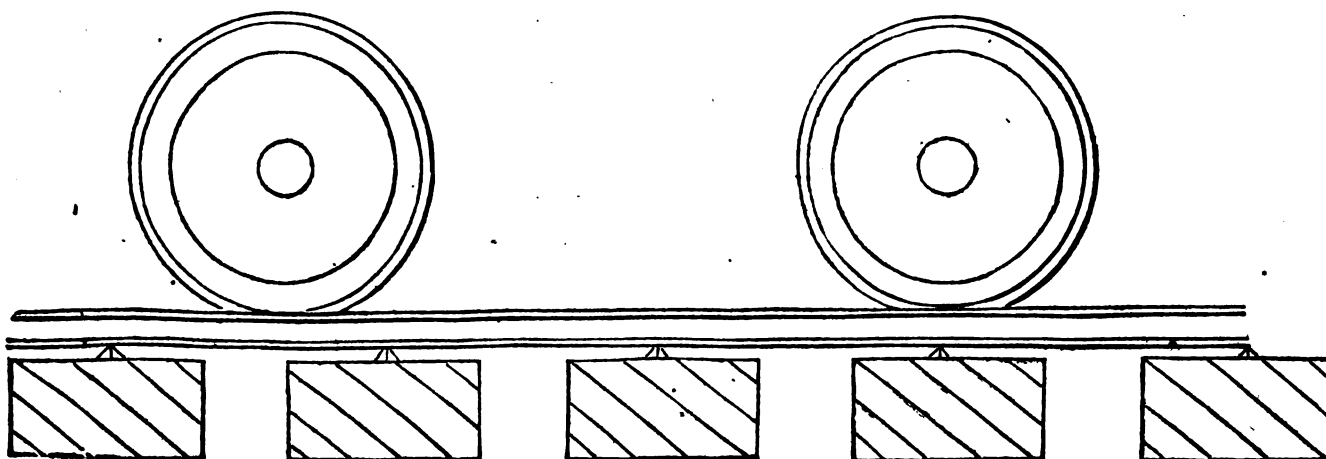
Sketch with 3 feet bearings, showing the undulations of the road with certain depressions of the blocks.



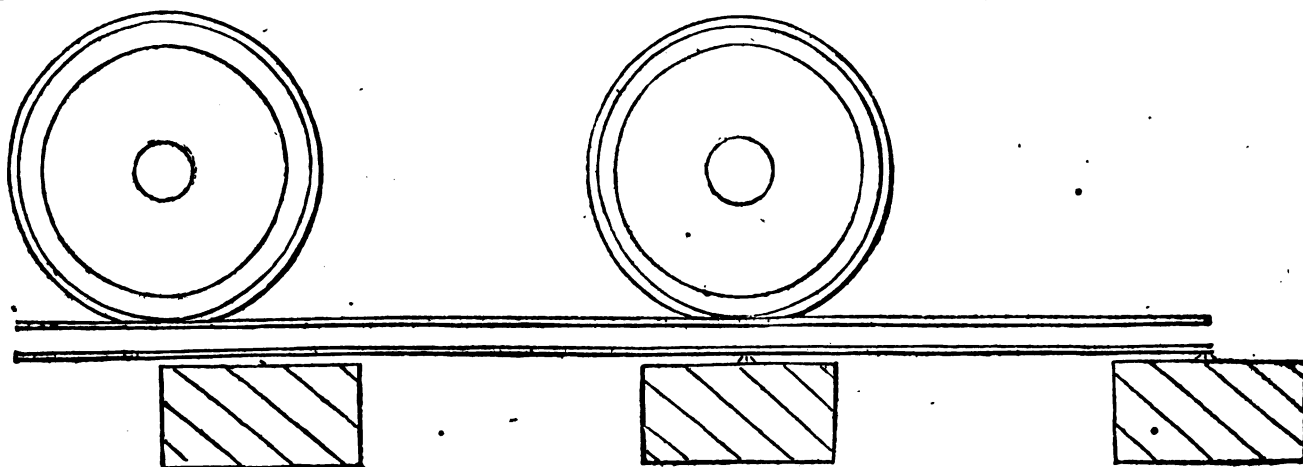
Six feet bearings, showing the undulations with similar depressions of the blocks.



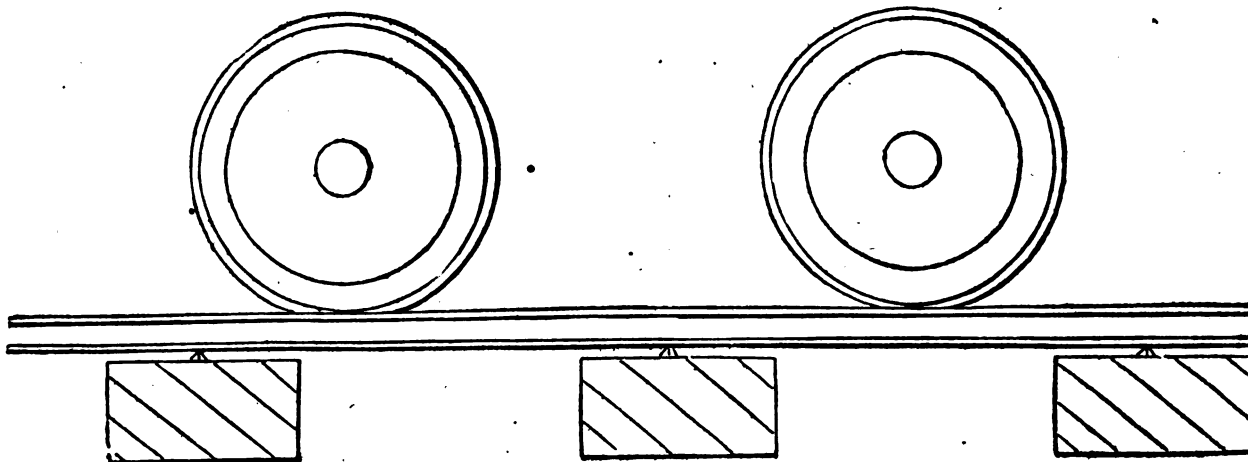
Three feet bearings, showing the position of a pair of carriage wheels 7 feet apart.



Five feet bearings, showing the position of a pair of carriage wheels 6 feet apart, one wheel being over the block.



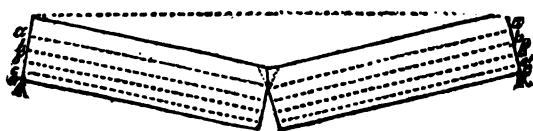
Same as the above, one wheel being over the centre of the rail.



The chief causes of failure may, in my opinion, be traced to the defect in fastening the Rail into the Chair, and the difficulty of preserving the uniform level of the Blocks. An attentive consideration of the effect of a heavy body moving along a railway will sufficiently prove this. From the unequal settling or subsiding of the ballast, the level of the Blocks becomes unequal, and so soon as one becomes lower than its neighbors, every wheel that passes over it strikes a blow and drives it lower. The force of this blow depends on the depression of the Block, which not unfrequently exceeds half an inch. When this occurs, the weight of the load is alternately thrown to the inner edges or arrises of the adjoining Chairs; and thus not only is the weight thrown on one side of the Block, but a considerable strain is given to the longitudinal key. In some cases there is an alternate action, first on one side of the Block and key, and then on the other, thus producing a rocking motion to the Block, which very soon alters its level, and to the key a fretting motion, which soon shakes it loose. When the latter is accomplished, the Rail which has very little substance at the bottom is liberated; and it is then, and I believe not till then, that the Rails break, for it has been well ascertained that a beam, fastened at the ends, will bear nearly double the weight that will break it when the ends are loose. And this view is confirmed by the fact, that, in nine-tenths of the Rails hitherto broken, the fracture has taken place near to the ends.

Another cause of the failure of the fish-bellied Rail arises from the want of an under-web. It is well known that the strength of beams is increased by adding to the substance at the bottom, and this increase will be found to be much more important when the Rail is subjected to blows, rather than to weights laid or rolled smoothly along its surface. The fibres at the bottom of a beam are more strained than those in the

middle, because they lie at a greater distance from the neutral axis.* This will be best understood by a reference to



the drawing above, where a fractured beam is represented. The line *a a* represents the neutral axis; the lines *b b*, *b' b'*, &c. the position of the fibres of iron or other material dividing the beam into several pivots. Now the extension of the fibre at *c' c'* is to that of any other fibre as its distance from the neutral axis, and it follows that at *c' c'*, where the distance is greatest, the elasticity of the material will be first destroyed. This, therefore, is the point where the greatest number of fibres is required, and more particularly to resist a sudden shock, or blow; for, in this case, the elasticity of the lower fibres might be destroyed before those placed nearer the neutral axis had been called into action. The same may be said of the fibres above the neutral axis, which resist by compression; the upper fibres of the Rail being further from the neutral axis are more compressed than those below them. The position of these fibres may be compared with the bundle of sticks in the fable: place them in such a manner as to allow them to act together, and they will resist the load, but take them singly, and each will break. A deep narrow bar is certainly the most rigid, but, (as Tredgold has well observed,) although it will bear an immense pressure, the stroke of a hammer will fracture it.

* The neutral axis, or axis of motion, is in that part of a beam where all the fibres above it are compressed, and all those below are extended. It is situated above the middle, but varies in differently shaped beams, and with different qualities of material.

This view of the subject leads to the conclusion, that to increase the depth without reference to the breadth of projection on the underside, is not the way to obtain the best Rail-way Bar; and it is to this under-web in the parallel Rail, small as it hath hitherto been, that its superiority is in some measure to be attributed. The obvious remedy for this defect in the elliptical Rail would be to give to it this projecting web, but this, even if practicable, could only be accomplished with difficulty.

This comparative view of the two forms of Rail refers only to the condition that the bearings be 3 feet apart, and the saving of iron, in this short length, is not so much as would appear from a comparison instituted with 6 feet bearings. I have no doubt that with the Blocks much further apart, the elliptical Rail, by the addition of an under-web, might be used successfully and economically; but until some means be found by which an under-web can be given to the elliptical Rail, I think we ought to confine ourselves to the parallel form.

So far, therefore, as the longitudinal form is concerned, I am favorable to the parallel Rail, and the transverse section which I would recommend is that in which, after allowing sufficient width for the carriage wheels to roll upon, a moderate thickness of the rib, (due regard being had to the height of the chair,) all the remaining substance should be thrown into the under-web. It was with this view that I formed the model which you have already adopted, and which has also been adopted by the North Union Railway Company; and taking into consideration a suggestion made after much experience by Mr. Sinclair, that it would be desirable to be able to turn the Rail upside down, should the upper surface become defective, I decided upon making the upper and lower Rails precisely similar; but this has been accomplished without impairing its strength. It has been stated that this contingency of turning the Rail is "dangerous, and done without foresight;" but, (unless it be shown that some benefit is sacrificed,) I cannot see why this project should be so named.

If a Rail be not similar, top and bottom, it is evident that we are confined to one side, which, when it becomes worn or imperfect, is useless, and the Rail must be sold as old iron; but if it will turn, even supposing it to have been so much worn as to be too weak for the purposes to which it may have been before applied, may still be used on sidings, or branch lines, where the engines are lighter, or the speed not so great. That there is an advantage in being able to turn a Rail, even to make choice of sides, when first laid, is well known to those who have laid them, and therefore this contingency should not in my opinion be so totally disregarded. In preparing this, and the model for the chair, I have had three objects in view.

Firstly, Whilst giving the Rail a sufficient bearing surface on the Chair, so that one shall not groove or cut the other, I propose to reduce the length of the bearing at least one half, by which the tendency to rock the Block, and tear off the Chairs, will be reduced 50 per cent.

Secondly, To prevent the Rail from rising in the Chair, which is proposed to be accomplished by the large projection on the Rail, the filling piece, and the wooden key: which, so long as either of the latter keep their places, will prevent the Rail from lifting up.

To prevent or lessen the liability of loosening the key, I propose,

Thirdly, That the filling piece shall only touch the Rail for one inch on each side of the centre of the Chair, instead of two inches, as heretofore; so that by any flexibility of the Rail, or settling of the Blocks, the action on the key will be reduced 50 per cent., and that continual fretting or tremor, which is so prejudicial to the long iron keys now in use, will be abated in the same proportion.

The joint Chair has two filling pieces and two keys, the object of which is to insure a more certain hold of both Rails, and which cannot be done by one key. Each key acts independently of the other, and therefore any working loose of one Rail does not necessarily, as at present, liberate the other.

I may here be permitted to make an observation on the wooden key. It is upwards of 8 months since you instructed me to try an experiment with wooden keys on the Liver-

pool and Manchester line, and I caused about 100 yards to be laid, adapting the key to the Rail and Chair when in use. The objection raised at the time was, that wood was not sufficiently durable, and that it would decay and become chafed by the working of the Rails in the chairs, and thus be worked loose. I was quite aware that this, to a certain extent, would be the case, although I believe not so much as materially to affect the stability of the fastening. I have just examined these keys, and have great reason to be satisfied with them. There is a joint Rail or two which rises in the chair, but this is caused more from the want of substance in the Rail to hold it down, than from the key; some of the keys would bear tightening, others would not, but none were loose; I at the same time examined the Rails laid down under the direction of Mr. Stephenson, and found them in very good order; there are but a few lengths laid, but these were upon the whole very firm and solid. I was induced to try the wooden keys, because I believed those of iron were worked loose by the jarring and fretting motion produced by the passage of every carriage over them. There is not sufficient elasticity in iron thus applied, to yield or adapt itself to the strain which the changed position of a Rail, when deflected, throws upon it, and, therefore, wherever this evil exists, iron keys will ultimately work loose. There is more yielding in wood, which adapts itself more uniformly to the side of the Chair against which it presses, and does not, like the iron key, touch only in points; and by making the recess in the Chair smaller in the middle, and using the wood quite dry, the projecting part of the key expands, by absorption of moisture from the atmosphere, and is thus prevented from being worked or drawn out. It is similar in principle to a cork in a bottle, the middle part of the Chair, like the neck of the bottle, being the smallest. It is quite evident, that the decay from long exposure to the weather is the only thing to be guarded against, but I maintain that, if they but last two or three years, they will be found to be economical. Wooden sleepers are not more durable than stone Blocks, but still they are used. Why should not wooden keys last as long as sleepers? There must also be less noise from a train where wooden keys are used; the reason is obvious, for the substitution of a softer material between the Rail and Chair prevents the vibrations of the former from being communicated to the latter.

The successful application of wood for keys is very important, and I regret that these keys were not practically tested when I first suggested them, (now upwards of two years since,) but I shall continue to watch the operation upon that part of the Liverpool line now laid with them, so that we may yet take advantage of any change that time may produce.

I come now to consider the propriety of placing the Blocks at a greater distance from each other.

The reasons that have induced me to recommend this to your consideration are not strictly confined to economy, (although I shall be able to show some advantage on that score,) but to a conviction that much of the wear and tear, not only of the Rails and Chairs, but of the engines and carriages, will be avoided. There is one point to which I wish to direct your attention, viz.: That so long as the Blocks are not placed further apart than the axles on the carriages, no more weight can ever at one time be placed on one Block; and therefore the Blocks do not by this suggested change require to be larger, nor the foundations to be firmer, than they are at present. An inspection of the drawings will render this apparent.

If a carriage bear upon each wheel a load of 3 tons, it presses when immediately above the Chair with that weight upon the Block. The Block and the foundations should therefore be prepared to resist this load; now, if the Chairs were placed 2 feet apart, or the Blocks put close together, so as to touch each other, the very same weight must be borne to each Block and foundation; in short, however close the Chairs are placed, they must each bear the weight of the wheel when it comes perpendicularly over it. From this it would appear, that if the axles of the carriage be 6 feet apart, the Blocks might be 6 feet apart, without requiring to be larger, or the foundations to be better made.

The axles of the coaches and waggons now in use are

about 6 feet apart, none less than 5 feet, whilst the Blocks are 3 feet; the injurious effect of this arrangement upon the machinery and road, I will now endeavor to show.

It may have been remarked by the Directors, that on some parts of the Liverpool and Manchester Railway, the engines and coaches have, when in full speed, a very considerable swinging motion, which I believe arises from the inequalities in the road. Instead of the surface of the Rails being uniformly smooth, they offer to the carriage wheels a series of inclined planes or waves, and the Blocks immediately opposite to each other not being equally depressed, the carriages work upon the springs, and produce the motion already mentioned. Now, the intensity of this motion will depend upon the quick succession of change in the level of the Blocks, and if one Block be sunk half an inch, and the adjoining one not at all, the Rail will be inclined at the rate of 1 in 72. If, again, the next succeeding Block be not depressed, the engine has again to rise up an inclined plane of 1 in 72. In some instances the opposite Rail is inclined just in the opposite direction, in which case we have the two opposite wheels of an engine, one running down hill, and the other up. This I believe is no exaggerated picture, and it is not confined to the Liverpool and Manchester road; but will occur wherever the bearings are so much shorter than the coupling of the wheels. It was the undulating appearance combined with the motion of the engines, (which I have observed on all the newly constructed Railways,) that first drew my attention to the subject; and I have so far considered it important, as to believe that many of the evils hitherto experienced may be traced to it. The causes producing these effects are obvious. The ballast, as I have before observed, settles unequally. The first settling is assisted by the force with which the engines strike the Rail, and this increases as the Blocks settle lower. The foundations being unequal, some Blocks sink more than others, and at high velocities, the engines, instead of gliding smoothly along the Rail, actually jump from joint to joint, and where the depression is half an inch, will jump 20 inches without touching the Rail. What will be the effect of a blow of a heavy engine under such circumstances? A broken Rail! There seems to me no other way of accounting for the breakage of Rails on the Liverpool and Manchester Railway, than from this supposition. We know that the new 50 lbs. elliptical Rail is stronger in the middle than the parallel, and yet two of these have broken near the middle. This could not be produced by simple pressure. For in the same Rail, afterwards tested, the iron was bent nearly double without breaking. Is this not a proof of the existence of sudden shocks produced by the bounding of the engines? Why have so many Rails been broken in Olive Mount cutting? Because some of the Blocks are resting on the bare unyielding rock, whilst others are upon a thick layer of ballast, which after settling makes the undulations of the Rail more abrupt, and consequently the blows from the engines more effectual.

[To be continued.]

RAILROAD MEETING.

An Extract from the Proceedings of a Meeting held at Pekin, Niagara County, New-York.

At a meeting of the citizens of Pekin and vicinity, on the Northern Railroad route from Lockport to the Falls of Niagara, held July 18th, 1835, SILAS BELDING was called to the Chair, and JACOB COMPTON chosen Secretary.

A Committee was appointed to draft resolutions expressive of the sense of the meeting, and to communicate with the Directors of said road.

The following resolutions were adopted:

Resolved, That we view the location of the Railroad above named a subject of great vital importance to the inhabitants of the County of Niagara, to the travelling community, to the inhabitants of Lewiston and Pekin, villages situated contiguous to the northern route; also to the inhabitants of Upper Canada, so far as concerns the convenience of travelling, and to those that pass up and down Lake Ontario, arriving at any of the ports west on the Lake, Lewiston, Youngstown, Queenston, or Niagara, passing from thence east; and lastly, to the Stockholders in said Road, whose interests would be materially affected by the loss of

all the northern travel,—a circumstance inevitable, from the location of the south route.

Resolved, That in the opinion of the members of this meeting, the northern route would not lose any of the travel from Buffalo, as the distance does not materially differ in the two routes; and the connection with the "Buffalo and Falls Railroad" would be at the Falls, consequently the whole of the Lockport and Niagara Falls Company's road must be used by persons passing from Buffalo to Lockport, to or from; but should the south route be preferable, a junction of the two routes must take place at a point about six miles above the Falls, the two roads from thence running parallel to each other to the Falls. The consequence resulting from this would be, that persons passing from Lockport to Buffalo would leave the road at this point, and take the other and pass on to Buffalo, and vice versa; consequently, about six miles of the road would be left untravelled by all who had not sufficient curiosity to see the Falls to induce them to travel twelve miles of railroad, or business, amounting to the same thing: which class would constitute a large portion of the travellers passing over this road.

Resolved, That we consider that the business of said Road would be greatly increased by the construction of a Branch Railroad from the village of Lewiston to the nearest point on said Road, a distance of about one or two miles; and we are also of opinion, judging from existing feelings on the subject, that the inhabitants of Lewiston and Pekin would not hesitate, if a charter is obtained, to take the stock in said Branch Railroad.

Resolved, That we, the members of this meeting, hereby pledge ourselves, and this Committee also pledge themselves, to take stock in said Branch to the amount of five thousand dollars, for the village of Pekin, provided it is required for us to take that amount; that we feel assured that the stock in said Branch would be good, from the fact that Lewiston is the head of navigation on the American side of Lake Ontario, and destined to be a grand depot for all the commerce of the northern waters, and the point where all the northern travellers, and travel passing through Canada, to and from Michigan and Illinois, (which is very considerable during that part of the season when the Lakes are closed,) would embark in whatever conveyance was offered; and it ought also to be observed, that during the winter season, when all other ferries are closed, or impassable on account of floating ice, this affords a safe passage across the Niagara River, and this is the point where the great mail crosses, more particularly for this reason.

Resolved, That in the opinion of this Committee, should the Railroad be located on the south route, a line of stages would necessarily be kept from Lewiston to Lockport, a distance of about eighteen miles, where different lines are now running, and the roads thronged with stages daily. Lewiston is seven miles below the Niagara Falls, on the Niagara River, and seven miles above Fort Niagara, and is known to be a flourishing village,—the place where the steamboats of Lake Ontario land all their passengers, and receive those destined for the north.

The inhabitants on the Canada side of the Niagara River, in view of the prospect that our Railroad would be constructed on the south route, held a meeting on the subject of constructing a Railroad from Queenston to Chippewa, and determined to break ground within one month. Chippewa is about three miles above the Falls, on the Canada side; the travel would necessarily pass from thence to the places of embarkation on the Canada side of Lake Erie, if going west or south.

Resolved, That in view of the above considerations, and many more that might be presented, we are satisfied that the Directors of said Road ought to be informed on the subject, before they decide on the location. We do not ask that the gentlemen should take the assertions of persons interested, but examine the subject carefully for themselves.

The farmers and landholders on the northern route have nearly all signed off their lands, or given quit-claim deeds, for the benefit of the Company, so that no expense would accrue for lands of much amount. And who that has passed through Niagara County, does not know that the farms on the northern route, being those situated on the Mountain Ridge Road, are in a high state of cultivation? A good share of the ground over which the Road is laid is cleared, and the location the most beautiful for a Railroad that could be imagined, commanding an extensive view at an elevation of more than three hundred feet above Lake Ontario, of which, at many points, you have an extended view.

Presuming that the Directors are in possession of the surveys and estimate of the northern route, as made by the Company's Engineer, JOHN HOPKINS, Esq., and with these before them, they can at once be satisfied as to the difference of expense. But to know the difference of advantages, they should know the ground and country for themselves; after being acquainted with which, if gentlemen decide different from our views, we should rest satis-

that we had done a duty we owed to our County, the place we represent, and to the Stockholders in said Road.

RAILROAD CONVENTION.—At a Convention composed of delegates from the several counties interested in the construction of the New York and Erie railroad, held at the village of Owego, on the 29th day of July, 1835, on motion of Stephen B. Leonard, Esq. G. McDowell was temporarily called to the chair, and Amasa Dana, appointed Secretary.

Chataque—Alvin Plumb, and Walter Smith.
Allegany—John C. Cooley and George Stevens.
Steuben—Ira Davenport, Levi Davis, Paul C. Cook, Benjamin Smead, William Kernan, Franklin Whitney, Z. A. Leland, Thomas A. Johnson and Thomas McBurney.

Tompkins—Ben Johnson, Amasa Dana, David D. Spencer, Minos McGoon, Henry Ackley, J. M. McCormick, John J. Speed, Jr. Francis A. Bloodgood, Samuel Love, E. G. Pelton, Augustus Sherill and Henry Ingersoll.

Tioga—James Pumpelly, George Fisher, John R. Drake, E. S. Sweet, Stephen Strong, Henry McCormick, S. B. Leonard, Jacob Willsey, G. H. Barstow, Elijah Shoemaker, George J. Pumpelly, Thomas Farrington, Charles Cook, Edward Quin, H. W. Jackson, N. T. Wynkoop and J. G. McDowell.

Brecon—Martin Hawley, John A. Collier, Virgil Whitney, Mason Whiting, Jonathan Edwards, Joseph S. Bosworth, Wm. M. Waterman, James Hawley and Gideon Hotchkiss.

Oneida—Gardner Tracy, Alvin Stewart, Horatio Seymour, Horace Butler, John H. Ostrom, A. G. Dauby, F. S. Faxton, Philip Thurber, James Sayre and Isaiah Tiffany.

Chenango—John C. Clark, Noah Ely, Augustus C. Welch, Caleb S. Butts, Samuel Medberry and Henry Calhoun.

Otsego—Charles C. Noble.

Greene—Jacob Haight.

Orange—Moses Webb, and Samuel J. Wilkin.

Rockland—J. G. Pierson.

Cattaraugus—James Brooks.

On motion of Mr. Collier, it was resolved, That a Committee, consisting of one member from each county, be appointed by the Chair, to nominate officers for this Convention. The following persons were appointed said committee, viz: Messrs. Tracy, Collier, J. M. McCormick, Welch, Farrington, Haight, Noble, Wilkin, Pierson, Smith, Kernan and Cooley.

The committee nominated WILLIAM KERNAN, of Steuben, as President.

Stephen B. Leonard, of Tioga,

Gardner Tracy, of Oneida,

Walter Smith, of Chataque,

Augustus C. Welch, of Chenango,

Vice Presidents.

Amasa Dana, of Tompkins,

A. G. Dauby, of Oneida,

Moses Webb, of Orange,

Secretaries.

The report was unanimously accepted by the Convention. On motion of J. C. Clark, Esq.

Resolved, That a committee of twelve be appointed by the President to report resolutions, expressive of the sentiments of this Convention, and that they report to-morrow morning at 9 o'clock. The following persons were appointed said Committee, viz: Messrs. Clark, Dauby, Cooley, Leland, Farrington, Wilkin, B. Johnson, Collier, Noble, Haight, Pierson, Plumb. Adjourned to 9 o'clock to-morrow morning.

JULY 30th, 1835.

The Convention met pursuant to adjournment. Mr. Clark, from the committee on resolutions, presented the following, which were unanimously adopted:

Resolved, That we are in favor of a large and liberal system of internal improvements, and being deeply impressed with the great and increasing importance of multiplying facilities of communication between different sections of the state, and of opening convenient channels of intercourse between those states already connected, or which may be connected with us in their business relations by works of internal improvement, and by none, it is believed, can this important object be more advantageously accomplished than by the contemplated Railroad from New York to Lake Erie. Therefore,

Resolved, That reposing as we do confidence in the representations of the Company empowered to accomplish this great and interesting work, we

earnestly recommend to the legislature of this State, having satisfied itself of the practicability of the measure, to extend its aid for its completion, by loaning its credit, under proper limitations and restrictions, for such sums as may be considered necessary, upon its receiving such guarantees of security for the same as shall be deemed sufficient to protect the State from loss or injury.

Resolved, That in the opinion of this convention the system which has been adopted and so far prosecuted with great success for the development of the resources and improvements of the condition of this State by the construction of canals and railroads, should be encouraged and persevered in, until the advantages are extended to every part of the State susceptible of such improvement—that to this policy this State is greatly indebted for its present highly prosperous condition, and that the gigantic efforts now making by her southern neighbors to direct the trade of the entire western States from this State into other channels and other regions, call for increased and steady efforts to secure to the citizens of this State a fair and permanent participation in the advantages of that trade.

Resolved, That we deem it hardly necessary to express what would seem to be a sentiment of obvious justice and propriety, to wit: that no work of the character referred to, whether sought to be accomplished by individual means and individual enterprise, or by the resources of the State, should meet with hostility and opposition on local, sectional or party grounds, but should stand or fall on a just view of its merits, and of what is required to promote the interest and prosperity of the country, —therefore

Resolved, That while we claim to be actuated by a spirit of enlarged and liberal state policy, in recommending to the favorable consideration of its citizens the New York and Erie Railroad, we feel the utmost confidence in the justice, liberality and patriotism of those not perhaps so directly interested in the construction of this work as the constituents of the members of this convention are, and rely upon their generous and efficient support—thereby securing to the State, beyond the hazard of future contingency, the incalculable benefits of possessing the cheapest and most expeditious communication by which the immense and rapidly augmenting products of the west, can be transported to market.

Resolved, That this Convention will unite and co-operate with its friends in the counties of Columbia, Greene, Schoharie and Otsego, in such suitable measures as they may adopt to promote a communication by Railroad from the eastern bounds of Columbia county to Lake Erie Railroad, in the valley of the Susquehanna.

Resolved, That it be recommended to each county and town interested in these projects to appoint committees to obtain signatures to petitions to the Legislature in furtherance of the object in view.

Resolved, That this Convention, reposing full confidence in the company's intention to immediately commence the work, giving sure pledges of its speedy completion, therefore recommend to the citizens of the several counties for whom stock has been reserved to subscribe for the same.

Resolved, That the Board of Directors are respectfully requested by this Convention to extend, if consistent with their arrangements, the time for closing their subscription books in the counties on the line of the road, until the first of October next.

The following resolution, passed by the Board of Directors of the New York and Erie Railroad Company, on the 22d July, ult. was read by a member of the Convention:

Resolved, That this Company will wholly abstain from speculating in or purchasing any lands whatever on the line of their Railroad, (except such as may be requisite for the convenient accommodation of their concerns,) and that they will not, even for those purposes, purchase any lands without previously declaring to the owners thereof, that the application is made in behalf of the Company.

Whereupon it was unanimously

Resolved, That we highly approve of the resolution of the Directors of the Railroad Company, pledging themselves to abstain from the purchase of real estate on the route; that by foregoing the speculations which their knowledge on the subject would enable them to make, they give to the people an earnest of their public spirit, manifesting sentiments and feelings honorable to themselves and worthy the great measure in which they are engaged.

Resolved, That the following persons be a central Corresponding Committee, viz: James Pumpelly, Jedediah Fay, E. S. Sweet, Thomas Maxwell, G. H. Barstow, John A. Collier, Thomas Farrington, Stephen B. Leonard, Stephen Strong.

Resolved, That the cordial thanks of this Convention be returned to its officers for the dignified, able and impartial manner in which they have discharged the duties imposed upon them.

Resolved, That the proceedings of this Convention be signed by its officers and published.

WILLIAM KERNAN, President.

S. B. LEONARD,

GARDNER TRACY, Vice Presi-

WALTER SMITH, dents.

A. C. WELCH,

AMASA DANA, } Secretaries.
A. G. DAUBY, }
MOSES WEBB, }

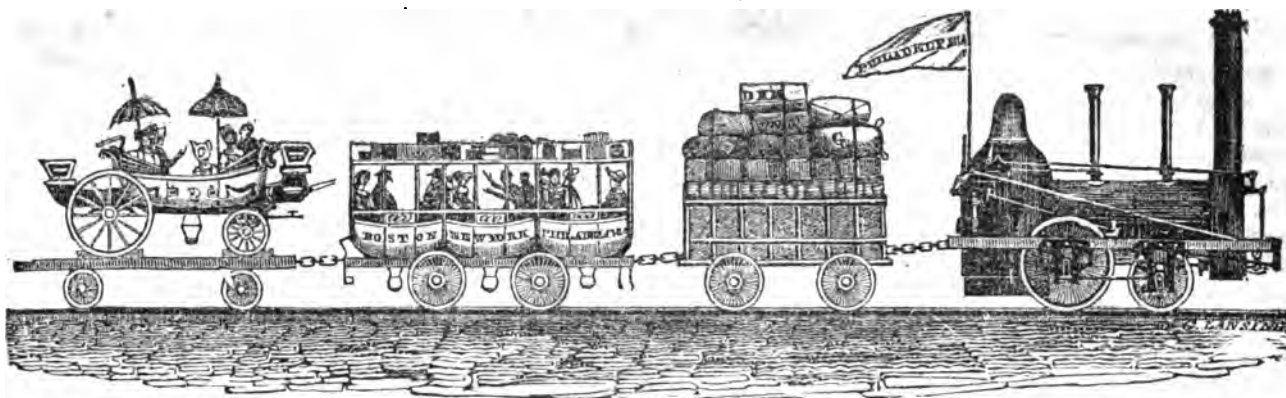
BALLOONS SUSCEPTIBLE OF DIRECTION.—The following article is curious, and of much promise.

[Translated for the New York American from the Prussian State Gazette of 19th May.]

BRUNSWICK, the 11th May.—Much sensation is here created by the experiments of Dr. Weinholt, with air-carriages, whose movement, direction, and stopping, are entirely in his power by a simple contrivance invented by him. The consequences of such an invention, hitherto concealed even to the most searching ingenuity, are immeasurable, and will, in case of success, overthrow many of the now existing relations in commerce, in the military system, nay, in almost all social connexions, and substitute new ones. What enlargements and improvements will be derived from that invention for science, apart from its practical utility, no part of the earth being unattainable or inaccessible to an air-vehicle, and the passage through the air, in itself always the straightest way, never, and nowhere, being subject to any obstruction. Though the experiments tried by the inventor, are but made on a small scale, yet the principles upon which they are founded are so evident, and the contrivances so simple, that their practicability, on a larger scale, and in the actual application, can no longer be doubted. It is gratifying to see the pleasure which the plain, simple man, far from all ostentation, and full of inspiration for his invention, takes in communicating it to others, without concealing anything. To render his secret a common good, he has determined to make it as public as possible by the press, so that in a few days, the book will lie open for examination; and it is to be expected, from the firm conviction, and the decided sincerity of the inventor, in regard to his experiments and their explanation, that it will open for itself the path which it deserves. The book is to be published here, in Brunswick, by Schure & Muelles, under the title of "Luftschiffahrt und Maschineneisen," (the navigation of the air and the system of machinery,) by Dr. Wm. Weinholt. It purports to contain the proof of a new process applied to the movement of machines, carriages, shooting-engines, and projectiles of all kinds, more powerful and advantageous than any hitherto used, and of the greatest importance, because it places at our command, the horizontal direction of the air-balloon, and the aerostatic vehicles, as well as the movement, stopping, and directing of air-vehicles, without any aerostatic aid, in horizontal and vertical directions.

[From the Chicago American of Aug. 1st.]

Our town, we are happy to say, is very healthy at present, although the changes of weather have been great, varying in some instances, ten, fifteen, twenty, and sometimes more, degrees in twenty-four hours. So far as we can learn, there have been but three deaths in about as many weeks, two of which were violent—murder and suicide. We make this statement to correct the numerous false reports which are circulating in different parts of the east, and which have no doubt been put in circulation by designing persons, to stop the tide of emigration which is now fast filling up this fertile country. So far as we have been able to ascertain, (and we have taken considerable pains to learn) the whole country is now enjoying, in an eminent degree, that greatest of all blessings—health. It is true that the cholera did exist for a few days in some of the towns on the Illinois River, approaching at one time within about 80 miles of us; but it entirely disappeared some weeks since. To emigrants we would say, "come on." We pledge them a hearty welcome, and fair and goodly land—fertile as the banks of the Nile.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, AUGUST 22, 1835.

[VOLUME IV.—No. 33.

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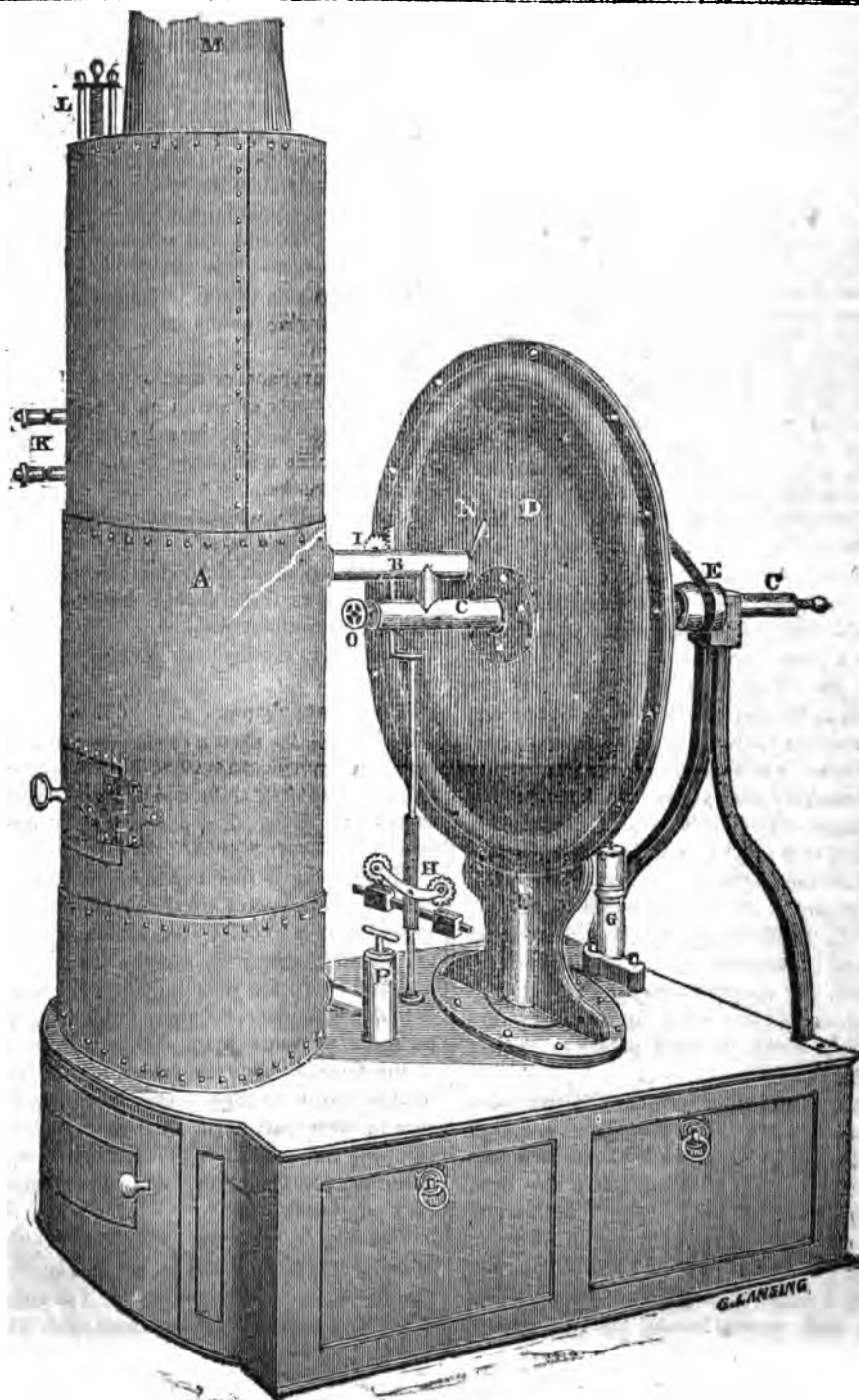
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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 22, 1835.

AVERY'S ROTARY ENGINE.—After a long and vexatious, and yet unavoidable delay, we are enabled to give a drawing of Avery's Rotary Engine, of which we have frequently spoken before. The annexed drawing is taken from a *two-horse* power engine, built for this office, to drive a printing machine, which prints both sides of the sheet before it leaves the press. This engine, as it will be seen, together with the boiler, force pump, and governor, and, in short, *every thing necessary* for communicating motion to them and to the machinery to be operated, occupies a very small space, it being only 4 feet 8, by 2 feet 10 inches. The boiler is 17 inches in diameter, and 78 inches high ; the furnace for anthracite coal occupying about one fifth part of it.

The principal advantages of this engine, as we conceive, consists in its compactness, the ease with which it is managed by any person who can tend the fire, the trifling cost of fuel, as well as the small outlay for the engine. The most important advantage, however, for many purposes, and especially for driving *printing machines*, will be found in its perfectly uniform motion. It is indeed so perfect, and the velocity so great, being about *five thousand* revolutions of the arm, shaft, and of course pulley on which the band runs, per minute, that but for other than the ordinary machinery attached to



the engine, a casual observer would scarcely know that a steam engine was in operation.

In No. 12, vol. iv., of the Railroad Journal, is published an account of the performance of an engine used by the proprietors, Messrs. E. Lynds & Son, in their shop at Syracuse, New-York, which has now been in use more than two years, and we cannot do better than to re-publish a part of that article.

The following extract refers to an engine with 18 inch arms, of 6 horse power, but the engraving given herewith represents one with 12 inch arms, or about 2 horse power. There is one now in operation in this city for sawing mahogany, with 2½ feet arms, which will do the work of a 12 or 15 horse power engine, and performs to the entire satisfaction of those who use it.

"The engine, that is, the shaft and arms, weigh, as I learn, only 15 lbs.; the arms, from centre of shaft to their ends, are 18 inches, and in their revolutions describe a circle of 9 feet 5 inches in circumference; the two apertures at the end of the arms are equal to the eighth part of a superficial inch, and under a pressure of 80 lbs. to the square inch, will balance a weight of 10 lbs. From some experiments made, it is estimated to carry a load of 8 lbs. through a space of 37,666 feet per minute. The boiler has 66 feet surface exposed to the fire, and consumes daily half a cord of soft dry wood.

There are in the establishment the following machines in operation, namely, 2 large engine lathes; 2 small do. do.; 2 hand lathes; 1 boring mill for boring cylinders; 2 drilling lathes; 1 grindstone; 1 mill for grinding coal; 2 bellows, 40 double strokes each per minute, which will force 580 cubic feet of air per minute, under a pressure of 1½ lbs. per square inch, and requires 4 to 5 horse power to perform its operation of melting 1500 lbs. of iron per hour."

The following references will give an idea of the engine; to examine it, however, will be more satisfactory.

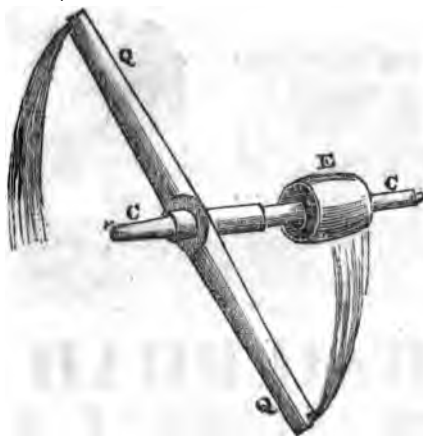
A, the boiler, 17 inches in diameter, and 78 inches high, standing on a cast iron frame, with a grate inside.

B, the steam pipe, which conducts the steam to the end of the shaft C C, one end of which is enclosed in a superfluous cast iron tube. The steam is ordinarily conducted from the boiler to the end of the shaft in a simple steam pipe, which may be six inches, or 6 or 12 feet in length, to accommodate the engine to the machinery, without regard to the position of the boiler.

C C, the shaft passing through the case D, and the arms Q, Q, fig. 2, which are enclosed, and revolve in the case D. On this shaft, as will be seen in fig. 2, is the pulley E, from which the band passes to the machinery.

D, a circular cast iron case, in two parts, fitted and put together with bolts, and made steam tight. This case has in some instances been made of sheet iron; cast iron, however, is deemed best. The case, although the engine, or revolving arm, is only ⅓ of an inch in the thickest part, is at least 5 inches through in the centre, where the shaft passes, having the two concave

Fig. 2.



surfaces turned together; and it is considerably larger, or of greater diameter, than the length of the arms, that there may be space, which is enlarged by giving to the casting, near the outer edge, a half circle in each part of about 3 inches in diameter, which forms a circular channel or groove for the steam beyond the end of the arm, and by which it finds the outlet F, through the bottom, and connected with a pipe which conducts it off outside of the building.

G, the supply pump, operated in this engine by cog wheels, but ordinarily by a band. The wheels, however, are not represented in the engraving, being desirous to show the engine as in general use, and simplest form.

H, I, the governor, or apparatus for regulating the supply of steam to the engine. This regulator is constructed upon a new plan, and works with cog wheels.

K, gauge cocks.

L, safety valve, which is set at a pressure of 100 lbs. to the square inch.

M, smoke pipe—a six inch stove pipe.

N, apparatus for stopping the steam, or letting it on to the engine.

O, serves to regulate the packing around the shaft.

P, water supply pipe.

Fig. 2.—C C, shaft; E, pulley for the band; r, the orifice in the end of shaft where the steam enters; Q Q, the arms at right angles with the shaft, and through which it passes.

There being a free communication (except when obstructed by the throttle valve, by which it may be in part, or entirely cut off, as may be desired, thereby increasing or diminishing the velocity,) from the boiler to the shaft and arms, there is necessarily an equal pressure upon the square inch of the arms, as upon the boiler, and hence the RE-ACTION, in consequence of the pressure in every part, except where the steam escapes, and not from the action of the steam against the atmosphere, as is generally supposed.

This engine, we are yet fully in the faith to believe, will be found an important improvement for railroad purposes. The only locomotive engine of the kind ever used, run

for a short time, last spring, on the Newark railroad; and, after various experiments, which were made to test its qualities and power, a car was loaded with four tons of iron, and attached to the engine, which took it, with great ease, over the Bergen Ridge, where there is an elevation of 152 feet to the mile—and in one place, for a short distance, when leaving the direct track for that built temporarily on the bank, of six feet in one hundred, or 312 feet to the mile.

This performance, although in itself a small affair, is, knowing, as we do, the ingenuity and perseverance of the inventor, William Avery, to us evidence that another engine, built and improved upon by the little experience already had, will surmount elevations of 150 to 200 feet per mile, with loads of eight to twelve tons, and that the same engine will, on a level, or gently undulating road, perform 35 to 50 miles per hour.

Mr. Avery is now engaged upon a locomotive engine, a model of which we have examined, which will, we doubt not, perform all we have here predicted; and if so, what can prevent them from being generally adopted on all our Railroads?

If we were at liberty, we should attempt to give a drawing and description of this locomotive; but, as it is his desire to complete it first, we shall defer for the present further allusion to it, or until we have permission to give a definite account of it.

[From the London Mechanics' Magazine.]

ADAMS' CIRCULAR SPRING WHEELS.

"Break all the spokes, * * * *
And bowl the round nave down."

It has long been a desideratum amongst mechanicians, to accomplish the task of constructing a wheel for carriages intended to convey persons and goods over rough roads, which, while it should possess sufficient strength fitly disposed in its several parts to resist breakage, unsteadiness, or any permanent alteration of form, from any of the ordinary shocks or violence to which it might be subjected, should yet possess the property of elasticity to such a degree, as to intercept and materially diminish the concussion caused by the periphery rolling over obstacles during its revolution; and thus either prevent the concussion from extending its effects to the axis round which the wheel might revolve, or to lessen it so much that the effects might be comparatively innocuous. It must, of course, be necessary that the elastic power should be placed between the periphery and the axis, without in any way diminishing the roundness or altering the circular form of the periphery—which circumstance would tend materially to increase the rolling friction of the wheel: wherefore the only mode in which elasticity can be made available, must be by enabling the axis to depart sufficiently from the exact centre of the periphery where concussion takes place—to which

exact centre the elastic force, pressing equally in various opposite directions in the plane of the wheel, should have a constant tendency to restore it when the effect of the concussion might cease. The advantages attendant upon a wheel so constructed are several and obvious.

1st, In ordinary sized wheels, used for a cart without springs, the concussion from the road is driven in a direct line along the spokes of the axis; and this concussion, constantly kept up as the wheel revolves, serves materially to increase the weight of draught, by forcing out the oil or grease, and bringing the rubbing surfaces of the axis and axis-box in close contact, to the increase of friction. This disadvantage would be removed entirely, or very materially lessened, by the use of an elastic wheel.

2d, In carriages with rigid wheels, to which the axis is attached by means of a horizontal spring bearing on the axis, the concussion is diminished, by its uniform bearing upwards; still it is but slightly, inasmuch as the momentum of the concussion passes directly along the rigid spokes to the axis; and, moreover, the relief which the spring affords is only in a vertical direction; in which direction the greatest amount of the momentum of concussion does not pass, but in a direction more inclining towards the line of progress as the wheel revolves. This disadvantage would be materially lessened by an efficient elastic wheel, inasmuch as the elasticity being in a circle all round the axis, would avail both against vertical and horizontal obstacles or inequalities.

3d, It is well known that the force requisite to move a carriage at first starting is greater than that required to keep motion up. The reason of this is, that momentum is required in proportion to the rapidity of the motion. Wherefore, every obstacle or inequality which the wheel encounters as it revolves, has a tendency to check the momentum, and render the draught power necessary to move the carriage onwards nearer in amount to that which was originally required to move it from a state of rest; because the concussion in the line of progress is nearly in direct opposition to the momentum, and serves to neutralize it. An efficient elastic wheel would be found to receive the concussion on its periphery, but as it would not carry it, or would carry it with a diminished force, to the axis, the momentum of the superincumbent framework, to which the draught power is attached, would scarcely be acted on by it.

4th, The wheels of carriages are subject to considerable concussion in a lateral direction, lengthwise of the axis. A rigid wheel, under such concussion, transmits the concussion almost unbroken to the carriage, to the annoyance of the passengers, and with a tendency to derange the framework. But an efficient elastic wheel would possess a small portion of lateral elasticity, sufficient to diminish the violence of the concussion, and yield greater ease of motion.

5th, An elastic wheel, by its tendency

to elude concussion rather than to resist it, will be less liable to be broken or strained than one which is rigid, and consequently its total durability is likely to be much greater. Wooden wheels, by reason of their property of elasticity, are less liable to break than those of iron.

Wheels are to a carriage what legs are to a human being—the instruments of locomotion. A man who loses an elastic leg, of bone, muscle, and ligaments, may have a wooden one to replace it; but he will find that the act of walking with the wooden one is a much ruder and less perfect process than with the one of bone and muscle; concussion, and the labor of surmounting or avoiding obstacles, will render the man's progress much slower. And it seems clear, that the property of elasticity in a wheel gives it a similar advantage over a rigid one that the natural leg does over the artificial one, though to a less extent; inasmuch as the mechanical contrivance of art must be inferior to the more perfect processes of nature. Ships, which are of rigid construction, are found to make a slower progress through the water than such as are slightly flexible; and in row-boats, the quality of flexibility is indispensable to swiftness: the reason is, that the flexible boat, as it advances, adapts itself, by its sinuosity, to the slight movements and currents of the water, which it eludes instead of resisting. The movement of a fish through the water is an illustration of the same principle; and, by a parity of reasoning, a carriage with elastic wheels avoids, by its yielding properties, many obstacles over which rigid wheels would require to be impelled by a greater exertion of power.

The general conviction of the advantages to be obtained by using elastic wheels has led to many attempts at their construction, but hitherto without any efficient result. One mode which was attempted was by arranging a number of pointed double elliptic steel springs in radiating lines from a nave to a periphery. To guard against the lateral action or leverage, these springs were doubled in number, and arranged at a lateral angle with the length of the nave each way. Even supposing such a wheel to be efficient, the expense of its manufacture would have precluded any extensive use of it; but the action was too imperfect, to allow much use without destruction of its parts. The elasticity of the springs could only be brought into action in the direction of the length of the ellipses, either by extension or compression; consequently the action could only be in a line diametrically across the wheel in one direction at a time: thus but few of the springs would be in action at one time, and that in a most imperfect mode, viz., in the length of a very long and narrow ellipse. The principle of an efficient spring wheel should be, that the elasticity should be alike at all parts of the circumference, and that no one part should act without the whole—that every spring should sympathise equally with the rest, from whatever direction a concussion

might come. A wheel like that just described could not comply with this condition, and therefore such a wheel could not be durable. Another mode of forming a spring wheel was by making steel blades or ribbands in a sinuous or undulating curve, and forming them in radiating lines from a nave to a periphery, doubling them in the same manner as described in the elliptic spring wheel, to resist the lateral action or leverage. Supposing this wheel to be true and well made, the action would be more perfect than the former one; but the making of such springs all to stand their work equally well, and the needful accuracy of fixing them, would involve an expense too great for any extensive use; and after all, the action would be of that kind very likely to break the springs with a violent concussion. A third plan which has been proposed, but, we believe, never put in practice, is a small wheel placed within the circumference of a solid rigid ring of much larger diameter, the space between being supplied with several small hoops of ribband steel with open ends, put in with compression, so as to leave them free to enlarge or diminish their diameter when in action. These hoops were to be kept in their places by flanged segmental cavities adapted to their size in both wheel and ring, being otherwise unconfined by any fastening. The disadvantages of this form of wheel are many. First, its extreme want of elastic firmness; next, its want of universal action, being calculated only to act by compression on the springs below, and not by extension of the springs above. A great defect would be, that while the weight were pressing on the lower springs, the elastic action of the upper springs would be directed, not to alleviate, but to increase the weight. In action, this wheel would be impracticable; for stones and dirt would lodge in the centres with the springs, clog their action, and break them. But one useful thing they contain, viz., the germ of the only sort of spring which can be effectively applied to spring-wheels—the circle. The wheel itself is a circle continually revolving, and springs intended to have an equal action in that wheel, whatever side be uppermost, must be circles likewise. No other form can be of universal action, in the place of the wheel; no other form will yield extensibility and compressibility in every direction in rapid succession, each tending alike to restore the nave to the exact centre of the periphery, as the momentary action of concussion passes away.

Mr. William Adams, a partner in the firm of Hobson and Co., of Long-acre, has marked this essential principle, and has had the perseverance to work it out in detail, so as to lay it before the public in a practicable form. The leading features of his invention are four hoops of broad steel plate, properly tempered, the ends of the hoops being overlapped and rivetted together, so that each hoop may be solid, by which means it will resist and yield equally, both by extension and compression. These hoops

are affixed firmly at equal distances in the interior of a rigid circular rim, which forms the periphery of the wheel. This circular rim is made rigid by its peculiar mode of construction. An inner iron, or steel tire, of less substance than the outer one, is surrounded by a circle of wooden felloes, accurately fitted to the inner tire, and also with their ends accurately fitted to each other like a barrel arch, the lines of the joints meeting in the centre of the circle. Around this circle of felloes, so fitted, the outer tire is shrunk on hot, as usual, and all three thicknesses are rivetted together. In calling this a rigid rim, we do not mean that it is rigid like an iron casting, (for if it were so, it would not stand its work, but be liable to break, as cast iron wheels do;) but that, while it possesses a slight portion of elasticity sufficient to prevent breakage, it is also sufficiently strong to prevent any permanent alteration of its form by any ordinary concussion to which it may be subjected. To this rim the four hoop springs are firmly bolted, but do not in any material manner contribute to strengthen it. The springs serve as elastic legs; the rim serves as a foot to guide the steps they make in revolving. Wheelwrights call the act of putting a tire on a wheel, "shoeing it."

The nave of this wheel is made of iron flange plates, fitted to the axis-box, and reinforced by wood blockings. The flange plates are made in the form of a Maltese cross, and to the arms of this cross the hoop springs are firmly fixed, each with four clip bolts and nuts, without making holes in the spring; and this mode is found to ensure sufficient lateral strength to resist the central leverage of the wheel. The springs are tapered in width towards the circumference, in order to give the greatest elasticity towards the point of concussion. The axis-box is so contrived that it will carry a very large magazine of oil in actual contact with the axis, and the wheel is therefore likely to travel considerably farther without requiring fresh oil than any other kind, more especially as the elastic action removes the extra friction arising from concussion. Most oil axes are fed with oil by a capillary or pumping action. This action is liable to be disturbed from many causes, and if disturbed, the wheel will become fast on the axis by heating. But an axis in actual contact with the oil cannot be liable to these accidents.

One of the first considerations which struck us was, that a wheel with so much metal in it must necessarily be very heavy; but this proves not to be the fact. The peculiar action and combination of the springs being such that all mutually assist and are dependent on each other, the thickness of the plates is necessarily so much reduced below the ordinary standard of spring plates, that great lightness is combined with great strength. Thus a pair of these spring wheels are found to be just so much heavier than ordinary wooden ones as the weight of the inner tire amounts to. But as the axes used in ordinary rigid wheels are made much

Fig. 1.

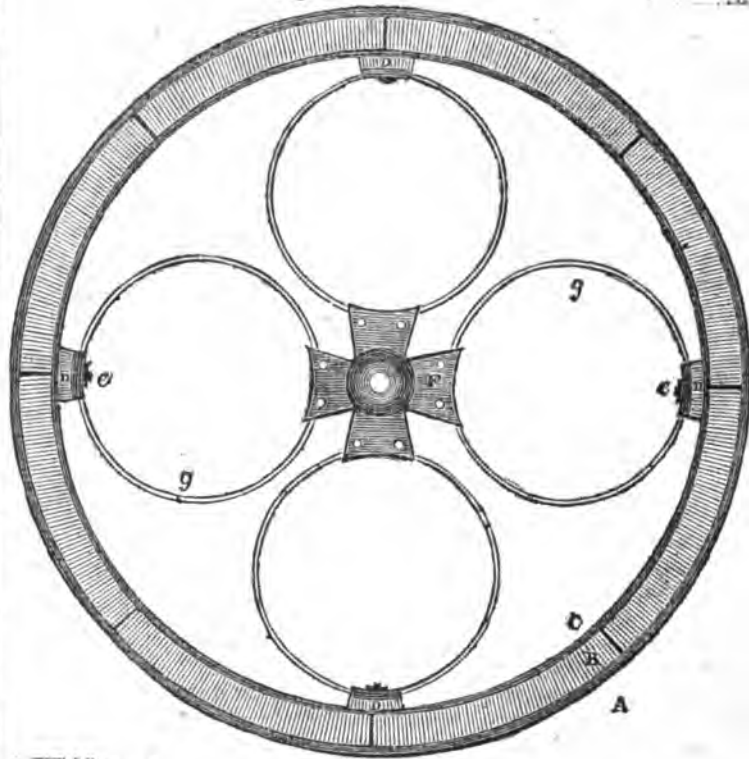


Fig. 2.



heavier than is needful for the weight they carry, in order to resist extraordinary concussion, so the axis of the spring wheels, not being subject to the same amount of concussion, may be reduced in weight, in order partly to compensate for the tire; and the surplus weight being thus placed at the circumference of the wheel, instead of on the axis-bearing, the friction will be reduced; and, in addition to this, the freedom from concussion, consequent on the use of the elastic wheel, will enable a saving to be made in the weight and number of the carriage-body springs; and thus a farther amount of weight, and consequently of friction, will be removed from the axis-bearing. In the construction of a wheel-carriage, the weight, as well as the strength of the wheels, should always bear a certain proportion to the superincumbent weight, or the centre of gravity may be too high, a disadvantage nearly as great in a carriage as in a ship. A wheel may be too light as well as too heavy, and the former defect is the greatest. The former is a defect of principle, and is dangerous; the latter can only make a slight difference in the draught by additional weight, and not by additional friction on the axis-bearing; and, at a considerable speed, the weight of the heavy wheel acts with momentum like a fly-wheel.

Mr. Adams' elastic wheel is light and elegant in its appearance, and apparently well adapted for pleasure carriages on common roads; but there is a still more extensive purpose for it to serve—we allude to the railroads, whose increasing number and probable universality render economy in the mode of transport a most important object. It appears, from Mr. Wood's statements, that the difference of

wear and tear between carriages with springs and carriages without, on railroads, is as one-quarter to one-half. The springs used in railroad carriages are very short, and have little play, and that only in a vertical line, which is not the line of concussion. At rapid speed, the necessity for elasticity increases in compound progression. The speed used on railroads would tear a carriage to pieces on a common road. A small pebble, or a trifling inequality in the joint of a rail, at a high speed, gives a violent shock, and the momentum of each succeeding wheel, in a long train of carriages, like repeated rapid blows of a hammer, at each action increases the weakness of a loose rail, and ultimately breaks it, or renders it useless. As the elasticity of the spring-wheel acts in a direct line of concussion, both rails and carriages would be saved from it, and the total amount of friction considerably diminished. In the ordinary rigid wheels used on railroads there is occasionally a tendency, when not running in an exactly straight line, for the side of the flange which guides them to mount the rail, and thus overturn the carriage. It seems to us that the lateral elasticity of Mr. Adams' wheel would have a tendency to prevent this kind of accident; for the flange not revolving in a rigid plane, would slip downwards from the rail, as fast as a grinding contact might give it a tendency to mount, and the lateral elastic action would then tend to restore the track of the wheels to the proper position.

An elastic wheel possesses another advantage over a rigid one, in case of the defective construction incident to all wheels, viz., the absence of roundness, i. e. eccentricity of orbit. A rigid wheel

of this form must necessarily move with much friction; but the elasticity of a spring-wheel would tend to correct this defect, by yielding where there was the necessity during its revolution.

For ordinary weights, the springs are made in single plates, by which means they may be effectually preserved from rust; but for heavy carriages and engines, the inventor proposes to multiply the number of plates in the same mode as other carriage springs.

Fig. 1 is a side elevation of the wheel. Fig. 2 is the cross section. A is the outer tire; B, the felloes; C, the inner tire; D, blocks to bend the springs on the rim; e, the clips to fix the blocks down the springs on the rim; F, the central Maltese cross and axis-box; g, the circular springs.

By the simplicity of construction, if a spring should break, it may be removed and re-placed, without taking a carriage off the road, in a few minutes. The railroad central nave is of still simpler construction than that for the common road.

[From the London Mechanics' Magazine.]

Bernhardt's Patent Warming and Ventilating Process.

Several indistinct notices have appeared in the newspaper press, both domestic and foreign, during the last twelve months, (and some, it must be confessed, of rather a high-colored description,) of a new mode of warming and ventilating, stated to have been discovered by Mr. Bernhardt, a Saxon architect of considerable eminence, and exemplified by him with extraordinary success in a number of public buildings on the continent. As Mr. Bernhardt has taken out a patent in this country for his invention, and the time for his specification has now nearly expired, we shall soon be enabled to lay the whole particulars of his plan before our readers; but, in the mean while, the following extracts from a statement authenticated by the signature of Professor Schaeffer, of Dusseldorf, may be accepted as good evidence that Mr. Bernhardt has actually arrived at some results of more than ordinary importance—one of which, at least, is, even in this country of high mechanical invention, still a great desideratum, namely, *smoke without soot*. A late distinguished physician (Sir George Tuthill) has left it on record as his deliberate opinion, that the excessive quantity of carbonaceous matter sent forth into the atmosphere of London from its innumerable coal fires is the grand cause of its unhealthiness, as compared with places in its near vicinity.

"The Royal General Post-Office built, many years ago, a factory adjoining the post-house, for the repair of the mail-coaches, and since the building of the diligences and the increase of business, it has become a very large coach manufactory, in which above seventy workmen are at present daily employed. In a building at the back, arranged for the purpose, a forge for ten fires was put up and erected in the usual form. Smoke

and soot penetrated into the dwellings of the neighbors, and rendered them uninhabitable and worth no rent. Complaints arose, and an expensive law-suit, which naturally terminated to the disadvantage of the Post-Office department. Experiments were then made to clarify the smoke and separate the soot. The Prussian consul in England—that land of invention—was desired to make inquiries whether any means were known to remedy the evil, but nothing could be done; and the most learned professional men doubted the possibility of an invention to answer the purpose, because it was believed that any attempt to separate the smoke from the soot could only be made at the expense of the draught.

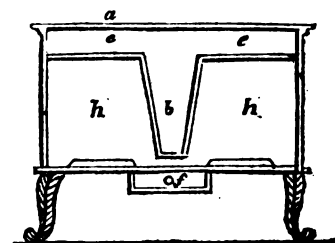
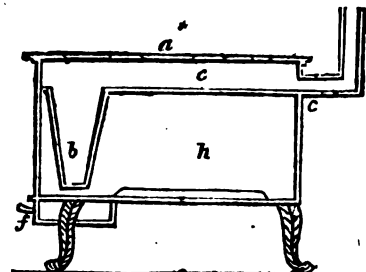
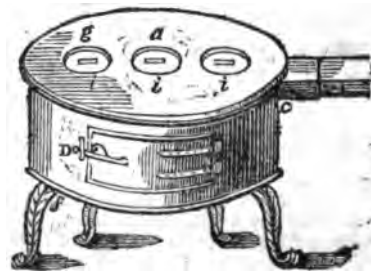
"It became a point of consequence, to the Post-Office authorities here, to satisfy the neighbors at any price, and they endeavored to suppress the nuisance arising from the soot by removing the smithy into an intermediate building constructed for the purpose: the result of experiments by several artists, in inventing an apparatus by means of which it was hoped to banish the soot. A cistern of water was applied over the roof, which was intended, by being placed round the outlet for the smoke, to absorb its heavier parts; but the soot soon covered the water with an incrustation, and the finer particles of the soot escaped from the chimney and covered the gardens of the neighbors; besides the smoke spread itself throughout the smithies, so as to be dangerous and insupportable to the workmen at the fires. At that time the architect, Mr. Bernhardt, of Saxony, was in Berlin, and had been employed in the Royal Palaces; having devoted the whole of his life to the study of the deficiencies at present existing in the construction of fires, he was enabled to correct the similar faults in the General Post-office buildings, and his plans were crowned with the best success. Mr. Bernhardt discovered the means of forcing the draft of the smoke, and separating the soot from it. His plans were carried into execution. *In a short time, without any interruption to the business of the coach factory, the work was completed. The smoke ascends in a purified state through two cylinders of zinc to the roof, and the soot remains in the interior of the three story high building, concentrated in separate channels and chambers for it.*

"It is remarkable to observe the soot depositing itself in coarse particles, and afterwards becoming gradually finer as it ascends; to see the smoke rising through narrow wire nets. In the channels of the five chimneys a mass of 26½ cubic feet of soot was found, after three months' purifying, and which had formerly been mostly conducted over the roof."

THE BRUGES STOVE, as improved by Messrs. Cottam and Hallen. By Mr. Edward Cottam.—I send you sketches (figs. 1, 2, 3,) of the Bruges stove, as manufactured by Cottam and Hallen, who have found it to answer fully the statement given by them of it in your Encyclopedia of Architecture. It will do more with a given

quantity of fuel than any other stove, having the means of stewing, boiling, broiling, roasting, and baking, at one and the same time, with a small quantity of coke or cinders from any other fire.

It is simple in form, and there is not the slightest difficulty in its use. The holes in the top may be arranged as is found most convenient for the situation in which the stove is to be placed, either in a line, as in the sketch, (fig. 1,) or in the form of a triangle. One thing is indispensable for the proper action of this stove, and that is a good draught. It must, therefore, have a separate flue.



In figs. 1, 2, 3, a is the top of the stove; b is the fire pot; g is the hole for feeding the fire pot; f is an ash drawer; c is the flue; D is the oven door; h is the oven; e is a space for the fire to pass to the flue c, and for heating the whole of the top plate, any part of which will produce sufficient heat for culinary purposes; i i i are lids, which may be taken off, and the battery of stew-pans, or boilers, will then be in contact with the flame. A grid-iron fits on any of these openings, which has the advantage of not smoking the article broiled; the draught being downwards.—[Loud. Arch. Mag.]

THE WESTERN RAILROAD.—Books of subscription to the stock in the Western Railroad Corporation were opened in this city on the 3d inst. and will be closed to-morrow. The amount of capital proposed to be raised is 20,000 shares, of \$100 each. On the day of the opening of the books over 7000 shares were subscribed in this city, and about 1300 have been subscribed here since. We learn that about 1500 shares had been subscribed last week in Springfield, and 300 in New York. Of the amount subscribed at the other places where books were opened, we have no accurate information.

The receipts on the Boston and Worcester Railroad, for the week ending the 1st inst. were for passengers, \$3203 37: for freight, \$502 49: total, \$3705 86. For the last week, for passengers, \$3897 58: for freight, \$384 51: total, \$4282 09. [Boston Daily Adv.]

THE PORTLAND AND QUEBEC RAILROAD.—In the New Hampshire Patriot we find a letter from Col. Long, who has been employed in making an examination of the route for a Railroad from Portland to Quebec, addressed to the Hon. Isaac Hill, in which he states some interesting facts relative to this route. From these facts it appears that the route, although by no means impracticable, presents obstacles of a serious character, and more formidable probably than were anticipated by the friends of the enterprise. Col. Long left Portland on the 6th July, accompanied by Charles Fox, Esq., agent for the city of Portland, and proceeded northwardly about 77 miles, to Andover, the most remote settlement on the route. The ground thus far is mostly favorable. Here they entered the wilderness, and proceeding in the same direction, found an ascent to be encountered, of about 500 feet in a distance of six miles. They there entered the lake country, which they approached without making any descent. The residue of the route is thus described:

"We first struck upon Lake Allegundebagog, then upon Lake Moledunkemaunk, both of which are on the same level or very nearly so. Having crossed these lakes, we passed a very flat ridge dividing between the lake last mentioned, and Mooslamaguntic Lake, the latter being elevated about 30 feet above the former. We proceeded thence into Lake Cupmetuc, on the same level, and ascended thence in the valley and vicinity of Cupmetuc stream, to the summit dividing between the waters of the Atlantic and those that fall into the St. Lawrence. In the ascent of this stream, an elevation of at least 500 hundred feet is to be overcome, which may be effected, at a gradation no where exceeding one degree. Having reached the summit, on which we crossed the boundary line dividing between the United States and Lower Canada, we soon struck the Arnold river, which rises in the same swampy tract that gives birth to the Cupmetuc stream, the distance from water to water not exceeding half a mile, and commenced our descent in the valley of the river just mentioned, viz. Arnold's river, and travelled downward about 16 miles to Lake Megantic, the descent for a distance of ten miles being such as to require a gradation of one degree. We then proceeded downward along the Lake and in the valley of Chaudiere river, 60 miles, to the upper settlements on the river last mentioned, the declivity after leaving the Lake, being on an average of about 10 feet per mile. Through the entire distance from Lake Allegundebagog, to the upper settlements on the Chaudiere, we had to grouse our way through a trackless wilderness, encountering thickets, swamps, windfalls, &c., the distance being about 120 miles. We then proceeded down the Chaudiere 66 miles, in view of one of the most beautiful countries I ever beheld, to this city, the entire distance from Portland to Quebec, by the route pursued, being about 275 miles, which is some 8 or 10 miles shorter than the nearest travelled road.—The elevation of the main summit above tide, agreeably to the best observations I have been able to make without the aid of instruments, is 15 to 1700 feet."

The project appears to have been very favorably entertained at Quebec, as we infer from the notices of it in the Quebec papers, and Captain Yule, of the Royal Engineers, was appointed by the Governor in Chief to accompany Col. Long.

[From the Troy Whig.]

RENSSELAER AND SARATOGA RAILROAD.—That portion of this important Railroad extending from the village of Waterford to Ballston Spa having been completed, the event was celebrated yesterday by the company with appropriate public ceremonies. The President and Directors of the Company, with the Common Council of the city of Troy and a large party of gentlemen, escorted by the Albany Republican Artillery commanded by Capt. Strain and by Capt. Erckenbrack's Company of Artillery from this city—all under the command of Colonel Cortland Schuyler, as Marshal, assembled at an early hour on the east bank of the Hudson River, near the Waterford Bridge. A procession was then formed, and with the accompaniment of a fine band of music, proceeded

across the Bridge where it was met by the civil authorities and citizens of Waterford and was conducted to the Mansion House of that village.—Soon after the procession moved from the Mansion House to the Railroad depot, where a locomotive, to which was attached a train of elegant new Cars, was in readiness to receive the company. The party left Waterford about half past eleven o'clock amidst the loud and long continued cheers of an immense crowd of spectators.

At Ballston the party was met by the military and citizens of the village and neighborhood, and escorted to the Sans Souci Hotel, and the whole company sat down to a sumptuous dinner provided for the occasion by Mr. Waters. The festivities of the table passed off with great spirit and hilarity. The good feeling, cordiality, and hospitality with which the party was received at Ballston, have been spoken of by all the gentlemen with whom we have conversed on the subject, in the highest terms of commendation. On the arrival and departure of the cars, salutes were fired from a field piece placed on the high ground overlooking the village.

The cars left Ballston on their return at half-past four o'clock, and in consequence of an accident, which caused a detention of several hours on the road, did not arrive at Waterford until a late hour in the evening. This circumstance somewhat interrupted the pleasure of the excursion; but we are happy to state that no serious injury was done either to the persons in the cars or to the locomotive. The cars continue their regular trips to-day.

We congratulate the Directors of the Rensselaer and Saratoga Railroad upon the success which has thus far attended their exertions in prosecuting this Road to its completion. The remaining portion of the Road between the city of Troy and Waterford, is in such a state of forwardness as to warrant us in stating that the period is not far distant when it will be ready for the passage of cars. We congratulate also the travelling public upon the increased facilities which the opening of this Road will furnish them in visiting Ballston and Saratoga.

[From the Dayton (Ohio) Journal of Aug. 11.]

RAILROAD FROM DAYTON TO LAKE ERIE.—The Prospect Ahead!—By the advertisement of the Chief Engineer upon the Mad-river and Lake Erie Railroad, inserted to-day, it will be seen that 35 miles of the work will be put under contract on the 17th of September. This is going to work in earnest, and makes the construction of the road certain if it ever was doubtful. The further the examination has been extended into the advantages which will result from it, the more convincing is the evidence that its importance has been underrated—and that it will agreeably disappoint the expectations of those most sanguine of its future usefulness.—At a recent meeting of the Directors held at Bellefontaine, Mr. Bell the Engineer upon the line, communicated information relative to the survey highly important to the board, and interesting to the whole section through which the road passes.—He speaks of the country so far as his survey has extended, as being admirably calculated for the contemplated route, and his estimates of the expense are considerably below those originally made by Mr. Stansberry, the U. S. Engineer. From Sandusky to Tiffin, 35 miles, his estimate of the cost for grubbing and clearing for a double track and completing a single track is \$200,800, being an average of less than \$7000 per mile. Mr. Stansberry's we believe was but a fraction below \$19,000. And it is probable, that Mr. Bell's estimates, upon the whole route, will show an equal reduction with those of the first 35 miles, upon the original estimates of Mr. Stansberry. This is an important item for the stockholders, and we understand it has inspired the Board of Directors with a new incentive to make a commencement at Dayton. We hope the stockholders here will interest themselves on this point, and make the incentive too strong to be resisted.

We are pleased to learn, that the representations made at the last meeting of the Directors, has tended to strengthen their confidence in the value of the stock and the practicability of constructing the road, at an early day. On the 16th of September, the letting will take place. A celebration is contemplated on the 17th, in commemoration of the commencement. All the magnates of the land are to be invited,—Clay, Webster, Harrison, Van Buren, McLean and Gov. Lucas. Every thing indicates success to the Mad River and Lake Erie

Railroad, if proper exertion is used. Let the present favorable period for securing it not be lost for lack of exertion. The means will come for the asking, if the request is accompanied by proof of our own faith in that for which we ask the money and the confidence of others. We cannot believe our citizens will allow this auspicious period to pass by without showing that they properly appreciate its importance. No great work was ever accomplished without persevering exertion; and it was so wisely ordained. We believe Dayton possesses sufficient enterprise and activity, for the emergency, if it can be aroused. These have too long remained torpid. We hope the invigorating prospect now presented, will warm them into new life and action.

WARSAW AND LE ROY RAILROAD.—We have been informed by one of the Commissioners, that Mr. J. Hurd, Engineer, will, on the first of next week, commence the survey of the route of this Road, and that it is intended to prosecute the survey, and the construction of the said Road, where it shall be located without further delay.—[Le Roy Gazette.]

WINCHESTER AND POTOMAC RAILROAD COMPANY.—We learn from the Winchester Republican that at the annual election by the stockholders on Saturday last, John Bruce, Esq. was re-elected President of the company, without opposition, and Messrs. Nathan Parkins, Jacob Senseney, Jos. H. Sherrard, and Isaac Hollingsworth, were elected Directors—who, together with Messrs. John R. Cooke, Richard W. Barton, and Gerard B. Wager, (appointed on the part of the State,) form the board for the present year.

The receipts of the Boston and Providence Railroad, last week, were, \$4,900.

The Charleston Mercury of the 13th, remarks: A respectable West India Merchant of this city, in connection with the agent of the steam packet plying hence to New York and Norfolk, and Captain James Pennoyer, master and sole owner of the new and superior steam packet Dolphin, have determined to make a voyage in the Dolphin from Charleston to Havana, with the view of forming a line of steam packets from Charleston to Havana, and probably by connection with others, thence to New Orleans. The Dolphin will positively leave Charleston for Havana, via St. Augustine, Cape Florida, and Key West, on Tuesday the 10th November next. Persons of respectability disposed to join the party can address to William Patton, Agent, Charleston, with cash enclosed, or proper references. The price of passage is \$40.

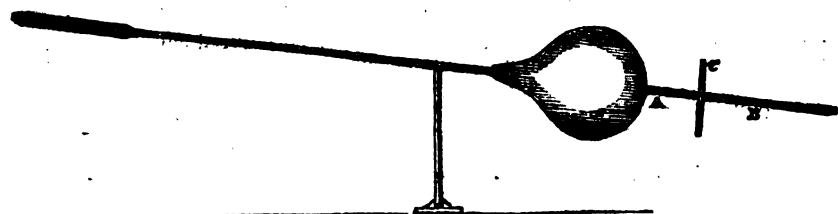
The Dolphin is a perfectly new boat, of most beautiful model, a superior engine, and heavy copper boilers, copper fastened and coppered, elegantly fitted for fifty passengers, and well found in every respect. Of the commander the public need no additional information; he was the very first to introduce successfully, Atlantic steam navigation, and is not surpassed as a skilful steam navigator and polished gentleman.

The Pittsburg Manufacturer of Saturday says: 'The Ohio River is too low for steamboat navigation.'

STEAM CARRIAGES.—A new steam carriage was recently tried, setting out from Westminster bridge and returning thither, after visiting Denmark Hill and Dulwich. The distance, twelve miles, was performed in 41 minutes.

NEW METHOD OF MEASURING DISTANCE.—An ingenious artist has invented an instrument termed a Distance Register, capable of being applied to two and four wheel carriages of every description, for the purpose of ascertaining the ground gone over by such carriages in any given space of time, from one minute to the whole day, and which may be employed with equal efficiency in reckoning the course of either steam or sailing vessels.

METHOD OF BUILDING CHIMNEYS THAT WILL NOT SMOKE.—Contract the space immediately over the fire so you may be sure of the air being well heated there: this will ensure a current upwards. All chimneys should be carefully built, and every joint well filled with mortar, so as to prevent communication in case of fire.—[Dr. T. Cooper.]



[From the Repertory of Patent Inventions, &c.]
Specification of the Patent granted to JAS. and JOHN HARTLEY, for a certain Improvement or certain Improvements in the Manufacture of Glass. Sealed October 22, 1834.

Our invention relates to part of the process employed in the manufacture of that description of glass called crown glass, used for the purpose of glazing windows and other purposes. It is well known that this description of glass is produced from the metal by blowing the same into the form of globes, and afterwards, by means of the operation called "flashing," such globes are thrown open into flat circular plates called tables. Now, our invention relates to that part of the process of manufacture which consists in blowing the metal into globes. According to the ordinary process, the metal when taken from the pot by the pipe is rolled on a smooth iron surface, in order to bring the outer end of the metal to a conical form, the extreme end of which becomes the outer axis of the globe during the operation of blowing and working the glass into the required form. This outer axis is called the bullion. During the expanding of the metal into the globular form, the workman rolls the bullion along a straight edge, or bar, called the bullion bar, as is well understood. In doing this, the outer end of the glass globe, whilst expanding, and continually revolving, rubs against the bullion bar, by which action parts of the surface of glass is disturbed or made irregular, and as the globe extends in dimensions this rubbed surface enlarges: the consequence is that when the table of glass is complete, there are at all times more or less waved lines for some inches around the bullion or the centre of the table of glass, which lessens the value of so much of the table. This prejudicial appearance is produced to the glass as before stated by that part of the surface coming in contact with, and rubbing against, the bullion bar, when the metal is in a soft and pliant state. Now, the object of our invention is to dispense with the bullion bar, and to supply its place by the application of a tube or hollow bearing for the bullion or outer axis of the globe of glass during the expansion of the same: by this means that part of the surface which was heretofore rubbed against the bullion bar, is, when worked according to our invention, in no way prejudicially acted on, and the waved appearance before consequent on the manner of operating is avoided.

The drawing represents an ordinary pipe with a globe of glass, the bullion, *a*, being supported by the tube, *b*, in which it is caused to revolve by the workmen when working the metal into the globular

form desired during its expansion. On the tube *b* is placed a shield, *c*, which is intended to prevent the heat coming from the heated glass, injuring the hands of the boy who holds the tube. The workman, in performing this part of the process of manufacturing glass, takes a proper quantity of metal on the end of the pipe, and proceeds to form the outer end of such metal into a cone; he proceeds with the process in like manner to that heretofore pursued till the globe of glass requires support at the outer end by its axis or bullion, *a*, that is to say, he proceeds in the ordinary manner up to the period at which (according to the old means of operating) the bullion would have been rested on, and revolved, and run along the bullion bar, but in place of so running it along the bullion bar, a boy holds the tube or hollow bearing, *b*, in such manner as to receive the bullion, *a*, and the workman causes the globe to revolve till the globe is sufficiently expanded. The same is then to undergo the operation of flashing as heretofore.

Having thus described the nature of our invention, and the manner of carrying the same into effect, we would have it understood that our invention consists in the application of the tube or hollow axis, *b*, in place of running the bullion along the straight edge, called the bullion bar, as above described.

Enrolled April 22, 1835.

COOKING BY GAS.—We described some days ago, an application of gas to cooking, which we had witnessed, at the house of Mr. L. Suydam, in this city. The annexed article from a London paper, treats of more extensive applications:

APPLICATION OF GAS TO ECONOMICAL AND DOMESTIC PURPOSES.—It generally happens that as the progress of discovery is slow, we are long in developing the full advantages arising from improvements in science or its application to useful purposes. We are led to remark this from the very successful application of gas to a variety of purposes for which it has not hitherto been employed, in heating buildings, and performing every variety of culinary operation, and which, by the very ingenious plans adopted by Mr. Ricketts, has been brought into full and successful practice. The great heat eliminated in the combustion of the common street gas is a matter of every day notice, and it appears that Frederic Winsor, its first introducer, was aware of its availability for all the purposes of heat, as in his first prospectus he issued proposals for a gas light and heat company; but, with the exception of the cooking apparatus recently patented by Mr. Hicks, and exhibited at the National Gallery of Practical Science, and some prior attempts by Mr. Mallet of Dublin, this is, we believe, the first time that in addition to its purposes of illumination, its application to other useful purposes has been shown on any commensurate scale. The plan of heating buildings, patented by Mr. Ricketts, is perfectly novel, and from the most cursory description of its principles, it will be easy to understand its full merits and advantages.

In a stove similar in shape and construction to a common German stove, and with a very considerable radiating surface, a series of jets of gas are consumed, the size of the flame and the supply of gas

being proportioned to the diameter of the stove.—An orifice at the bottom admits a supply of air for the support of combustion, and one at the top in form of a chimney carries off the gaseous products of combustion. By this simple and equally efficacious arrangement a great quantity of heat is produced and radiated, an air chamber likewise over the surface of the flame distributing a large quantity of heated air. In confirmation of the advantages of this plan, we can refer to the Church of St. Michael's, at Burleigh street, in the Strand, where a stove of twenty-two inches in diameter is found amply sufficient to produce a temperature of fifty seven degrees in all parts of the building. Objections on the score of danger are readily obviated, by the apertures being made nearly air-tight, the escaped gas, if such should occur, readily finding a vent through the chimney. In the case we have instanced, the total consumption of gas is but at the rate of fifteen to twenty cubic feet, or an expense of between five and six shillings per diem, whilst the attention is confined simply to lighting the gas over night, when in the morning the church throughout is found warmed to the most genial temperature.

The arrangement for culinary purposes is on a plan equally simple & ingenious, different compartments being arranged in a neatly constructed chamber for performing the different operations of boiling, baking, stewing, roasting, &c., by different jets of gas being placed on an adapting and transferring axis. It is sufficient to state that whilst, by this plan, the heat is more uniform than by any other mode of procuring it, when any substance, as in roasting, is exposed to the direct action of the flame, instead of any injurious effect being produced the meat may be better cooked by it, being subjected to a well regulated and uniform heat.

Amongst the various inventions and discoveries of the day, this cannot be considered the least important. In many cases it is desirable to obtain and employ heat without subjecting to the formation and consequent noxious influence of smoke; and we perceive the ingenious inventor has suggested the employment of his stoves, within the arches under the viaduct of the Greenwich railroad, and thus render available, by their conversion into dwelling houses, an extensive property of that company which without them would be valueless. The power of large companies in providing a supply of the means and comforts of life at a great reduction of expenditure is apparent, when the cost of the supply is taken into consideration, and the gas companies at large cannot fail to appreciate an application which will render their commodity more greatly and beneficially available to the public at large.

AGRICULTURE, &c.

INDIAN CORN—RUTA BAGA INJURIOUS TO IT, &c.—The prospect for a fair crop of corn begins to brighten since the warm weather and the rain of the 16th, but the worms of different kinds and sorts have dealt hardly with it, and some fields are nearly ruined by them.

We have seen one field however which surpasses all others. It belongs to Mr. Eliphalet Folsom, of Monmouth. It is an early variety which he cultivates, and on the 15th was spindled out. Mr. F. has a farm with a soil of the right quality for it, and he has paid much attention to the cultivation of early varieties of crops, and by attention and care he succeeds remarkably well. The consequence is, that while his farm yields him a fair profit he does not suffer with that dreadful malady, the "Ohio Fever," which "has carried so many off."

While looking over his corn fields we noticed one thing which we believe is invariably to be found (this year at least) in other places under like circumstances. It is this—wherever Ruta Baga was cultivated last year and Indian corn planted on the spot this year, the crop is small. One side of a field of his was planted last year to Ruta Baga, and the corn on that piece this year, though manured as well as the other,

is not more than half as high or good as the other.

We have seen this also in several other places. One in particular where the ground was highly manured this spring, but still it looks as if something was wanting, and does not grow. What does the Ruta Baga take from the soil that the corn needs?—
[Maine Farmer.]

[From the Baltimore Farmer and Gardener.]

GIBBES' IMPROVED CORN.—We publish below, from the Yorkville (S. C.) Patriot, a brief though pithy correspondence between two practical farmers, on a subject of great moment to the agricultural interests. It was very happily said by Dean Swift, that "whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together," and we believe we may accord to each of those gentlemen the full measure of that meed of praise, without subjecting ourselves to the imputation of being a flatterer.

The method of selecting his seed corn, as followed by Mr. Gibbes, is judicious, and we trust every agriculturist who raises a corn crop will take counsel from the result of his experience, and pursue the same course. Indeed, were planters and farmers, generally, to adopt this plan, with respect to the saving of their seed from the whole range of their several crops, we have no doubt but that the happiest effects would be the result of their labors, in their melioration and improvement. Domestic animals in Europe, and particularly in England, have been brought to their present perfection by selecting exclusively for breeding those combining the best points for the respective uses for which they were wanted; and we see no reason why the same law which regulates the economy of the animal kingdom may not, with equal success, be applied to the vegetable. The experiments of Mr. Gibbes, and those of every other gentleman who has made the trial, go to confirm the belief that such would be the case. We, therefore, are impelled to the belief, that by exercising due vigilance and proper care in selecting seed corn from none but such stalks as are vigorous and large in their growth, fruitful in their yield, and which may have borne two ears or more of good grain, and by being equally careful in the culture, that in a few years, our planters would be able to banish from their corn fields those unsightly dwarf stalks which yield nothing but nubbins, and reward the husbandman so indifferently well for his toils and his outlay.

September 17, 1834.

Friend: Two years last spring I obtained some of your seed Twin Corn. I send in return one stalk with five good ears on it, and if you improve said corn for the space of two years and return me a stalk with six ears, raised on the pleasant fields of Oakley farm, I will try to be able in two years after to return you a stalk raised on the fertile fields of Busrow farm with seven ears. With due respect and esteem, I am yours &c.

W. S. GIBBES.

Oakley Farm, Sept. 18, 1834.

Old Friend: I have to thank you for your note and stalk of corn with five good ears upon it, and must acknowledge that you can beat me with my own seed, and that I can show nothing like it; nor could I hope

on my poor ridge of land to compete with your excellent farming on your flat bottoms—'tis now about 18 years since I first began to improve my corn, by selecting my seed from these stalks only which bore two ears; and the first year had difficulty to find as many stalks with two ears as would give me seed; but now, in a tolerable season, it is difficult to find a few stalks even with less than two, and from that to three and four good ears. The peculiar quality of my seed has shown itself particularly this year, when my whole crop has suffered so severely with drought, yet you see two ears or a struggle for it wherever my seed was sown; but two fields, sown each with different seed that had been highly recommended to me, there is scarcely a double eared stalk to be found in either—the few there are I shall carefully preserve and endeavor to improve, as I like the kind of grain rather better than that I am now cultivating. I shall preserve your five ears carefully also—plant them separately—and next year, Deo volente, let you know the result—though I can hardly expect my land can support and bring to maturity such prolific offspring. Believe me as ever, with regard,

WILMOT S. GIBBES.

[From the Cultivator.]

THE Madder CROP.—Hon. J. Buel: Sir, As I consider the madder crop to be one of importance, as well to the grower of the article as to the country at large, I deem it proper to send you a few lines, giving some details of the most improved method of cultivating and preparing the article for use; which, if you deem them worthy a place in the Cultivator, you are at liberty to insert.

The land best adapted to this crop is a retentive, strong, loam soil, moist, but so situated that the water may pass off in the wet seasons of the year. The plant accommodates itself to almost any soil; for I last fall harvested a piece that yielded at the rate of 5,000 pounds to the acre, (in hills,) which was in a dry loamy soil, suitable for the wheat or corn crop.

The method of planting has been formerly in hills, from four to six feet apart. The hills yielded from two to three pounds of ground madder each, on good land.

Madder growers have lately made great improvements in the mode of planting. The drill method was introduced two or three years since, and is now the only way practised by those who raise madder in any considerable quantities. The first drills that were planted were set in single rows, about six feet apart, and eighteen inches from plant to plant. These were found to be too near together, both for the good of the crop and the convenience of tending it. It is now ascertained that the best method of planting madder is in beds six feet wide, with four rows of plants to a bed, leaving a space between the beds nine feet wide unoccupied; or it may be planted with rows of corn or potatoes the first season. This space is useful for various purposes, as passing with a team to carry manure, should it be considered necessary during the first and second seasons. The manure should be cropped between the beds, and mixed with a plough before it is used in the beds.

Particular care should be taken at the time of planting, that the ground be not too dry. It should be covered with clear, moist dirt, about two or two and a half inches deep. Soon as it has come up, it should be carefully hoed and cleared from weeds. When it is six or eight inches high, the tops

should be covered up nearly to the ends; and covered again soon as they are six or eight inches high, as before. In the fall, before the frost kills the tops, they should be covered entirely up. It is then left to lie till the next spring. It should be managed in the same manner during the second as the first season; but requires only two dressings before covering up in the fall. During the third season it should be dressed once certainly, and twice if practicable; and by this time the tops may be expected to cover the ground nearly from one bed to the other. During the fourth season, it requires no attention till the time for digging, which may be any time in the months of September or October. At digging time, the tops should be cut off with a scythe, rolled out of the way; then, with a plough, cut a deep furrow on each side of the bed, afterwards take dungforks and shake the dirt from the roots. They may then be picked up. Proceed in this manner till the whole bed is dug; washed clean, and dried in a hop kiln. A stove is preferable to charcoal for drying. Fifty bushels of roots may be dried in a kiln 12 feet square. They should be turned while in the kiln, at least once in six hours, until they are thoroughly dried, which takes from 36 to 40 hours. When taken out of the kiln, they should be taken immediately to the mill for grinding. Madder has formerly been ground in grist mills, but a much more convenient and economical way is to grind in cast iron mills constructed expressly for grinding madder. They also answer a valuable purpose for grinding coarse grain for provender, in sections of country where grist mills are not near by. They may be propelled by horse power, (one horse being sufficient,) or by water power if it is convenient. One of these mills will grind 800 or 1,000 pounds a day with one horse. Improved mills of this kind can be obtained by applying to me, at West-Winfield, Herkimer county, or Lester Curtis, Nelson, Madison county. Orders for mills will be promptly attended to: price \$20.

The following bill exhibits nearly the cost of cultivating an acre of madder, including the expense of digging, drying, and grinding.

Seed per acre,	\$32 00
Interest of land, 4 years at \$40,	11 20
Ploughing and harrowing twice,	2 50
Planting,	2 00
Dressing first year,	8 00
" second "	7 00
" third "	3 00
Digging,	21 00
Drying, 25c. per cwt.,	12 50
Grinding "	12 50
Total cost,	111 70

Product if well cultivated, 5,000 pounds, at 20c. per pound,	1,000 00
Deduct cost,	111 70

Nett profit, \$888 30

A good crop of madder looks small the first season, but those interested need not be discouraged. I have now planted nine acres, and shall be ready at the season for digging to supply seed to a considerable amount. Those who wish for seed had better obtain it in the fall. Quantity per acre as I plant, 8 bushels.

Price of seed: Under six bushels, \$4 per bushel; over 6 and under 12 bushels, \$3.50; over 12 bushels, \$3.

Respectfully yours,

HERBERT WOODBERRY.

West-Winfield, N. Y., July 20, 1835.

[From the same.]

BEET SUGAR, &c.—J. Buel, Esq.: Sir,—I recollect a few years since of seeing an account of sugar being made somewhat extensively, in some parts of France, from beets. As this part of the country is at some distance from the sea-board, and also destitute of the sugar maple, which renders sweetening quite expensive, if you are acquainted with the kind of beet used, together with the process of manufacturing, you will oblige many of your subscribers by inserting the same in the Cultivator. Or, if you are acquainted with any other substitute, it would be equally acceptable.

Should it not be foreign to the object of your paper, will you please to give us a recipe for making "India Rubber Varnish," for rendering leather water-proof? And here, permit me, without being suspected of flattery, to add my name to the list of encomiasts of your valuable paper. I think the two first numbers of the second volume are worth the price of the year's subscription; at least they are so to me.

Yours, respectfully,
WM. A. JONES.

Dexter, (Mich.) May 12, 1835.

Reply.—Mr. Jones' inquiry may be important to the far west, for the reasons he has stated. We therefore subjoin a description of the process of making beet sugar, as given by Chaptal, who was at the same time an extensive manufacturer of the article, and an eminent chemist, with some other facts connected with the subject. Our quotation is from Orfila's Practical Chemistry, p. 129-30.

"The beets are sown at the end of March or in April, [last of April or first of May with us,] when frost is no longer to be apprehended; it seems nearly indifferent whether the seed of the red, yellow, or white beets are taken. The earth most proper for their cultivation is that which has depth, and at the same time is light and rich; that which comes from the clearing up of meadows, alluvial soil dunged and long worked, are preferred for this purpose. These grounds should be prepared by two or three very deep ploughings, and a sufficient quantity of manure. The beets are sown at random, like wheat, and it is then harrowed; this mode has more advantages than that of sowing by the hand, the drill plough, on beds, or in the nursery. All the plants which grow near the beets, and whose vicinity is very hurtful to them, are pulled up by the hand or a weeding hook. The period of taking up this plant differs greatly, according to the climate; in the environs of Paris, and even at forty or fifty leagues from the capital, we should proceed to take them up in the beginning of October, whilst in the middle countries this operation should take place much sooner; without attending to this, it happens that the sugar formed is decomposed by the process of vegetation, and is replaced by nitrate of potash.

"After stripping the beets of their leaves, they are placed in the open air, on a very dry soil, beyond the reach of inundation, and which is covered with some pebbles and straw: the beets are placed in beds, in the centre of which a hole is left to give

exit to the vapor, and the beds are covered with straw. These precautions are indispensable—since, on the one hand, the beets freeze at 1° to 0°, (32 to 34°, Fah.,) and on the other, they germinate at 8 or 9°, (48°, Fah.,) especially if the air is moist. It would be more convenient to preserve them in barns and granaries; but it is almost impossible to find a situation of this kind capable of holding all the beets we want. If, nevertheless, we choose to put them into magazines, we must, 1, leave them in the field some days to dry; 2, uncover them when the temperature is only a few degrees above zero, unless it rains; 3, separate the heaps, remove the frozen or putrified beets, and renew the beds, [piles.]

"**Extraction of the Sugar.**—We cut off the necks and small roots of the beets, and scrape the surface with knives. They are reduced to a pulp by means of cylindrical graters, [similar, probably, to our grater cider mills,] moved rapidly with the hand, or by some contrivance. The pulp is pressed, at first, in small lever presses, and then by much more powerful ones; by this plan, we procure from 65 to 75 per cent of juice, which marks from five to ten on Baum's areometer. This juice contains, besides those substances found in the juice of the sugar cane, malic and acetic acids, and scarcely will it afford more than three or four per cent. of sugar. It is received in a boiler called the clarifier, which is heated when one-third or one-half filled. When the temperature is 65 or 66° (Cent. = 150° Fah.) the fire is stifled. We then throw into the boiler about 48 grains of lime, slaked with warm water, for every quart of juice, and the liquor is then brought nearly to ebullition; it is taken from the fire, and on its surface is soon perceived a layer, which is skimmed off. The liquid is then made to run out by means of a stop-cock fixed at the distance of a foot from the bottom of the boiler.

"The liquid is quickly boiled, and sulphuric acid diluted with 20 parts of water is poured on in the proportion of one-tenth of the lime employed; it is stirred, and it is better the mixture should have a slight excess of lime than of acid. We mix with the liquor 3-100 of animal charcoal, perfectly fine; for instance, that which is produced in the preparation of Prussian blue. Immediately afterwards, we add half of the charcoal which has served in a former process, and the boiling is continued until the liquid marks 18° or 20° on the areometer; it is suffered to rest until the next day, when it is strained through a woollen cloth; it is then put into a round boiler, two feet in breadth and ten inches high; this is one-third filled, and it is again boiled. If the contents are burned, the fire is relaxed, and the liquor is stirred; if the bath foams much, a little butter is thrown in, and the heat moderated. The boiling is ended, when, on taking a little of the syrup between the thumb and fore-finger, and quickly separating them, a thread is formed, which breaks dry. At this period the fire is covered, and after some minutes the syrup is poured into coolers, and from thence into the cones"—after which it may be subjected

to the processes of refining or claying, like West-India sugar.

The manufacture of beet sugar was prosecuted in France extensively during the late war; but on the return of peace, was in a measure abandoned. It has recently been revived, and is said to be rapidly increasing; and land for beet culture lets for a higher rent than any other production. About 18,000,000 pounds, or 18,000 tons, are said to be produced annually, and the profits are so great that it has been recommended to the French legislature to tax it for revenue.

According to the tables of Dubrunfaut, the average product, in Flanders, in ten cases cited, was 23,751 killograms the hectare. The killogramme is about 2½ pounds; the hectare 2½ acres. He estimates the raw sugar at four per cent. on the weight of the roots, the pulp to be worth 12 francs (about \$2.28) per ton, for feeding stock, and the molasses worth something additional for distillation. Dr. Achard obtained 6 lbs. 3 oz. raw sugar from a quintal of roots. Dubrunfaut estimates the cost of the sugar to the producer at about five cents per pound; at the manufactory of M. Crespell, the cost was 6 to 7 cents per pound.

Chemistry has discovered a new material for sugar, in wheat, the great staple of the west. It was first announced by a Russian chemist, M. Kirchoff, that starch may be converted into sugar, by being boiled for some time in very dilute sulphuric acid; and M. The. Saussure found that 100 parts of starch made 110 per cent. of sugar, and he concluded that sugar is merely a compound of starch and water. According to M. Berzelius, starch and common sugar are thus composed, though other chemists make the component parts of sugar somewhat different: Starch—Oxygen 49.6, Carbon 43.5, Hydrogen 7.0; Sugar—Oxygen 49.856, Carbon 43.265, Hydrogen, 6.879. Hence, the abstraction of a little hydrogen and carbon would convert starch into sugar.—[See Brewster's Encyclopaedia.]

The butternut affords sugar. We have a sample before us. The maker informs us that the butternut yields as much saccharine matter as the maple. Our sample is not well granulated, having been merely made as an experiment.

WOOL AND HAIR are known to possess highly fertilizing properties—they are, in reality, like bone and horn, concentrated manure. Until recently, refuse flocks of either could not be obtained in any considerable quantity: but our manufactories now afford them to such an extent as to entitle them to the farmer's notice. We have employed hair, combined with oil, from a seal skin manufactory, in considerable quantity, and with the best effect. Woolen factories furnish considerable waste flocks, combined with grease and dirt. Mr. Jabez Burroughs, of Watervliet, has been experimenting with these, and informs us that they exceed all other manures, when applied in one third the quantity that hog manure is applied.—[Cultivator.]

STRAW CUTTERS AND OTHER AGRICULTURAL IMPLEMENTS.—We spoke in another paragraph of the great saving which would accrue to the farmer or planter, by cutting the hay and straw with which he may feed his stock, and we will now call his attention to the several machines at present mostly approved of.

There is the 20 inch cylindrical straw cutter, suited to horse or water power, and competent to the cutting of from 75 to 100 bushels per hour. This, on a large estate, where time is emphatically money, would be found of immense value.

Of the same construction, there is the 14 inch box, suited to manual power, and the 11 inch box, also adapted to manual power, and both in high repute with agriculturists, being easily kept in order, and of great capacity. They are all self-feeders, and from the peculiar form of the knives, and mode of application to the straw or hay to be cut, can be worked a long time without sharpening, which circumstance is of itself of decided advantage.

And then there is the common Dutch Straw Cutter, with and without treadle, whose good service is familiar to a large number of farmers.

These several kinds range from 75, 45, 27, to \$20, and even so low as \$5.

When so much convenience is to be secured from such a small sum, with a positive certainty of saving one third the quantity of food, no farmer or planter should hesitate a moment, if he has not already done so, in supplying himself with a machine.

But while we are enumerating other inventions, we must not omit to name the straw cutter recently introduced by Mr. Secor, a neat, convenient machine, which appears to combine both the economy of time and power, and although a stranger among us, comes well commended to public favor.

Of *ploughs*, there is the Self-Sharpening, the Wood's, the McCormick's, the Sinclair & Moore's improved, the Bar Share, the Hill Side, the Shovel Plough, the Cary Plough, the Buffalo Plough, (an approximation to Mr. Jefferson's plan,)—these, of all their various numbers, sizes, and prices, have been so improved of late as to leave but a barren field for future essayists in improvement to glean in.

Nor should we here omit to mention that most excellent implement, the *Cultivator*, which, though neither plough nor harrow, answers a better purpose than either for *cultivation*. This is a machine which we fear is not sufficiently known; for, of a certainty, it is one of the best things introduced into the business of husbandry for fifty years, and deserves a conspicuous place on every farm.

But to conclude our article—we would in an especial manner call the attention of every raiser of corn throughout this land of mountain and dell, of endless rivers, and countless lakes, to the corn sheller; for in verity it is the most potent little labor-saver we have ever seen.

We allude to the one with a vertical iron wheel, with spring holders, competent to be adapted to the size of any ears. These by hand will shell you out from 15 to 20 bushels of corn in an hour, and it does its work so notably, and with such becoming cleanliness, as to take every grain from off the ear. From witnessing its operation the other day, we should think it would cure a lazy fellow of the ague and fever, who would feed it for a day.

But then we have our misgivings about recommending so *positive* an *innovator* upon the good old fashioned customs of the country. One thing is certain, that wherever one of these vertical gentlemen may show his face, there will be an end to those delightful corn husking and shelling squeezes, whose discordant sounds, and boisterous revelry, come down to us hallowed by the fond associations of an hundred years.

Well, be it so, this is the age of invention, and why should not its march be extended to those who cause the fields to teem with vegetable life, as well as to any other class.

But badinage aside, one of these diminutive machines, by hand power, worked 12 hours in a day—and they do not occupy more space than a flour barrel on its end—would shell 500 barrels of corn in two weeks. What the saving would be, every farmer can calculate for himself, and therefore we will content ourself with simply saying, that the other day, in witnessing a trial of its skill, we were literally astonished; before we thought the ear of corn was fairly in the sheller, it had performed its office, and the grains were lying at our feet.—[Balt. Farmer and Gardener.]

THE NEGLECTED LADIES' SLIPPER.—We see by a notice in the August number of the Horticultural Register, that at a meeting of the London Horticultural Society, in May, a number of beautiful flowers were exhibited, and among them a *North American plant*, called the *Ladies' Slipper*, which, it is added, is the most brilliant plant that has ever been brought to England. So the poor neglected *Ladies' Slipper* has found favor at last! Than which, a more beautiful flower, one of richer or more varied hue, does not adorn a river; but it is *common*, and that is enough to seal its fate. We have in our view, while we are writing this, a giant stalk of *imperial purple flowers*, as double as leaves can make them, as glossy as satin, and in the *tout ensemble* presenting a sight more beautiful than Cleopatra in all her loveliness and glory; but still it is but a *ladies' slipper*—an American ladies' slipper, and like the prophet of old, it has to go out of its own country in search of honors.—[Balt. Farmer and Gardener.]

NATURAL HISTORY.—M. Dussumier, a merchant at Bourdeaux, has presented to the Garden of Plants several living animals of great rarity, among which are the diziguetai, or humione, the wild horse from the centre of Asia, which has never before been seen in France; the ours jongleur, an Indian bear, a sheep of the pure Asiatic breed, a stag, from the Axis, and several apes and monkeys.—[Paris Advertiser.]

[From the Cultivator.]

Circular addressed to the Raisers, Inspectors, and Consumers of Hops.

At a meeting of the brewers of the State of New-York, convened in the city of New-York, 6th March, 1835, to take into consideration the causes of the present ruinous and improper practice of picking, curing, and inspection of hops, by which a very large proportion are rendered worse than useless, and others materially injured, a committee was appointed, and their chairman made the following report:

In presenting this communication, it is unnecessary to make any other remark to those interested, than to refer to the important facts that are here disclosed, to show that prompt and efficient measures ought to be taken to effect a radical change in the present system of picking and curing, as well as a corresponding change in the standard of inspection of hops.

We ask the patient indulgence of brewers, farmers, and inspectors, for the liberty we shall unavoidably be compelled to use, in pointing out the errors that have been fallen into. Your committee are aware of the great difference between persuading a man of the truth of any new proposition, with that of convincing him he is wrong, and satisfactorily inducing him to take the way of truth. We know we have one difficulty to contend with, to surmount which we are apprised will require not only all our ingenuity, but also all the forbearance of those concerned. This difficulty is the ready sale of hops in our market, in the imperfect condition they are now produced. The farmer would naturally enough ask why all this clamor about lupulin resin, early and late picking, while we can get 16 cents per pound, and 2,000 pounds per acre, near (\$320 per acre,) per annum? This is all fair enough, and we will further admit, that some individual who may ask this question has himself produced hops worth the money, and as good an article as either this or any other country is capable of producing; but our complaint is that there are but very few of this fine quality, not one bale in ten. We think we speak advisedly, when we repeat, that out of the 8,500 bales, the produce of New-York and the eastern states, there may not be more than 8 or 900 bales in prime order; that we may be perfectly understood, we earnestly solicit a careful perusal of an analysis of hops by Dr. Ives, of New-York, and published in Silliman's Journal of Science, 2d volume. Since which, the attention of many of the first chemists and physicians, French, Scotch, and English, have carefully experimented on them, and the result has been nearly the same. In one *essential particular* they all agree, which is that the only valuable properties are contained in the resinous globules, which Dr. Ives calls lupulin. These globules are not formed until a few days before the hop is ripe, and if picked either a few days too soon or too late, the hop is an injury instead of being of any service, as they possess neither preservative nor medicinal qualities. The experiments of Dr. Ives are so nearly correct, and as he merits the gratitude of his countrymen for his labor and skill in first bringing these matters before the public, we will copy a part of them, that they may be the more extensively known, and hope the valuable and important facts they disclose may have their just influence in correcting the many errors that have obtained, in the picking, curing, and inspection of hops.

EXPERIMENTS.

"Two drachms of leaves of the blossom

of the hop, from which all the lupulin or farina had been separated, were digested 12 hours in six ounces of boiling water. The infusion was bitter and exceedingly unpleasant to the taste; it possessed none of the aromatic flavor and peculiar bitter of the lupulin. When filtered and evaporated, it yielded five grains of nauseous extract.

"The same leaves were again digested in six ounces of proof spirits; after 12 hours the infusion was filtrated, and by evaporation yielded five grains of extract similar to the last. The same leaves were digested 24 hours in alcohol: the infusions manifested none of the sensible properties of the hop; it gave by evaporation four grains of extract. The taste of none of the extractive matter obtained, from the leaves, was sufficiently characteristic of the hop to designate that it was obtained from that article.

"From this, and other similar experiments leading to the same results, I think it is conclusively proved that the virtue of the hop resides exclusively in the lupulin; that the leaves contain a nauseous extractive matter which is imparted to water and to alcohol, and which, instead of adding to the bitter and aromatic flavor of the lupulin, partially neutralizes or destroys it.

"The obvious inference from these results have, as I conceive, been demonstrated—that the lupulin alone contains the bitter principle and the aromatic flavor of the hop, which are essential to the excellence and preservation of malt liquor."

These discoveries of Dr. Ives, immediately brought the attention of M. M. Payne, and M. Chevallier, two of the most eminent chemists of France to this subject. The learned compiler of the *Materia Medica*, Brewster's *Edinburgh Encyclopædia*, Doctor John Bostock, M. D. F. R. S., Dr. Paris, an able, profound medical writer, all agree that the lupulin is the only valuable part of the hop; and Dr. Paris particularly mentions the hop as the most valuable ingredient in ale, its stomachic qualities powerfully aiding digestion, "and particularly useful to the lower classes, enabling them to digest their innutritive food;" he says Dr. Franklin was wrong in condemning ale, and deprecates "the disappearance of small beer from the tables of the rich, as there was nothing to replace the tonic of the hop."

From the above authorities there is one certain fact established, which proves conclusively that the leaves forming the pod of the hop contain nothing of value for the purpose of brewing; an acrid nauseous bitter, the only properties they possess.

In looking back to the qualities of hops the markets for the last fifteen years have furnished, our opinion is, that the standard has gradually deteriorated; many are now branded *firsts* which have been picked before the resin had begun to form in them, and a very large proportion of those branded *firsts* are picked before the hops are ripe, and the resin or lupulin but partially appearing, being only sap, as soon as dry it is dissipated, and very shortly after, not even the smell of the aroma is perceptible.

This principal error of picking hops before they have arrived at maturity, is followed by another, as far as it goes, equally pernicious; using brimstone to give them the appearance of maturity,—hence our markets are furnished with first-rate hop pods or leaves, without any lupulin, possessing only the nauseous, acrid bitter, of unripe vegetation, and charged with sulphuric acid, the most deleterious matter to a vinous fermentation.

Various circumstances have combined to

bring about this lamentable state of things. The inspector is not the principal in fault for branding as *firsts* those which are *refuse* from early picking and brimstone. This error no doubt had its origin with mistaken men conducting the brewing business, and ignorant of either the culture, curing, or their essential properties. These men wanted hops that would impart no color to their liquor, and advised the inspectors, that hops, when ripe, were refuse, because when ripe, the leaves forming the head of the hop acquired a brown or yellow tinge, slightly coloring the ale; consequently, the inspectors have branded those hops *firsts*, which are gathered *green*, before the lupulin is formed in them, and from this ill-advised source, brimstone has been introduced and applied to both early and late picked hops; to the early, to take away the green, and to the late, to take away the brown color, and bleach them all to the imaginary pale ale standard. By this pernicious course, the rinds, if we may so term them, are substituted for the fruit, and for the wholesale aromatic resin, we are presented with an acrid, unhealthy bitter.

"Another cause may explain why our markets are yearly retrograding, which is, the early demand for shipping, or a scarcity among the brewers; hence often enormous prices are paid for trash, not worth the cartage for manure. This early demand makes numbers eager to avail themselves of the chance of advanced prices and the first sales, while they run no risk of the inspectors condemning them, from early picking. The farmers also find their interests served in early picking, as it gives a much longer time for harvest, enabling them with but trifling help, and less kiln room, to secure their crop: and can we blame them, while brewers and inspectors second their wishes?

We have no personal feelings, nor intend attaching censure to any individual; but insist that our present standard of inspection is an imposition; it does not indicate the maturity or intrinsic value of the hops. To be a competent judge of hops, requires experience, and a nice discrimination; it is impossible for any man to decide, correctly, unless he is capable of distinguishing every peculiar odor that hops may have; his sense of smell must be acute; it is not enough that the hops are dry, that they look well on the outside, that they have not been heated, smoked, stewed, brimstoned, or burnt: they must have the strong, pungent, aromatic smell of the hop when ripe, and just plucked from the stem; they must have the small globules of resin or lupulin, like gems surrounding the cove of the pod, and covering the bottom of the calyxes or leaves; without this lupulin they are refuse. All which is respectfully submitted.

L. FIDLER, Chairman.

Resolved,—That this report meet the approbation of the trade.

R. BOYD, President.

M. VASSAR, Secretary.

The above report was transmitted to the brewers of Pennsylvania, and the following gentlemen were appointed a committee, who concurred with the brewers of the state of New-York, in the adoption of the above report.

George Pepper, Frederick Gaul & Sons; Samuel N. Gray; Hutchinson & Stump; Abbott, Newlin & Co.; Francis & W. J. Perot; M. L. Dawson; Thos. C. Luders. Philadelphia, June 18, 1835.

[We have received for publication the circular of the Pennsylvania brewers, which we deem it unnecessary to insert, as the opinions it expresses accord with those in the preceding circular.]

Remarks of the Conductor.—We cheerfully give insertion to the above communication, as containing matter worthy the notice of farmers, particularly of the hop grower. And we beg leave to suggest to the worthy fraternity of brewers, as the most ready and efficient means of improving the hop culture, the propriety of offering liberal premiums for the best samples of hops that shall be exhibited at the Albany October Fair. This is a great hop market, and the crop will then be mostly ready for sale. It will be the means of congregating together the growers, buyers, and inspectors; of instructing all in the criteria which indicate the first quality; of demonstrating the relative value of good and bad parcels; and of instructing the growers in the best methods of curing their crops. Let a judicious committee be appointed, to decide on the relative merits of the parcels shown; to point out defects, explain the causes of them; and to report facts, with directions for managing the curing process. All parties would be benefited by the arrangement here recommended.

THE GRAIN WORM is literally destroying our wheat fields. The product of this crop in our vicinity will probably not be equal to the seed sown, although but for the worm the prospect was flattering. We do not know how far south and west the evil has extended. Steeping the seed in brine, and liming it, has not proved to be a preventive. We invite communications on this subject.

The warm and wet weather in the month of July has also been prejudicial to the wheat crops, in causing rust, which it is well known checks the circulation of the sap, and causes the grain to shrivel. It is a received opinion, that the grain ceases to enlarge when it becomes badly affected with rust, and that it is most advisable to cut it, though not arrived at maturity.—[Cultivator.]

[From late English papers.]

SILK CULTURE.—A company has been formed in Norwich for rearing silkworms. They are possessed of 120,000 of these valuable insects, in a most healthy state, and have planted 1,000 mulberry trees for future provisions. In the meantime contributions of mulberry leaves have been liberally afforded by many gentlemen who are desirous of encouraging the undertaking.

AMERICAN ALOE.—One of those sights which are said to occur but once in a century, the blooming of the American aloe, will shortly take place in a specimen of the variegated variety at the Surrey Zoological Gardens. It is believed to be about seventy years old; the crown of the plant opened on the eighth of June, and the flower-stem has been growing at the rate of about four inches a day; it is calculated by gardeners that it will reach to the height of from 24 to 28 feet, that the number of flower-buds will be from three to four thousand, and that it will continue flowering nearly six weeks. The period at which the agave arrives at maturity varies according to circumstances; in hot, or otherwise favorable climates, it grows rapidly, but in milder regions, or under the care of the gardener, it requires the longest period that has been assigned to it, which has given rise to the popular error, that the flowering occurs only once at the end of one hundred years.

The subject of exportation of flour from this country to America, in consequence of its high price in the United States, and the low value it realizes here, has excited some interest at Liverpool.

PATENT LAWS.—Lord Brougham brought in a bill to alter and amend the law of patents. The objects intended were generally to facilitate the obtaining of patents, and to secure the enjoyment of them to the inventors.

NEW-YORK AMERICAN.

AUGUST 15—21, 1835.

SUMMARY.

CAPTAIN BACK.—The Montreal Gazette says—

As our citizens have always taken a lively interest in this expedition, we think it right to lay before them again the instructions which Capt. Back received from Government, shortly before leaving England, (as detailed by the Arctic Land Committee, in the prospectus published by us in April, 1833,) and then so far as we are able, from the information we have been able to procure, afford them a brief sketch of what was actually accomplished. After directing him to place himself at the disposal of the Hudson's Bay Company, the instructions ran thus:—

"To leave Liverpool early in February, and to proceed with his party by way of New York to Montreal, and thence along the usual route pursued by North West Traders, to Great Slave Lake, which it is hoped that he will reach by the 20th July. He is then to strike off to the north-eastward, or in such other direction as he may ascertain to be the most expedient, in order to gain the Thew-ee-cho, or Great Fish River, which is believed either to issue from Great Slave Lake, or to rise in its vicinity, and thence to flow with a navigable course to the northward till it reaches the sea. On arriving at the banks of this river, he is to select a convenient situation for a winter residence, and immediately appoint a portion of his force to erect a house thereon; but, if possible, he is to proceed himself with an adequate party, and explore the river to the coast the same season, erecting a conspicuous land-mark at its mouth, and leaving notice of his intention to return the ensuing spring, in case Captain Ross should be making progress along this part of the shore. He is to take care, however, to return before the commencement of winter, to avoid any undue exposure of his men. During the winter he is directed to construct two boats capable of navigating the Polar Sea; and, as early as possible in the ensuing spring, again to descend its shores.

"His proceedings afterwards are necessarily left much to his own judgment. He is first to push on to Cape Garry, where His Majesty's late ship *Fury* was wrecked; on the remaining stores of which it is known that Capt. Ross in some measure relied; but in making for this point, whether by the east or west, he will be governed by the position of the mouth of the river, and other local circumstances, as he progressively ascertains them. While passing along the coast, he is to keep a vigilant lookout upon the shore for any signal or indication of the party which he was in search of (particularly at the entrance of the Hecla and *Fury* Straits, should he take the eastern passage;) and in the event of his meeting them previous to his arrival at Cape Garry, he is to offer to return and conduct them to the Hudson's Bay Settlement.—Or, should he find any indication of their having been on any part of the coast before his arrival, he is to search minutely for some memorial, that may lead to the discovery of their intentions; and proceed, in the event of success, in whatever practicable direction may seem best calculated to lead him to them. But whatever may be his prospects of success, he is on no account to prolong his search beyond such a period of the year (varying from the 12th to the 20th of August, according to the distance he may have attained) as will ensure his return to his winter quarters before the severe weather sets in; as on his acting in this particular with due caution, may depend the eventual safety and success of the whole expedition.

"On his return to his temporary establishment he is carefully to examine the state of his supplies communicating also with Great Slave Lake, to ascertain whether additional stores are there collected for him. And if he finds that he can, with reasonable prudence, devote a second summer to the service on which he is engaged, he is directed to do so, proceeding in a different direction to that previously traversed; but if not, he is to return to England in the following spring.

"Subordinate to the object of finding Capt. Ross, or any survivors or survivor of his party, he is to direct his attention to mapping what remains unknown of the coast which he visits, and making such other scientific observations as his leisure will admit, for which purposes the requisite instruments have been supplied to him. But he is not for such

objects, to deviate from his principal pursuit, until he shall have either succeeded in its accomplishment, or satisfactorily ascertained that its success is impossible."

During the winter, the expedition had to endure great privations and sufferings, owing to the scarcity of food, and the severity of the weather. On the 25th of April, being exactly one year after he had left Lachine, and during a very heavy snow storm, the despatch communicating Capt. Ross's safe return was delivered to Capt. Back. The primary object for which the journey was undertaken being thus happily fulfilled by other agents, Capt. Back made preparations for complying with the secondary part of his instructions—the examination of the coast between Point Turnagain and Ross's Pillar. Several boats were with the utmost activity built during the winter, but in spring, finding that they had an insufficient supply of provisions, they could only take one with them. It was not until the month of July, 1834, that the expedition got to open water on the Thlew-ee-chodezeth, or Great Fish River. Captain Back, we believe, succeeded in determining that this river runs to the northward, and if we understand the purport of the scanty information which has reached us, it has its source on a height of land, about 150 or 200 miles from Fort Reliance, the winter establishment of the expedition, at the eastern extremity of Great Slave Lake. Capt. Back is the first European who has visited Great Fish River, and examined its course to the Polar Seas. Its very existence was doubted by many geographers. It is said to be large, but dangerous of navigation—greatly impeded by ice, and having little but mounds of sand along its banks. It falls into the Polar Sea, at a point, as far as we can learn, that coincides very near to the place assigned to it by Captain Back and the Arctic Committee in London, in their prospectus already referred to.

Farther than this, we only know that the party of intrepid travellers had to encounter every obstacle to which polar navigation is liable, and we are led to believe that immense masses of ice, accompanied by uncommonly severe weather, finally arrested their progress.

How far the labors of the expedition will increase our knowledge of the line of coast, we are unable to say; but from what has been stated above, it is obvious that a new route has been opened to the Polar sea, and that a large blank which formerly struck the eye, on surveying the map, will now in a great measure be filled up.—Captain Back will, we believe, have much interesting information to communicate, respecting his observations on the Aurora, the changes on the needle, as he drew Northward, &c. The extreme cold, experienced, we learn, was 70 deg. below zero.

The expedition returned to Fort Reliance, which place Captain Back left on 20th March, 1835, and travelled on snow shoes to Fort Chipewyan.—From this station he departed on 28th May, and arrived at Lachine, as already mentioned, on the 6th inst.

Thus has terminated an expedition undertaken from the most generous and lofty motives of which our nature is susceptible, pursued with the utmost ardor and zeal, and conducted in safety through dangers and difficulties of no ordinary kind, with the most consummate wisdom.

Captain Back arrived in Montreal this morning, and will leave for New York in a day or two, in order to embark in the packet ship of the 16th inst. for Liverpool.

The President of the United States returned to Washington on Monday, from his visit to the Rippers.

The Jersey City Ferry has, it will be seen, reduced the rate of ferriage on pleasure carriages. This will have the effect, doubtless, of tempting citizens in search of pleasant drives, to cross the Hudson for them.

It is said that the population of Springfield, Massachusetts, has increased within five years about twenty-five per cent. In 1830, it was 6,784: it is now 8,411.

It is stated that the annual worth of all the mechanical and manufacturing products of the United States, is about five hundred millions of dollars.

[From the Philadelphia Gazette.]

THE GIRARD COLLEGE.—Our readers are acquainted with the fact that the Board of Trustees of the Girard College charged Dr. Lieber with drawing up a plan of education for the great institution to be erected by the munificent bequest of our late fellow citizen. The Board ordered Dr. Lieber's report to be published, and both in French and German periodicals which concern themselves with subjects relating to education, not to speak of our own American journals, this complete and able work of our townsman has been spoken of in high terms. We are particularly pleased to notice the nineteenth No. of the London Quarterly Journal of Education, published under the superintendence of the Society for the Diffusion of Useful Knowledge, where an article on the same work with copious extracts and many flattering remarks, will be found. The reviewer says towards the end of this article: "The sound views developed by Dr. Lieber gives us reason to expect the eventual success of the College from which we trust that the U. States will derive every advantage that her best friends can wish."

In regard to that portion of the Report, however, in which Dr. Lieber expresses his opinion, that it could not have been the design of Mr. Girard to exclude religion from the College, the Reviewer seems to take exception to it. He thinks the Dr. has not construed the will with sufficient strictness, which, to say the most of it, is charging him with a bias that can injure no man who has charge of a literary institution.

The cause of civilization has at length really become a general and international cause, and while we find a London periodical recommending the remarks of Dr. Lieber to general attention, we see that an official report made to the Legislative Council of Geneva, refers to our penitentiary system as the most perfect, and to Dr. Lieber's remarks in his translations of the work of Mons. Beaumont and Torqueville on the same subject, as of great importance in this cause of absorbing interest. Dr. Lieber has been elected to one of the chairs in the S. Carolina College at Columbia, whither, as we understand, he will shortly proceed. We congratulate this Institution upon the acquisition of so capable and learned a Professor, and doubt not that the anticipations of those who have been instrumental in placing him there, will be fully realized.

GREAT STEAMBOAT SPEED.—The steamboat Robert L. Stevens, Capt. Dean, left New York at fifteen minutes past twelve o'clock last night, and arrived here fifteen minutes past nine this morning, making her trip in nine hours. She made no landings.

We are indebted to Mr. Holdridge, the second officer of the R. L. Stevens, for the New York Sun of this morning, from which we copy several items of news.—[Alb. Evening Jour.]

INCIDENT.—We are informed that yesterday when the train of cars on the Germantown Railroad was in full motion, an object was descried on the road, and the velocity of the car was checked. On approaching nearer a child was found lying in the road asleep. Its little arm and head were resting on the railroad, and it was some time before the unconscious innocent was awakened.—The youngster had probably got tired of play, and selected this perilous pillow to enjoy a comfortable nap.—We may remark, by the way, that the managers of the different branches of this road deserve great credit for their care and vigilance. At starting and stopping the engine, large crowds collect around the cars, and nothing but the constant and commendable attention of the managers would prevent the frequent occurrence of deplorable accidents.—[Phila. Gaz.]

A layman in Providence, who occasionally exhorted at evening meetings, thus expressed his belief in the existence of a Deity:

"Brethren—I am just as confident that there is a Supreme Being as I am that there is flour in Alexandria; and that I know for a certainty, as I yesterday received from there a lot of 300 bbls. fresh superfine, which I will sell as low as any man for cash."

This reminds us of a passage in a sermon we once heard in Alabama—"You are all gone astray," said the preacher, "you are all sinners, and have gone astray—just as my horse did when I was up in Kentucky lately, and I ha'n't found him yet, and you must supply me with another

in his place, for I can't afford to preach for nothing and lose my horse too."—[Philad. Com. Herald.]

THE MECHANIC.—Under this name, a new penny paper has made its appearance. It is edited by THOMAS N. CARR, and is to be mainly devoted "to advocate the interests, and defend the rights, of the mechanics as a body." We doubt the expediency of all plans having a tendency to separate one class of our multifarious and busy population from another, by appeals addressed exclusively, or peculiarly, to them. We are in the eye, and in the practice, of the law, all equal—have all, common rights, and may alike aim at every public station. The best mode, therefore, of defending the rights, and advocating the interests, as well of mechanics, as of men of all other callings, is, to inculcate generally, obedience to the law, mutual forbearance, strict morality, and the constant practical application of that golden rule of Christianity, "do as you would be done by."

The first number of this little paper is lying before us, and subject to the exception above stated, seems to us to be well got up. Its editorial matter is good both in style and thought.

EPISCOPATE OF MICHIGAN.—Many of our readers are aware that the Rev. Henry J. Whitehouse, D. D., rector of St. Luke's Church, Rochester, has been elected to the episcopate of Michigan at the recent Convention of the Episcopal Church, held at Tecumseh. We are sorry to learn that Dr. W. has declined the election, as well as the rectorship of St. Paul's Church of this city, which had been tendered to him. There not being sufficient time to call a special convention of the Diocese to make another election before the meeting of the general convention, the probability is, that this diocese will continue to remain for the present under the episcopal charge of the bishop of Ohio.

For the information of those who may feel interested, we will state that the vestry of St. Paul's Church in this city, having anticipated the decision of Dr. Whitehouse, have taken steps to procure a rector without delay; and the two wardens, who are now absent to the convention in Philadelphia, are clothed with power to make such an engagement, as to them may seem proper.—[Detroit Journal, 11th Aug.]

To the Editor of the N. Y. American :

As there was some mistake in your paper in relation to the commencement at Union College, will you have the goodness to insert the annexed paragraph in your next No., and oblige many of the friends of old Union.

At the Commencement at Union College on the 2d ult., 88 members of the graduating class received the degree of A. B.; and the honorary degree of A. B. was conferred on Wm. Belden, sen. of Brooklyn.

The honorary degree of A. M. was conferred on Amos W. Brown, Adam Crounce, Lyman Cobb, and Dr. Caleb Ticknor, of New York. The same degree was also conferred on 20 alumni of the college. Rev. John Breckenridge, received the degree of D. D., and R. B. Taney, and Abram Van Vechten, of Albany, that of L. L. D.

A CHURCH IN THE "FAR WEST."—As the eye of philanthropy gazes in astonishment upon the magically changing aspect of our wide and beautiful valley, and is delighted at the rapid advances of the car of civilization, which glides over its features—converting the wilderness into a garden,—like sun-shine chasing shadows along the bosom of the great deep—it is possible that a cloud of doubt may at times overcast the scenery—whether this valley will really become happier from the change which we are so wont to admire; and a tear of pity may fill the eye as she beholds the simple Aborigines driven far from the loved objects of their early and fond remembrance. She knows that the garden's produce is often inferior to that of the desert; that the first awkward efforts of art, will be but to mutilate those of nature, and well may her sighs mingle with those of the "spirit of the deep forest," as she looks on the ruthless inroads of the firebrand and the axe.

There are, however, some portions of the path traced by the wheels of civilization, which may be

viewed with a pleasure unclouded by doubts, or tears, or sighs,—those portions we mean, where religion was an occupant of the car. 'Tis true the Indian may thence retire, but he is followed by the Gospel of peace. The triumph there over nature, is not of art, but of grace. The simplicity of the savage there, is not the dupe of the white man's cunning, but the happy conquest of the high, the unsearchable "wisdom of God." The "mountains and the hills break forth into singing" there; the "trees of the field all clap their hands" in triumphant echo to each stroke of the thundering axe, and the wood-spirit rejoices as she beholds her proud oaks totter, for she knows they are to become pillars in the temple of JEHOVAH!

We were led into the train of thought that suggested the above, when about to write a notice that the Episcopal church edifice, now on the eve of completion in our village, would, on Sunday the second of August, be opened (the first time) for the celebration of Divine service.

Among the many pleasing objects that strike the eye of a visitor to this neighborhood, the building we have mentioned is by far the most attractive, and the one on which his gaze may rest with the most unmingled satisfaction. Passing over the higher reasons for the pleasure of the beholder, we would observe of our church, that in the simple, yet elegant grace of its external proportions, the commodious and tasteful arrangement of every thing within, and the picturesque and conspicuously situated ground of its location, it stands confessedly without a rival in the Territory of Michigan,—a noble, and we trust, not useless monument of the enterprise and zeal of Western Episcopalians, and of the beneficence of many residing at the East.—[Tecumseh Democrat.]

POST OFFICE DEPARTMENT, }
August 11th, 1835. }

Abstract from the Journal for the week ending this day.

1. POST OFFICES ESTABLISHED.

Scraper, Jackson co., Ala.
Franklin, Jasper co., Mi.
West Alton, Stafford co., N. H.
Canada Line, Somerset co., Maine.
North Garden, Albemarle co., Va.

2. POST OFFICES DISCONTINUED.

Chittenden, Calloway co., Ky.
Allston's, Saint Mary's co., Md.

3. CHANGE OF NAME.

The name of the office at Taledogo, Noxubee co., Mi., changed to Macon.

4. APPOINTMENTS OF POSTMASTERS.

Pascal St. Clear, Scraper, Jackson co., Ala.
William Ellis, Franklin, Jasper co., Mi.
Jefferson Clement, Macon, Noxubee co., Mi.
Abner Vaughan, Mount Vernon Furnace, Montgomery co., Ten.

Horace Look, Collinsville, Madison co., Ill.
William T. Yeomans, Helena, Phillips co., Ar. Ter.

Israel F. Hall, House's Spring, Jefferson co., Mo.

Wardlow Howard, Middleburgh, Hardeman co., Ten.

Benjamin G. Estill, Cane Hill, Washington co., Ar. Ter.

Harvey L. Williams, Fruits, Calloway co., Mo.
Charles Douglass, King William C. H., King William co., Va.

Gordon H. Wallace, Missouri, Saint Charles co., Mo.

Austin A. Gibbons, Sulphur Rock, Independence co., Ar. Ter.

Willis Dougherty, Martinsville, Clark co., Ill.

Abner C. Beckham, Crocketts, Gibson county, Ten.

John Sawyer, West Alton, Stafford co., N. H.

Rufus Hilton, Canada Line, Somerset co., Me.

Thomson Armor, Monroe, Butler co., Ohio.

John Cummings, Canton, Bradford co., Pa.

William Atkisson, Franklin, Baltimore co., Md.

George Bowly, Harrison, Hamilton co., Ohio.

Joseph M. Sterling Bryant's, Fayette co., Pa.

John Ferrall, Falls of Schuylkill, Philadelphia co., Pa.

Daniel Coleman, Jacksonopolis, Jackson co., Mich. Ter.

Jacob Morris, Lishaskill, Albany co., N. Y.

David S. Brown, Cheviot, Hamilton co., Ohio.

John Burnett, Landisburg, Perry co., Pa.

John R. De Noyelles, Punchill, Schoharie co., N. Y.

Peter L. Duboise, Olive, Ulster co., N. Y.

Matthew Fowler, Baring, Washington co., Me.
John W. Stewart, Allen, Allegany co., N. Y.
Joshua Maynard, Scipio, Seneca co., Ohio.
Legrand Mead, Edenville, Orange co., N. Y.
Zadok W. McKnew, Bladensburg, Prince George's co., Md.

John Young, Columbia, Columbia co., Ohio.
James Kinsolvin, North Garden, Albemarle co., Va.

Joel Forester, Watson's Grove, Green co., Ga.
Flemming Mosley, Scuffletown, Laurens District, S. C.

Thomas B. Wright, Mount Airy, Surry co., N. C.

William A. Austin, Bellefonte, Jackson co., Ala.

William F. Thomas, Briardleton Burke co., N. C.

James Beverly, Churchville, Montgomery co., N. C.

Jared Irwin, Lumpkin, Stewart co., Ga.

Anthony D. Clark, Woodlands, Marshall co., Va.

John Weaver, Caldwell, Greenville District, S. C.

John B. Black, Milton, Laurens District S. C.

Elias H. Kemp, Foulton, Decatur co., Ga.

Simeon Lindsley, New Vernon, Morris co., N. Jersey.

✱ Orrin Hall, Navarino, Onondaga co., N. Y.

Ordered, that a fine of One Hundred Dollars be imposed on James Reeside, contractor on the route from New York to Philadelphia, for failure of the mail on the 3d inst.

By the schr. Jane, Capt. Davis, we have Bermuda papers to Aug. 8, inclusive. The Bermudian of 8th, says, "The conduct of the colored people in the past year, has been highly satisfactory; and we trust that they will take care of the kind persons by whom their future actions will be governed."

A bill was passed in the House of Assembly to encourage the introduction of Grist Mills in these Islands, granting the exclusive privilege to James Taylor, for a certain time.

Capt. Hatheway, of ship Saratoga, from New Orleans, left at 8. W. Pass, the United States cutter Ingham, Capt. Jones, on the eve of sailing for the Coast of Mexico, in pursuit of the notorious Thompson, commander of the Mexican schooner Corea,—proof having been adduced that said Thompson is impressing and exacting from each American \$300 for their release. The late Lieut. Com'dt of the Mexican schr. Montezuma, who ran his vessel on shore at the Brassos after firing into the Ingham, has been sent to Vera Cruz, for trial.—[Daily Adv.]

FROM NEW SOUTH WALES.—We have been favored with the Sidney papers to the 7th of March. Great joy was occasioned, about the last of February, by the arrival of a cargo of women from England. The value of this article in the Sidney Market, may be inferred from the fact that with a population of over 24,000 males in the Colony, there were only 10,000 females.—[Journal of Com.]

BANGOR.—There are ten blocks of brick buildings that will average six tenements to a block, and forty-six dwelling houses, now going up and finishing in this city; besides these, are cellars and foundations preparing for the erection of twelve more. This is exclusive of nearly as many substantial brick stores, now in progress in the business part of the city. The streets are undergoing a thorough reform, and all about us evinces a condition of general thrift and prosperity. As an exhibition of foreign and coasting business connected with Bangor, there were yesterday in the river, to be counted from the wharves, five brigs, forty schooners, and four sloops.—[Bangor Whig.]

WASHINGTON COLLEGE.—We have had the pleasure of attending the public Examination of Washington College, Hartford, which was continued for nearly a week, and have been gratified with the result. The President and Professors are laboring with zeal and ability to promote the welfare of the pupils and the prosperity of the institution.—[Churchman.]

Eighty thousand dollars have already been subscribed for the building of the Portland Exchange, Maine.

Cleanings from European papers.

[From the London Athenæum of June 20.]

REFORM.—The Queen of England has set an example which has been followed by many of the nobility and gentry; she has availed herself of the hot weather to set the example of early hours, and, we believe, that a four o'clock dinner and a drive afterwards, is about to be fashionable: 8 and 9 o'clock in the evening has been the fashionable hour several years.

DELAY OF PUBLIC BUSINESS IN THE HOUSE OF LORDS.—Lord Brougham, adverting to the legislative business of their Lordships standing at zero, while the demand for improvement in the country was almost at the boiling point, recommended their Lordships to proceed with the discussion on the Irish Church question by means of resolutions, to which course both Lord Melbourne and the Duke of Wellington objected, one on the ground that it would add to their Lordships' labor without forwarding the public business; and the other on the ground that their Lordships, because all the information was not before them, were not ripe for the discussion. The arrears of the Court of Chancery, or of their Lordships' judicial business, is nothing to the arrears of their legislative business, which continually accumulates; and, however disagreeable it may be, their Lordships must speedily put their shoulders to the wheel, or their overburdened vehicle must forever stick in the mud.

OPENING A MUMMY.—Much curiosity has been excited in the scientific world by the opening of a mummy, brought by Lord Frederick Fitzclarence from Thebes. The ceremony took place at the new Anatomical Theatre at St. George's Hospital, in Kennerton street, Wilton place. The lecturers of the school having offered the premises for the occasion, the mummy was opened on Wednesday by Mr. Pettigrew, who delivered some interesting observations on the process of embalming adopted by the Egyptians. Prince George of Cambridge, Lord F. Fitzclarence, Lord Wilton, Count d'Orsay, Sir A. Cooper, Sir B. Brodie, Mr. Davidson the Egyptian traveller, &c., were present during the operation. The lady, for it was a lady, was discovered to have been a priestess of the Temple of Ammon, at Thebes. After a period of more than 2,000 years, she will repose in a glass case in the museum of an anatomical school.

GOLD.—The average of gold brought into England for the last few years was 1,630,000l. per annum. The far greater portion of this was used in manufactures and articles of jewellery. A considerable quantity was made into gold leaves, the intrinsic value of each of which was about one half-ling altogether a charge of three farthings for each leaf. On the average nearly two millions of these leaves were manufactured every week in London. Not more than one half of this was returned in another shape to the goldsmith; scarcely any portion, however, of the gold used in gilding frames was lost, as the Jews carefully looked after the old frames, and burnt the gold off. The ordinary wear and tear of the gold coins probably amounted annually to about one fiftieth part of their value.—[Professor Faraday.]

THE WIDOW OF NAPLES.—There dwelt in Naples a matron named Corsina, wife of a worthy cavalier, known as Raomondo del Balzo. Now it pleased heaven to take the husband of Corsina, leaving her an only child, named Carlo, who was in every way the counterpart of his father. Thus the mother resolved that he should inherit all her fortune, and determined to send him to study at Bologna, in order that he might learn all the accomplishments of his age. With this view she secured a master for her son, furnished him with books and every other necessary, and, in the name of heaven, sent him to Bologna. There the youth made rapid progress, and in brief time became a ripe scholar; and all the students admired him for his genius and loved him for the excellence of his life. In course of time the boy became a young man, and, having finished his studies, prepared himself to return home to Naples, when he suddenly fell into a sickness, which defeated the skill of all the physicians of Bologna. When Carlo found that death was inevitable, he thus ruminated with himself:—"I am not afflicted for my own sake, but for my disconsolate mother, who has no child save me, in whom she has garnered all her earthly hopes, and from whom she looks for future support; and for

the regeneration of our house. And when she knows that I am dead, and that, too, without her even seeing me, sure I am she herself will suffer a thousand deaths." Thus did he lament more for his mother than himself. Now, dwelling on these thoughts, he conceived a plan by which he hoped to lessen the bitterness of his death to his parent; to which end he wrote her a letter in the following words:—

"My dearest Mother,—I entreat that you will be pleased to send me a shirt made by the hands of the most cheerful woman in Naples—a woman who shall be free from every sorrow—every care."

This letter was despatched to his mother, who instantly disposed herself to fulfil the desires of her son. She searched throughout Naples, and where from outward appearance, she hoped to meet the woman free from sorrow, there she learnt a story of some lurking grief—some deep, though well-disguised affliction. At this, Corsina said, "I see there is no one free from misery—there is no one who hath not her tribulation: and they, too, who seem the happiest have the deepest cause of wretchedness." With this conviction she answered the letter of her son, excusing herself for the non-fulfilment of her commission, assuring him that, with all her search, she could not discover the person whom he desired might make the garment. In a few days she received the tidings of her son's death: it was then she felt the full wisdom of the lesson he had taught her, and with meekness and resignation bowed to the will of God. [The above is from the Italian of Fiorentino: the original story is disfigured by the faults of the age (1397) in which the author wrote. We have endeavored to present to our readers the exquisite sentiment of the tale, separated from the dross. Fiorentino is, we believe, but little known to English readers: he is, however, well worthy of their acquaintance.]—*Freemason's Quarterly Review for July.*

[From the London Literary Gazette.]

The History of the Assassins.

Translated from VON HAMMER, by C. O. WOOD, M. D.

After a general view of the state of the empires of the East, and the reigning families of the Omniades, Abbassides, Fatimites, &c., Mr. Von Hammer proceeds to his more immediate matter, and says:

"The Assassins are but a branch of the Ismailites; and these latter, not the Arabs generally, as descendants of Ishmael, the son of Hagar, but a sect existing in the bosom of Islamism, and so called from the Imam Ismail, the son of Jaffer."

He then treats of the foundation and progress of Islamism and its various sects; particularly of the *Imanie* (i. e. the tenets of the twelve Imams,) from which the Ismailite was a division. In the last (the ninth) degree of their initiation the disciples of this vile school were

"Perfectly enlightened as to the superfluity of all prophets and apostles, the non-existence of heaven and hell, the indifference of all actions, for which there is neither reward nor punishment either in this world or the next; and thus was he matured for the ninth and last degree, to become the blind instrument of all the passions of unbridled thirst of power. To believe nothing and to dare all, was, in two words, the sum of this system, which annihilated every principle of religion and morality, and had no other object than to execute ambitious designs with suitable ministers, who, daring all and honoring nothing, since they consider every thing a cheat and nothing forbidden, are the best tools of an infernal policy. A system, which, with no other aim than the insatiable lust of dominion, instead of seeking the highest of human objects, precipitated itself into the abyss, and mangling itself, is buried amidst the ruins of thrones and altars, the horrors of anarchy, the wreck of national happiness, and the universal execration of mankind."

The order of the Assassins was founded by Hassan Sabah, whose personal story, from youth upwards, till he established himself in power as the head of the mighty conspiracy, is one of wonder.

"Nothing is true and all is allowed," was the groundwork of the secret doctrine; which, however, being imparted but to few, and concealed under the veil of the most austere religionism and piety, restrained the mind under the yoke of blind obedience, by the already adopted rein of the positive commands of Islamism, the more strictly,

the more temporal submission and devotion were sanctioned, by eternal rewards and glory. Hitherto, the Ismailites had only masters and fellows; namely, the Dais or emissaries, who, being initiated into all the grades of the secret doctrine, enlisted proselytes; and the Refik, who, gradually intrusted with its principles, formed the great majority. It was manifest to the practical and enterprising spirit of Hassan, that, in order to execute great undertakings with security and energy, a third class would also be requisite, who never being admitted to the mystery of atheism and immortality, which snap the bonds of all subordination, were but blind and fanatical tools in the hands of their superiors; that a well organized political body needs not merely heads but also arms, and that the master required not only intelligent and skilful fellows, but also faithful and active agents: these agents were called Fedavie (i. e. the self-offering or devoted); the name itself declares their destination. How they afterwards, in Syria, obtained that of the Hashishin or Assassins, we shall explain hereafter, when we speak of the means employed to animate them to blind obedience and fanatical self-devotion. Being clothed in white, like the followers of Mokanna, three hundred years before, in Transoxiana, and, still earlier, the Christian Neophytes, and, in our own days, the pages of the sultan, they were termed Moboyese, the white, or likewise, Mohammere, the red, because they wore, with their white costume, red turbans, boots, or girdles, as in our own day do the warriors of the prince of Lebanon, and at Constantinople the Janissaries and Bostangis as body-guard of the seraglio. Habited in the hues of innocence and blood, and of pure devotion and murder, armed with daggers (cultelliferi), which were constantly snatched forth at the service of the grand-master, they formed his guard, the executioners of his deadly orders, the sanguinary tools of the ambition and revenge of this order of Assassins. * * *

"The flat part of a country is always commanded by the more mountainous, and the latter by the fortresses scattered through it. To become masters of these by stratagem or force, and to awe princes either by fraud or fear, and to arm the murderer's hand against the enemies of the order, was the political maxim the Assassins. Their internal safety was secured by the strict observance of religious ordinances; their external, by fortresses and the poindar. From the proper subjects of the order, or the profane, was only expected the fulfilment of the duties of Islamism, even of the most austere, such as refraining from wine and music: from the devoted satellites was demanded blind subjection and the faithful use of their daggers.—The emissaries, or initiated, worked with their heads, and led the arms in execution of the orders of the Sheikh, who, in the centre of his sovereignty, tranquilly directed, like an animating soul, their hearts and poindars to the accomplishment of his ambitious projects."

The various gradations of rank and power under him are detailed, and the whole extraordinary organization explained. Hassan's "greatest policy (as is well stated) consisted in designing his doctrine of infidelity and immortality, not for the ruled, but only for the rulers; in subjecting the tensely reined and blind obedience of the former, to the equally blind but unbridled despotic commands of the second; and thus he made both serve the aim of his ambition,—the former by remuneration, the latter by the full gratification of their passions. Study and the sciences were, therefore, the lot of only a few who were initiated. For the immediate attainment of their objects, the order was less in need of heads than arms; and did not employ pens, but daggers, whose points were everywhere, while their hilts were in the hand of the grand-master."

At length:—

"So great was the dread in which princes held the order, that they did not dare to refuse them the strong places of their own countries, and preferred destroying them, to abandoning them for citadels of the power and sovereignty of the Assassins. * * *

"Hassan Sabah survives the most grateful of his disciples, and his nearest relations, to whom the ties of attachment and consanguinity seemed to secure the highest rights to the succession to the sovereignty. His nephew and grand-prior in Syria, Abulfettah, had fallen by the sword of the enemy; Hossin Kaini, grand-prior in Kuhlstan, under the dagger of a murderer, probably Ostad, one of the two sons of Hassan; and Ostad and his brother under the hand of their own father, who seemed

to revel even in spilling his own blood. Without proof of the measure of guilt, he sacrificed them, not to offend justice, but apparently to mere love of murder, and that terrific policy, by virtue of which the order snapped all ties of relationship or friendship, to bind the more closely those of impiety and slaughter. Ostad (i. e. the master), probably so called because the public voice had destined him as the successor of his father as grand-master, was put to death on the mere suspicion of being concerned in Hossein's murder; and his brother, because he had drunk wine; the former, probably, because he had by his crime, which was without orders, interfered with his father's prerogatives; the latter, because he had infringed one of the least essential laws of Islamism, but whose observance was part of the system of the order. In the execution of his two sons, the grand-master gave the profane and the initiated a sanguinary example of avenged disobedience to the ordinances of outward worship, and the rules of internal discipline; but, probably, besides this apparent motive, the son of Sabah was urged by another, to the destruction of his race; possibly, his sons, disgusted with the long reign of their father, were expecting with impatience to succeed him; it is probable, that on that account he deemed them incompetent, as not having learned to obey, or as being wanting in the necessary princely qualities; or, it is probable, that he set them aside, in order to avoid sinking the order into a dynasty by inheritance, and that the succession of grand-masters might be determined by the nearest relationship of mind and character, irreligion and impiety. Human nature is not usually so diabolical, that the historian must, among several doubtful motives to an action, always decide for the worst; but, in the founder of this society of vice, the establisher of the murderous order of the Assassins, the most horrible is the most likely."

The founder lived to the age of ninety, and was succeeded, during fourteen years, by a yet more bloody tyrant, Kiabusurgomid; of whose ferocity, and the devoted fanaticism of his followers the following quotation is a terrible evidence:—

"The less the designs of the Ismailites prospered by the sword, the more successful and persevering were they with the dagger; and, however dangerous to the order the times might be, they were not the less so to its most powerful adversaries. A long series of great and celebrated men, who, during the grand mastership of Kiabusurgomid, fell by the poinards of his Fedavi, signalized the bloody annals of his reign; and, as formerly, according to the fashion of oriental historians, there follows, at the end of each Prince's reign, a catalogue of great statesmen, generals, and literati, who have either adorned it by their lives, or troubled it with their death; so, in the annals of the Assassins, is found the chronological enumeration of celebrated men of the nations who have fallen the victims of the Ismailites, to the joy of their murderers, and the sorrow of the world. The first, under the grand mastership of Kiabusurgomid, was Cassim-ed-dewlet Aksonkor Bourahi, the brave prince of Mossul, feared alike by the Crusaders and the Assassins, as one of their deadliest enemies. Having fought his last battle with the former, near Maarra Mesrin, he was, on the first Sunday after his return, attacked by eight Assassins, disguised as dervishes, as he was in the act of seating himself on the throne in the Mosque at Mossul: protected by a coat of mail and his natural bravery, he defended himself against the wretches, three of whom he stretched at his feet; but before his retinue could hasten to his assistance, he received a mortal wound, from the effects of which he expired the same day. The remaining Assassins were sacrificed to the vengeance of the populace, with the exception of one young man from the village of Katarnash, in the mountains near Eras, whose mother, on hearing of Aksonkor's murder, dressed and adorned herself for joy at the successful issue of the attempt, in which her son had devoted his life; but, on his returning alone, she cut off her hair, and blackened her face, with the deepest sorrow, that he had not shared the murderer's honorable death. To such lengths did the Assassins carry their point of honor, and what may be termed their Spartanism. Moineddin, the vizier, of Sultan Sandjar, was also murdered by an Assassin, hired by his enemy, Derkesino, the vizier of Mohammed, and a friend of the Ismailites. In order the better to attain his object, the ruffian entered his service as a groom. One day, as the vizier went into the stable to inspect his horses, the false groom appeared before him without clothes, in

order to avoid all suspicion of carrying concealed weapons, although he had hidden his dagger in the mane of the horse, whose bridle he was holding.—The horse reared, and under pretence of quieting him with caresses, he snatched his poinard, and stabbed the vizier. If Bourahi, Prince of Mossul, stood on the list of the victims of the Ismailites solely because he was the rival of their power, and an obstacle to their greatness, we shall not be surprised at finding the name of Busi, the Prince of Damascus, by whose orders the vizier Masdeghani, and six thousand Assassins had been massacred. The slightest pretence was sufficient to cause the blood of princes to flow beneath their stiletos; how much more when their own called, as in this latter case, for revenge. To escape, was beyond the power of prudence, as they watched for years, for time, place and opportunity. Busi, the son of Togteghin, was, in the second year after the massacre, attacked by its avengers, and received two wounds, one of which healed immediately; the other was, however, mortal the following year."

Kiabusurgomid, by a great error, made the dignity hereditary in his son Mohammed, who, in turn, was succeeded by his son, Hassan II.; and he, after creating a wide and dangerous schism, by claiming to be himself Imam, and not, as heretofore, the Imam's precursor, was slain by his son, Mohammed II., who rose to be grand-master on the murder of his father. The next was Hassan III.; the next Alaeddin Mohammed III.; and the last Rockneddin, who, together with his infamous instruments, was destroyed by the Mongol conquerors of the countries, where they held sway during a hundred and seventy years.* Of their char-

* "The conquering power of Jengis Khan, thundering in the distance, had passed innocently over their heads, but under the third of his successors, Mangu Khan, the whirlwind of Mongols swept over the Eastern world, and, in its desolating progress, carried away, along with the khalifat, and other dynasties, that of the Assassins. In the year 582 of the Hegira (A.D. 1186), when the seven planets were in conjunction, in the sign Libra, as they had been a century before in that of Pisces, all Asia was trembling in expectation of the end of the world, which astrologers declared was to happen, the first time by a deluge, and the second by hurricanes and earthquakes. But if the first time, a swollen mountain torrent drowned only a few pilgrims in order not to put the prophecy to the blush; and the second, there was so little wind on the appointed night, that lights burnt freely: in the open open air on the top of the minarets without being extinguished; nevertheless, at both periods political revolutions came to the help of the astrologers' predictions, who had interpreted the conjunction of the planets as indicating physical changes. * * * Mangu had already, some time before, issued the command to Hulaku to exterminate all the Ismailites, and not to spare even the infant at his mother's breast; and immediately upon Rokneddin's departure, the sanguinary task was commenced, which had only been delayed till Kirdkuh, and the remainder of the castles of the Assassins in Kunistan and Syria, should have fallen. He sent one of his viziers to Kaswin, to put death, indiscriminately, Rokneddin's wives, children, brothers, sisters, and slaves; only two relations, females apparently, of Rokneddin were selected from this devoted band, not for mercy, but to be the victims of the princess Bulghan Khatun's private revenge, her father Jagatai having bled by the Assassins' daggers. A command, similar to that given to the governor of Kaswin, was issued to the viceroy of Khorassan. He assembled the captive Ismailites, and twelve thousand of these wretched creatures were slaughtered without distinction of age. Warriors went through the provinces, and executed the fatal sentence without mercy or appeal. Wherever they found a disciple of the doctrine of the Ismailites, they compelled him to kneel down, and then cut off his head. The whole race of Kiabusurgomid, in whose descendants the grand-mastership had been hereditary, were exterminated. The 'devoted to murder' were not now the victims of the order's vengeance, but that of outraged humanity. The sword was against the dagger, and the executioner destroyed the murderer. The seed sowed for two centuries was now ripe for the harvest, and the field ploughed by the Assassin's dagger was reaped by the word of the Mongol. The crime had been terrible, but no less terrible was the punishment."

acter, during this period, we select a few instances:—

"Two years after the death of Conrad Montferrat and Tyre, and that Rashideddin Sinan, Henry Count of Champagne, passed, on his journey to Armenia, near the territory of the Assassins; the grand-prior, the successor of Rashideddin Sinan, sent deputies to welcome him, and to invite him to visit his fortress on his return. The Count accepted the invitation, and came; the grand-prior hastened to meet him, and received him with great honors. He took him to several castles and fortresses, and brought him at last to one having very lofty turrets. On each look-out stood two guards dressed in white, consequently initiated in the secret doctrines. The grand-prior told the count that these men obeyed him better than the Christians did their princes; and giving a signal, two of them instantly threw themselves from the top of the tower, and were dashed to pieces at its foot. 'If you desire it,' said the grand-prior to the astonished count, 'all my whites shall throw themselves down from the battlements in the same way.' The latter declined, and confessed that he could not calculate upon such obedience in his servants. After staying some time at the castle, he was, at his departure, loaded with presents; and the grand-prior told him, on taking leave, that by means of these faithful servants he removed the enemies of the order. By this horrible example of blind submission, the prior showed that he trod exactly in the footsteps of the founder of the order, who had given the ambassador of Melekshah a similar proof of the devotion of his faithful followers. Jelaeddin Melekshah, sultan of the Seljuks, having sent an ambassador to him to require his obedience and fealty, the son of Sabah called into his presence several of his initiated.—Beckoning to one of them, he said, 'Kill thyself!' and he instantly stabbed himself; to another, 'Throw thyself down from the rampart!' the next instant he lay a mutilated corpse in the moat. On this, the grand master turning to the envoy, who was unnerved with terror, said, 'In this way am I obeyed by seventy thousand faithful subjects. Be that my answer to thy master. * * *

"A youth, who was deemed worthy, by his strength and resolution, to be initiated into the Assassin services, was invited to the table and conversation of the grand master, or grand prior; he was then intoxicated with henbane (*hashish*), and carried into the garden, which on awaking, he believed to be Paradise; every thing around him, the hours in particular, contributed to confirm his delusion. After he had experienced as much of the pleasures of Paradise, which the prophet has promised to the blessed, as his strength would admit; after quaffing enervating delight from the eyes of the hours, and intoxicating wine from the glittering goblets, he sunk into the lethargy produced by debility and the opiate; on awakening from which after a few hours, he again found himself by the side of his superior. The latter endeavored to convince him, that corporeally he had not left his side, but that spiritually he had been wrapped [rapt] into Paradise, had then enjoyed a foretaste of the bliss which awaits the faithful, who devote their lives to the service of the faith, and the obedience of their chiefs. Thus did these infatuated youth blindly dedicate themselves as the tools of murder, and eagerly sought an opportunity to sacrifice their terrestrial, in order to become the partakers of eternal life. What Mohammed had promised in the Koran to the Moslimin, but which to many might appear a fine dream and empty promises, they had enjoyed in reality; and the joys of heaven animated them to deeds worthy of hell. This imposture could not remain undiscovered; and the fourth grand master, after unveiling all the mysteries of impiety to the people, probably revealed also to them the joys of Paradise, which could, besides, have but little charms for them, to whom already every thing was permitted on earth. That which hitherto had served as a means to produce pleasure, became now itself an object; and the effects of the intoxication of opium, were the earnest of celestial delight, which they wanted strength to enjoy."

With this we finish; and have only to add, that the general affairs of the East, during several centuries, are greatly illuminated by this account of one of its monstrous afflictions, and heartily recommend the volume to our readers, not only as a valuable companion to the real history of the Khakhsates, the Crusades, &c. &c., but a curious associate

to the Oriental tales with which our leisure hours have been so much delighted.

Grey the poet, used to declare, that the sum of happiness consisted in lolling upon a soft sofa all day long, reading new novels.

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To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P. Post Office, New-York, postage paid, and they will be promptly attended to. May-15

NOTICE TO CONTRACTORS.

Sealed Proposals will be received at the Hudson and Berkshire Railroad Company's Office, in the city of Hudson, until the 5th day of September next, for excavating and embanking 14 miles of their Road from Arnold's shop, near Groat's, at Chatham Four Corners, to the state line, and also for constructing 8 Bridges, from 60 to 70 feet each, between the abutments. Plans of the masonry and superstructure of the bridges will be exhibited at the Railroad Office. Contractors will be required to furnish all the materials for bridges; and the masonry to be completed by the 1st of December next. The road to be graded for a double track, 24 feet wide. A part of the road will be heavy rock and gravel excavation. Profiles of this part of the route will be exhibited at the Railroad Office, in Hudson, and also at the Office of the Engineer, at Chatham Four Corners. The road will be divided into sections of one half and one mile each in length, and prepared for examination by the 10th of August.

Proposals will also be received for furnishing 500,000 feet, B. M. of White Oak Rails, 6 by 7 inches square, and 16 feet long. Also, 15,000 Oak or Chestnut Ties, 6 by 7 inches square, 8 feet long, or, if round, not less than 8 inches in diameter, at small end. Also, 500,000 feet of Chestnut, Pine, or Hemlock Bills, 4 by 10 inches, 12, 16, or 20 feet long.

The whole to be subject to the inspection of the Engineer, and to be delivered on the line of the road, by the 15th of April, 1836.

The remaining 18 miles of the route will be put under contract as soon as the line can be prepared.

Persons applying for contracts will be expected, unless personally known to the Engineer, to present with their proposals recommendations as to ability to perform their contracts.

Any information on the subject afforded at the Engineer's Office, Chatham Four Corners.

JAMES M'ELLEN, President.
GEORGE RICH, Chief Engineer.
Hudson, Aug. 1, 1835. 31—St

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfurt street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—15

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J36 15

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-15 1614

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale every extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. HENRY BURDEN, Agent.

Troy, N. Y. July, 1835.

Spikes are kept for sale, at factory prices, by J. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. L. Brower, 325 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. 1325am

H. BURDEN.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sep-13-15

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch.	Flat Bars in lengths of 200 do. 1 1/2 do. 14 to 15 feet, counter sunk
40 do. 1 1/2 do. 1/2 do. holes, end cut at an angle	
800 do. 2 do. 1/2 do. of 45 degrees, with splicing plates and nails to suit.	
800 do. 2 1/2 do. 1/2 do. soon expected.	

230 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, and 3 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 61

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG.

Mathematical Instrument Maker, No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repair, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the Levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

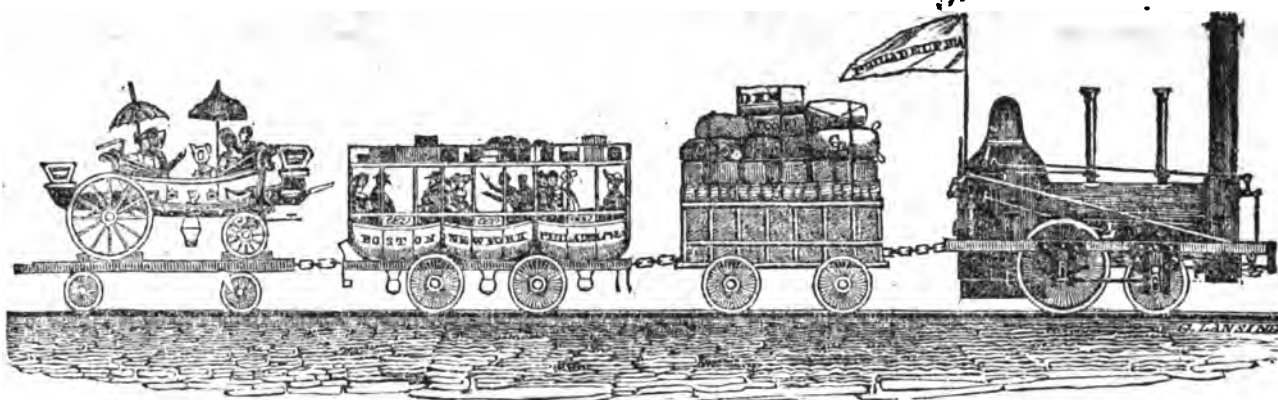
Germantown, February, 1832.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Engr. Philad. Germant. and Norrist. Railroad

ml 15



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, AUGUST 29, 1835.

[VOLUME IV.—No. 34.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 29, 1835.

BRIDGE BUILDING.—We have received from a friend, a communication, with a drawing, of Lieut. G. W. Long's plan of bridge building, which we shall hereafter give to our readers.

UTICA AND SCHENECTADY RAILROAD.—This work is progressing rapidly. The grading is completed on nearly its entire line. Its termination is fixed at the lower end of Genesee street, near the Mohawk bridge, in Utica; and it will give life and activity to that part of the city, which has not improved, since the completion of the Erie Canal, as rapidly as other parts of the city.

ENLARGEMENT OF THE ERIE CANAL.—We understand that the "Canal Board" has decided to enlarge the Erie Canal to 60 feet wide and 6 feet deep. We regret exceedingly this decision—as we believe that the best interests of the State require that it should be at least enlarged eighty feet wide and eight feet deep. If the business has increased in ten years, or if, even in fifteen years, it shall so increase as that the present canal will not be capable of passing it—what may we not expect, when we know what has occurred, within the next forty years? Look at the almost boundless West—into which the industry and youth of the older States are setting in an over-

whelming current—and then estimate the amount of business which must naturally find an outlet through this State. If any thing has been learned by experience, it is that the present canal is altogether too small, and therefore it must be enlarged. If it must be enlarged, why not do it in such a manner as to render a second enlargement unnecessary? This would seem to be a reasonable question, and it should be properly and correctly answered; and now is the time, before the work is commenced, to answer it. Would it not therefore be proper for the citizens of New-York, who are so deeply interested in it, to express an opinion upon it? To us it appears a very proper subject of consultation, and we would therefore recommend it to their consideration.

OLEAN CANAL.—This work, it would seem, is not duly appreciated by the business men, and owners of real estate, in this city. It is highly important that measures should be taken at an early period to disseminate such information as will place the merits of the OLEAN AND ROCHESTER CANAL fairly before the people of the State, and respectfully before the citizens of New-York.

The route for this canal has been twice surveyed, and found beyond question practicable, and well supplied with water. It is well known that its route lays, a part of the way at least, through a thickly populated and well cultivated part of the country—and it is also well known that it will, when completed, connect two of the most important water communications, viz. the Ohio and Mississippi Rivers on one side, and the Erie Canal and Hudson River on the other—and that it passes through a region of country in which is found probably the best pine lumber brought to this or any other; and it is also believed, from the very strong indications that have been discovered, to possess immense quantities of coal. Thus it will be seen that, in addition to

the business which must necessarily pass through this canal, from the two great thoroughfares above alluded to, the country bordering upon it has resources of its own which will insure to it at least a fair share of business—and that these considerations taken together, with the very great increase of business which will naturally result from the construction of the New-York and Erie Railroad, which is now placed beyond a doubt, must satisfy even those who have before doubted, that this work will yield to the State a handsome profit, and at the same time greatly enhance the value of property on its line.

If these views are correct, it is a matter of great importance that early measures should be taken to arouse the people interested in its construction. What then is the proper course to pursue? Call a CONVENTION, we say, to be held at Rochester, some time in October, for the purpose of promoting the work. Let good men be selected from all those counties interested in the work, and especially from this city—who can give life and energy to the measure. From such a course good must result—or at least harm cannot.

LABORERS WANTED.—We are informed that laborers are wanted on the line of the Chenango Canal. Twelve or fifteen hundred men, we were recently informed, could get employment and good wages by applying immediately.

QUEBEC, 14th August.—Capt. Yule of the Royal Engineers returned from his reconnaissance of the route for the proposed Railroad to Maine, by the Chaudière and River du Loup. His report is more favorable than he anticipated himself. Being called to Montreal on a periodical service of a few days, he goes up to-morrow, having left his baggage in the country and not completed the Chaudière and Megantic reconnaissance. He met the Committee this afternoon.

There are only three places where slight obstacles occur, easily to be surmounted, viz.; Points Lévi, St. Mary's and the junction of the Rivière du Loup, a tributary of the Chaudière. Captain Yule intends examining the landing at the Pointe Lévi, to-morrow, and return from Montreal to proceed with the Chaudière reconnaissance, up which it was found impracticable to move from the lowness of the water.



[From the London Mechanics' Magazine.]
**Quick and Cheap Mode of Railway Transit
 without Locomotive Engines.**

Mr. Editor,—A great deal has been said on both sides for and against the undulating railway principle, but hitherto no satisfactory practical results have been obtained on which to found a definitive judgment respecting it; and although the shareholders of the Liverpool and Manchester Railway are deriving considerable profits, owing to the immense traffic between the two towns, still there are doubts if many other roads will pay at all: the expense of locomotive engines being so great, wherever there are considerable inclines to be overcome, and the first expense of constructing the railway so enormous, from the endeavors made by tunnelling and embanking to reduce that expense. I am, therefore, induced to send you a new plan of an undulating railway, by which locomotive engines (except on very rare occasions, indeed,) will be dispensed with; the trains will travel by the force of their own gravity from station to station, as described in the above diagram.

E E are stationary steam-engines, and O O O inclined planes by which the stationary engines bring the trains up to a level, when the trains, going and returning, take the roads the arrows point to. I have no doubt but in many situations falls may be obtained each way for miles together. Deep cutting and tunnelling would be thus, in a great measure, dispensed with; and if tunnels in some situations were absolutely necessary, by giving them the required falls for the trains to go through them, by gravity alone, travelling through them would not be disagreeable, as no engine would go with the trains.

I am, Sir, your obedient servant,

THOMAS DEAKIN.

Blaenavon Iron-Works, June 5, 1835.

[From the London Mechanics' Magazine.]

Mr. Woodhouse's Angular Railway Bars.

Fig. 1.

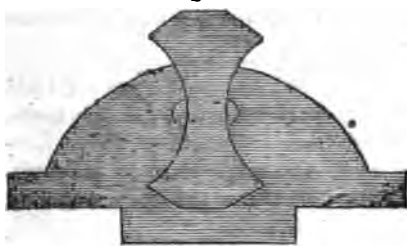
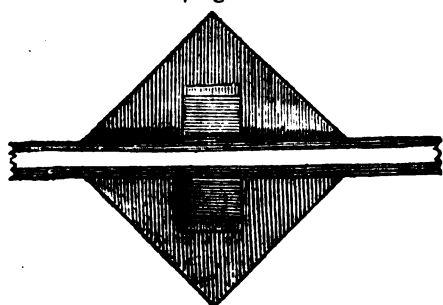


Fig. 2.



Sir,—As the form of rails best suited for affording safety, economy, durability, &c. has occupied the attention of many scienti-

fic persons, and formed the subject of several communications in your pages, I hope, without presumption, I may be permitted to propose the annexed as a plan, in my humble estimation, calculated to effect these objects.

Some few months since, I proposed the use of an angular rail; my plan was not then matured, but as I have since given some little attention to the subject, I send you the results.

The purpose of giving an angular shape to the rail is, that the engine wheel (also having an angular grooved rim to correspond) may have a greater hold upon the rail, thereby giving greater efficiency to the power of the machine, preventing an irregular action, which must be produced when the wheel slips on the rail (a circumstance much alluded to at the opening of the Selby Railway,) and thereby much strain to the machinery. The top surface, one inch broad, is intended for the train-wheels, and where friction would be a defect, it is thereby avoided. The form of the rail is intended to admit of being reversed at any future time when the upper surface is worn. The chair is not intended to be fixed, but the central part, which projects downwards, is to let into the stone sleeper, and be bedded in with cement or not, as found best. The rail is not fixed to all the chairs, but only to the centre one; which proposition I made with another plan of Rail and Chair sent to the London and Birmingham Railway Directors. The size of the present rail is as follows: Depth, $4\frac{1}{2}$ inches; extreme width, $2\frac{1}{2}$ inches; surface, 1 inch; angles, from 15 to 25° , as the friction is required; the calculated weight is rather more than 51 lbs., but upon shrinking, it would probably not be more than 50 lbs. to the lineal yard.

It has been objected to turning the rail when one side is partially worn down, that in proportion as it is so worn, its strength must be diminished. But as long as the internal structure of the rail is not so permanently injured as to prevent its return after deflexion to its original horizontal form, it seems to me that it must be nearly, if not to the full, as efficient as ever.

As respects the supporting of the rails, I also proposed that instead of having the rail resting solely upon the chair, the chair should be so planned that the rail should also rest upon the surface of the stone, whereby it would be strengthened, and the stone, by receiving a steady vertical pressure, would be rendered less liable to the casualties so frequently complained of.

I also proposed that the stone-block or sleeper should be placed in an angular direction with the length of rail or line of road, whereby a greater surface of stone would be placed in the directions most required, viz. lengthways and sideways. By this plan an 18 inch stone exposes a surface of 2 feet and more to the pressure.

Fig. 1 is a section of the rail as it rests in the chair, which, when the lower portion of the chair is let into the stone, will rest upon the stone also; the two small sections are for the purpose of fixing the centre of each rail to its chair. Fig. 2 is a vertical view, showing the angular position of the stone upon a smaller scale.

I am, Sir, yours respectfully,

P. WOODHOUSE.

Kilburn, May 27, 1835.

[From the London Mechanics' Magazine.]

MARINE STEAM ENGINES.

Extracts from the Evidence given by Joshua Field, Esq. of the House of Messrs. Maudslays and Field, before the Select Committee on Steam Navigation to India.

693. You have had much experience in the manufacture of engines for steam vessels, have you not?—Yes, I have.

694. What do you consider the proper measurement and power of a steamer for a long sea voyage?—The relative proportion of power and tonnage fluctuates between two tons per horse power, and four tons per horse power, depending upon the purposes for which the vessel is intended, as well as the length of the voyage.

695. What do you say as to the measurement?—By measurement I understand tonnage. I have prepared a table which shows at one view the probable speed to be obtained by the application of engines of four different powers in vessels of the same tonnage, also the length of time for which they would be able to carry coal with each power on board. This table, if the committee desire it, I will put in.

AN APPROXIMATE TABLE, showing at one view the Tonnage of Steam Vessels, with the Power usually applied to such Vessels, the number of Days (of 24 hours) Coals they will carry, and the probable Speed per hour they will go with smaller powers and greater quantity of coal.

Tonnage.	10 miles.		9 miles.		8 miles.		7 miles.	
	Power.	Coal.	Power.	Coal.	Power.	Coal.	Power.	Coal.
252	100	5	80	6½	60	8½	40	12
290	100	6	80	7½	60	10	40	15
332	120	7	100	8½	80	10½	60	14
375	120	8	100	9½	80	12	60	16
425	140	9	120	10½	100	12½	80	15½
480	140	10	120	11½	100	14	80	16½
534	160	11	140	12½	120	14½	100	17½
597	160	12	140	13½	120	16	100	19
665	200	13	160	16	140	18½	120	21½
736	200	14	160	18½	140	20	120	23½
810	220	15	200	16½	160	20½	140	24
892	220	16	200	17½	160	22	140	26
980	240	17	220	18½	200	20½	160	25½
1073	240	18	220	19½	200	21½	160	27

696. Will you explain to the committee the object of this calculation; is it a comparison of tonnage with the consumption of coals and days, and the rates of going?—It is to show about how many days' fuel steam vessels will carry with larger and with smaller engines on board, as well as the average speed to be expected from each. Such a table can only be an approximation.

697. Will you first state what you consider the proper measurement and power of a steamer to go a long sea voyage?—I should recommend a vessel of from 7 to 800 tons, having an engine of 180 or 200 horse power.

698. How long would such a vessel run, and at what rate would she go?—She would carry coal for 14 or 15 days, and have a speed, in still water, of 9 or 10 miles per hour, and would realize in all weathers, at sea, an average of 8 miles while under-weight.

699. What is the greatest proportion in tonnage and power for a steamer going a long voyage?—The greatest propor-

tion of tonnage for vessels going long voyages may be stated at 4 tons per horse power; for short sea voyages, 3 tons per horse power; and for river vessels, as Margate or Gravesend, 2 tons per horse power.

700. What results does the power give to a vessel of the same tonnage with different powers as to the rate of going?—Great power in small vessels gives great speed, but they carry a small quantity of coal, and are soon exhausted, while larger vessels being able to carry a greater quantity of coals, work longer, and perform greater distances.

701. Then you draw this inference—the longer the voyage the less the speed?—The smaller the power, the greater capacity there is left for coal, and therefore the greater number of days' coal it would carry.

702. And the less speed?—And less speed having less power.

703. And the smaller proportion of power would of course consume less fuel in an equal time?—Exactly so.

704. Would not the greatest proportion of power consume the least fuel in equal distances?—Against winds or tides it is so; but in calms and fair winds it is not.

705. What is the greatest distance you suppose a sea-going steamer to run without changing?—The same steamer should not go more than 2,000 or 3,000 miles without a relay, or time to put the machinery in order.

706. Does that also include without taking in coals?—A voyage of 2,000 or 3,000 miles may be performed in one stage, but it would be desirable on every account to divide it and take less coal.

707. What is the greatest distance she would go without coming to a station to take in fresh coals?—The distance is limited only by the quantity of coal she can carry.

708. What is the greatest distance you think a steamer could go without taking in fresh coal?—The greatest distance I have known a steamer to perform was the Enterprise, on her voyage to the Cape, in which she carried 37 days' coal.

709. With continued steaming do you mean?—Yes; she steamed 34 days, and had three days' coal left.

710. Do you mean steaming day and night?—Yes.

711. Besides the coal, is it not necessary to give the engine rest?—It is; and the more frequently they can be stopped to clean and adjust, the better they will perform.

712. Then your observations must be supposed to apply to both?—Yes.

713. What is the comparison as to the duration between copper and iron boilers?—Copper boilers are found to last about seven years, without such repairs as render it necessary to take them out of the vessel, whilst iron boilers must be taken in four years.

714. Which would you prefer on the whole?—I should prefer copper for long sea voyages.

715. Is not the thickness of the me-

tal an advantage in raising steam?—The metal is of the same thickness, whether the boiler be of copper or iron.

716. The salt water does not affect copper so much as it does iron, does it?—No, it does not.

717. What is your opinion of the relative advantage of the common paddle-wheel with that of any other invention with which you are acquainted?—The common simple paddle-wheel, when the dip does not exceed one sixth of the diameter, is an excellent propeller, and scarcely admits of improvement; but when vessels are so deeply loaded that the dip exceeds this in any great degree, a wheel with feathering boards will propel faster.

718. You have fitted river boats with vibrating cylinders, have you not?—Yes.

719. What may be considered to be their principal advantage over the other?—The advantage of vibrating cylinders in river boats is, that they are more simple in their construction, lighter, and occupy less space.

720. But in point of weight and space what is the advantage?—Reduction in weight is the most important consideration in river navigation.

721. Is not the power conveyed more immediately to the crank by the oscillating cylinder?—The power is more durable [directly?] communicated from the piston rod to the crank; the engines are, as it were, suspended to two strong beams, which lie across the gunwale, and project for the support of the wheels, forming an independent frame, in which the strain of the engine is confined; the whole resting on the upright sides, the weight is more equally distributed over the whole vessel; thus partial pressure on the bottom is avoided; this admits of the vessel's being of the lightest possible construction.

722. Is not the disadvantage, that it is very difficult to keep the connecting pipes steam tight in oscillating cylinders?—As we construct that part, there is not the least difficulty.

723. Has not that been found to be the case?—Speaking of those we have made, no such difficulty exists.

724. Must there not be continual wear on the connecting pipes, from the motion of the oscillating cylinder?—Not if they are properly constructed.

725. What is the largest power upon which you have constructed those cylinders?—Two thirty-fives is the largest we have made upon this construction, and that was for a sea vessel.

726. Would you think it advisable to make them of a larger power for sea-going steamers?—The principle is exactly the same in this as if on the ordinary construction; and so far as we have tried them, work just as well, and produce the same effect in speed, and economy of fuel, as our other engines.

727. What is the advantage of weight and space?—A reduction in the weight of the engine leaves greater capacity for cargo and fuel.

728. What is the extent of the im-

provement of weight and space?—About 10 per cent.

729. One fifth of the weight and one fifth of the space do you mean?—No; about one tenth of these.

730. Is not the pipe in the fixed cylinder, which brings the steam, connected with the cylinder by means of flanges, which are secured very tight together; and in the oscillating cylinder, must not the cylinder continually move on the end of the pipe, and is the chance of becoming less steam-tight greater in the oscillating cylinder than it is in the fixed cylinder?—No; the union is effected by a stuffing-box packed with hemp, and is kept perfectly tight without the least difficulty.

731. Is it more expensive than the other?—No, they are rather cheaper.

732. Would they not be apt to be deranged in a heavy rolling sea?—We have not found that to be the case: one has been working in a cargo vessel, between Dover and London, during the last winter to the present time.

733. What is the greatest extent of time that you have had oscillating cylinders at work?—About four years and a half or five years.

734. On the sea?—No; to Richmond.

735. That is a small high pressure, is it not?—No; it is a low pressure.

736. Have you had one on the sea for the last three years and a half?—No; only during the last year.

737. Was there not a second steam-boat with an oscillating cylinder going to Richmond?—There was one to Ham-smith last summer.

738. How did that succeed?—Very well, I believe.

739. The packet boat from Dover to Calais makes use of an engine of that kind, does it?—Yes.

740. Is that one of your manufacture?—No.

741. Is not the friction greater in the oscillating cylinder than it is in the fixed one?—No; as the number of bearings and moving parts are reduced, the friction should be reduced also, unless, indeed, it be badly constructed.

751. Have you considered the construction of the American steam raft?—I have seen a description of it.

752. Do you think highly of it?—It is certainly an ingenious method of obtaining great speed in smooth water, but its application is limited.

753. What do you think of the practicability of applying it generally?—It would not do at sea; and as it must draw more water than a single vessel, it would not do for shallow rivers.

754. The speed of it is very great, is it not?—It is so stated, and I believe it may be so, for the following reasons: the two pointed cylinders, from their form, may be made of the lightest materials, and need not be made of larger diameter than is sufficient to displace the total weight; their form offers the least resistance, and their relative position gives the required stability.

755. What do you think is the best

kind of coal for steam vessels, with respect to power and safety from spontaneous ignition?—Hartley, Elgin, Inverkeithing, Ward's Llanelly, Llangennech, and Lydney, are all esteemed good coals, and are free from the danger of spontaneous ignition.

756. What is that Scotch coal?—The three first named are Scotch coal.

757. How is the Welsh coal, do you consider, upon those points?—The Welsh coal produces very great heat, and is very effective; but the heat being confined to the fireplace more than other coal, it destroys that part of the boiler faster than the Scotch coal. The heat is more intense in the fireplace, and less is carried forward to the flues than by the other coal.

758. What is the comparison of the proportion of the Scotch coal to the English coal in its power?—I think they are much the same. We have made many experiments, and we do not find much difference.

759. The Welsh coal is considerably greater, is it?—I do not think it is. It has the advantage of not smoking.

760. Is not that because every part of the coal is consumed?—Yes.

761. No portion is carried off, must it not therefore be a coal of greater intensity in a given bulk on that account?—I cannot state that it is more powerful, or more economical, but the heat is more intense in the fireplaces.

762. Must it not, therefore be a coal of greater intensity of heat than if a portion of it were carried off?—It is not so productive in the flues. It does not carry its heat forward, it is more like the fire of a forge.

763. Then, including the expense and power, you would give a decided preference to one species of coal rather than another?—I prefer the Scotch coal.

764. On what account?—I think it injures the boilers less, and leaves less residuum.

765. What species of Welsh coal do you allude to?—Llangennech and Ward's Llanelly are Welsh coal, and are without smoke.

766. Under what circumstances does spontaneous ignition occur?—Coals which contain iron pyrites, and have become damp, are most liable to ignite.

767. What do you think of the Forest of Dean coal?—Some of the Lydney coal which we tried proved very good.

768. Do you ever use the Kilkenny coal?—No.

769. At what should you estimate the expense of such a vessel as you consider best calculated for a long sea voyage?—A vessel of 800 tons, and 200 horse power, would cost about £33,000, fitted out in the best manner, with engine and every equipment.

770. Then such a vessel as you stated at first, is that the one that you prefer?—Yes.

771. What would be the prime cost, and what the annual expense of such a vessel?—The prime cost would be about £33,000.

772. And what the annual expense?—Do you propose to include the repairs with the expenses of working?

773. Working and every thing else—keeping her up, and every thing.—How many days do you propose her to work in the year?

774. Every thing that is to keep the vessel going for as many days as she shall continue, to the end?—The annual cost of working such a vessel, including coal for steaming one third of the time, and all other expenses, would be about £7,000.

775. In computing the entire expense of a steam vessel, and annual charge, what amount should you say for capital, the sum for insurance, repairs and renewals, calculated to create the perpetuity of the property?—I think that would not be less than 25 per cent. upon the outlay.

791. By which means could you go the greatest distance, without being obliged to take in coals; by the working a small power, and at a slow rate, or by working with a great power, at a rapid rate: for instance, an engine of 100 horse power, working at ten miles per hour, or an engine of 40 horse power, working at 7 miles per hour?—In moderate weather the small power with a great quantity of coal; but against head winds a great power will go the greatest distance.

792. In the construction of a river steamer, do you prefer the flat bottom, with the raking bows, and a parabolic curve?—I think for river steamers, where the draught of water is not very limited, the form of the vessels adopted on our river to Gravesend, or Margate, are best for speed, they are sharp, dividing the water sideways; but, perhaps, in a very shallow river, the spoon-shaped bow might be best. I do not know any experiment that would directly set that matter at rest; there are different opinions upon it.

793. What construction do you think the best for steering a vessel round a point against a strong current?—I should think the sharp vessel would steer better than the spoon-shaped vessel.

807. Would it be safe and desirable to use a high pressure engine in a small vessel on a river, in order to lighten her draught?—I am not acquainted with any high pressure engine that has been quite successful in a boat yet; all the high pressure engines that I have seen are as heavy as the low pressure engines, except in some few instances of a particular kind, which are not fit for general navigation.

808. How is it on the score of safety?—The low pressure engine is, of course, much safer.

813. What do you consider to be the comparative advantage of steam navigation in seas and rivers, as to its expense, and as to its certainty?—I can speak of the certainty better than the expense; the rate is increased more than double and the time halved. I have also an abstract of sixteen voyages made between Falmouth and Corfu by sailing vessels, the mail packets, before steam packets were

established; it is the same voyage, and the average is 93 days, the steam packets giving an average of 47, which is half the time.

814. What is your opinion of the comparative advantage of the navigation in rivers and by sea in steamers, as to expense and certainty?—River navigation is less expensive, inasmuch as smaller vessels will suffice, and river voyages are performed with more certainty.

815. Suppose it were one thousand miles by river, and one thousand miles by sea, on which side is the advantage, both as to expense and certainty, both by steam?—River, certainly.

816. Suppose you have a whole space of 3,000 miles to pass by water, half of which is in one case to be performed by the river, and in the other the whole by sea, which of the two should you think preferable as to expense and certainty; which should you prefer as a permanent navigation?—Two kinds of vessels being necessary in this case, I cannot speak confidently.

817. Which should you prefer as to certainty?—I should think the certainty much the same in both cases.

818. Should you think a sea navigation as certain as a river navigation?—The Mediterranean packets show it to be very certain, for the fluctuation is only a very few days, which is very little for the whole four years.

819. On which side should you think the speed would be in favor, of the sea or the river, supposing there was a current of 3 miles in the river, and that you had 1,000 miles to go against that current, or 1,000 miles to go by sea, by which, by the river or by the sea, on an average, would you pass over in the shortest space of time?—I rather apprehend the sea.

825. You have given your opinion as to the proportionate power of tonnage to sea-going steamers: on what data do you found that opinion?—From having fitted out a great many vessels.

826. Do you mean vessels employed in the service of Government, or do you mean vessels employed for private purposes?—Both.

827. What number of persons in proportion to the register of tonnage of the steam vessel would you allow for short voyages, and what for longer?—How many it would be safe or convenient?

828. No; how many men would you wish to take to man your vessel, that is, the crew?—I think about one man to every thirty tons, including the stoker.

829. What would be the proportion of passengers, or soldiers, if you were conveying troops?—About one man to a ton, I should think, or more for a short distance.

830. You have given us the quantity of fuel of every horse power, have you not?—Yes, I have.

831. What quantity of fuel, and what description do you allow per horse power per hour?—We allow eight pounds per horse power per hour.

832. And what is that calculation founded upon; is it founded upon the

average of the consumption?—Upon the consumption, and upon experiments made at different periods with engines of our manufacture.

833. What sized cylinder, and what length of stroke, do you allow for 180 horse?—Two cylinders of 51½ inches, and 4 feet 6 stroke.

834. What would you allow for a 200 horse power?—Two cylinders 53 inches diameter, and 5 feet stroke.

835. What would you allow for a 250?—Two cylinders, 59 inches diameter, 5 feet 6 inches stroke.

836. What would you allow for a 300 horse power?—Two cylinders, 64 inches diameter, 6 feet stroke.

837. What pressure do you use in the boiler?—About four pounds.

838. And what in the cylinder?—As near the same as an open pipe will receive it.

839. And what proportion is the paddle wheel to be to the length of the stroke?—From four to five times the length of the stroke.

840. What breadth of float would you recommend?—For river navigation, the wider it is the better; for sea navigation, about one third the diameter of the wheel.

841. What length of time would an engine work without injury?—In one spell do you mean?

842. Yes.—They are frequently worked from Falmouth to Gibraltar, which is 1,100 miles, in one spell.

843. What is the greatest and the shortest length of time they take to do that distance; that is, a spell of 1,000 miles?—Eight is about the shortest, and 12 the longest.

844. How long should an engine last if well managed, without repairs?—About from 4 to 5 years.

845. What parts of the engine and boilers are most liable to accidents?—Those parts most exposed, such as the wheels; then the moving parts, cross heads, beams, &c.

846. Can duplicates of those parts be kept on board?—Yes.

847. Does it require any more engineers to manage an engine of 300 horse power, than it does to manage one of 100 horse power?—It does, but not in proportion to the increase of power.

848. In proportion to the power, is a large engine more economical than a small one?—Yes, it is rather.

849. Does it consume less coal in the same proportion?—It consumes less coal in proportion as the power increases.

850. Suppose a vessel to have 300 horse power in smooth water, or a fair wind, could you work it at the same consumption of fuel which a vessel of 200 horse power would be worked at, by throttling the valves, wire-drawing the steam, or any other mode of working the engines?—Yes, you may do so.

877. Have you ever made experiments on the combustion of wood, for the purpose of raising steam?—I have not myself made those experiments, but I am aware that such have been made.

878. Are you sufficiently acquainted

with the subject to give an answer as to the proportion of space alone that a day's consumption of wood would bear to a day's consumption of coal?—I can only state generally, that it requires three times the weight of wood to produce the same effect as coal.

885. You were speaking of the comparative advantages of river and sea navigation; would not the boilers last longer by supplying them always with fresh water?—They would, and that would be an advantage in favor of the river.

886. Are you aware of the improvement introduced into some steam vessels, to condense the steam in the pipes, without admitting the jet of water into the aperture?—I am.

887. If this were adopted and found efficacious, you would not use the salt water at all, neither for condensing nor for the boilers, would you?—No, I should not.

888. Do you think it likely that this will be brought to perfection?—I do not know; if it succeeds it will be a very great advantage.

889. Is the salt water more or less injurious to copper or to iron?—It is much less injurious to copper than to iron.

890. Is it in comparison with fresh water?—Yes.

891. If that plan which is now trying be carried into execution, will that diminish the burthen of the engine itself in the vessel?—No, it rather increases it; but it promises to reduce the quantity of coal.

892. That you find to be one of the effects to arise from the improvement, do you?—Yes, I think that would follow.

893. It would get rid of the condenser, would it?—No, it requires a larger condenser.

894. You mentioned that, as applied to sea voyages, copper would last about seven years, whereas iron would last only about four years; what would be the proportion in fresh water?—In fresh water, for steam navigation, the boilers last about seven years.

895. The iron boilers are you speaking of?—Yes; copper boilers are not used in fresh water; there is no inducement to use copper boilers in fresh water, because iron lasts so long.

896. Are copper boilers used in salt water?—Yes.

898. In preferring copper boilers to iron ones for salt water, do you make an allowance for the difference of the tenacity in copper, and the different temperature in the boiler; that copper diminishes in tenacity as heat is applied, and iron does not?—We find no difference in that respect; the copper and the iron are of the same thickness, and the question turns entirely upon their durability.

OPENING OF THE RAILROAD.—Yesterday was a great day on the new Railroad between Baltimore and Washington, being the first day of its being opened for travel all the way from the depot at Baltimore to the foot of Capitol Hill in this city.

It was a glorious sight to see four trains of cars, with each its engine, extending altogether several hundreds yards in length, making their entry by this

new route, to the delight of thousands of spectators on the elevated grounds directly north of the Capitol. These cars, besides bringing back our own Mayor and Members of the Corporation, and City Guests, who went out to meet them, brought as many Ladies and Gentlemen of Baltimore as made up the whole number of about a thousand persons carried by the cars. These, accompanied by two bands of Music, after debarking, marched in procession to Gadsby's and Brown's Hotels, at both of which sumptuous and bounteous entertainment was provided, and liberally partaken of. The cars arrived at a little before one o'clock, and at four our friends from Baltimore re-embarked, and returned to their homes, without, we trust, any accident or other inconvenience than what was occasioned by the dust on the roads and streets.—[National Intelligencer.]

[From the Jersey City Gazette.]

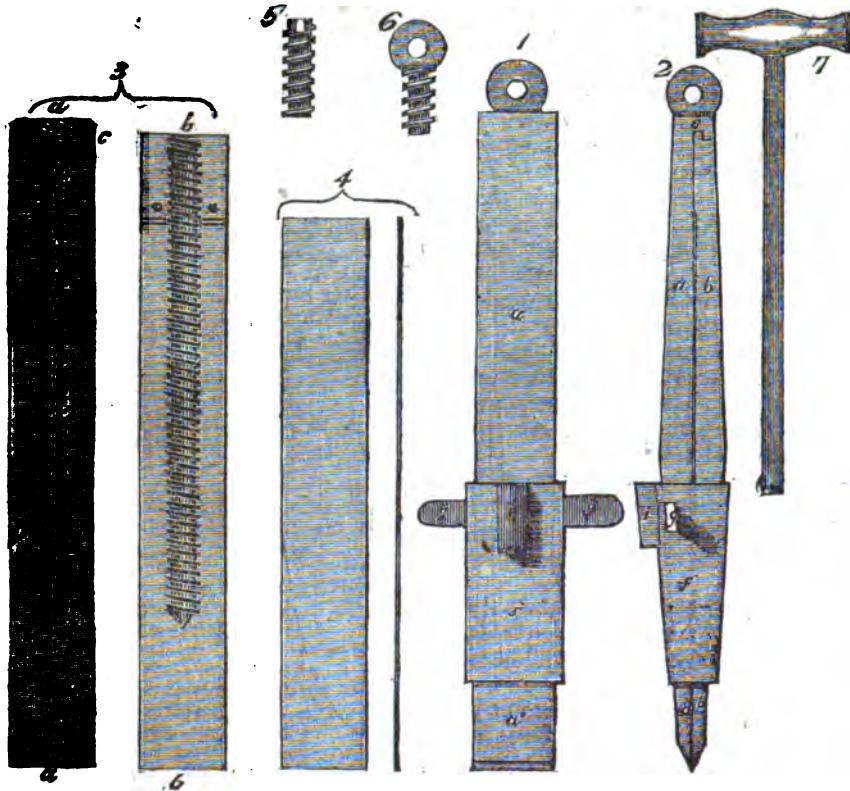
An important case is about to be brought before the Chancellor of this State for his decision, which is deeply interesting, not only to the parties concerned, but to the travelling public generally. An information and bill have been filed in chancery, by the Attorney General and certain relators therein named, against the Trenton and New Brunswick Turnpike and the Trenton and Philadelphia Railroad Companies, praying an injunction to restrain them from converting the straight turnpike into a railroad. The Trenton Emporium says:—"The relators are large landholders along the line of the turnpike, and stockholders in the turnpike company. The injury to them, of which they complain, is—on the part of the landholders, that they sold, and the turnpike company became possessed of, the lands used in making the turnpike, for the purposes of a turnpike, as they were known and understood at the time the charter was passed, and for no other purposes whatever—that the construction of a railroad thereon is a departure from the plain terms on which the lands were sold to the company, as well as a violation of the provisions of the act incorporating the company—that this departure from the original terms and provisions under which the road was made, will seriously affect public rights, inasmuch as the turnpike is, and ought to be, a public highway, free and safe for vehicles of all descriptions, which cannot be the case if it should be converted into a railroad. On the part of the complaining stockholders, it is alleged, that the directors are squandering the money of the company for objects never contemplated by the charter—that no dividends have been paid for two years past, but that all the resources of the company are appropriated to the digging of ditches, quarrying, embanking, and laying wooden rails, to the manifest injury of the road as a turnpike, and without any sufficient authority for so doing. These are the principal facts complained of.

The legal points in the case are raised in the bill, by alleging that the monopoly are doing these things under the pretence that the principles laid down by Kent, and Webster in his first opinion, are true; the contrary of which is held by the attorney general in behalf of the state and the relators, who charge, in substance, that the legal doctrines as laid down in the irrefutable opinion of the late chancellor Williamson, are true, and ought to be sustained by the court.

"To the bill is annexed the usual affidavits by the relators, of the truth of the facts stated, accompanied by affidavits of indifferent individuals, of the digging of ditches, quarries, raising embankments, &c., in the turnpike, and that about one thousand feet of wooden rails ready for shoeing, have been laid.

"It is expected that the Chancellor will appoint an early day for hearing the argument, and that prompt justice will be done both parties."

We stated a few weeks since that twelve suits had been brought by the Philadelphia and Trenton Rail Road Company against the Trenton Delaware Bridge Company, to exact twelve several penalties, of thirty dollars each, for demanding a higher rate of toll for passing the Delaware Bridge, than they are authorized to demand by their charter—viz: for charging 62 1-2 cents for a coach drawn by two horses, when their charter only authorizes them to demand 50 cents. We now learn from the Trenton Argus, that these suits were tried last week, and judgment in each were rendered for the plaintiff. There are other suits now pending against the company, and it is said more are about to be commenced.



[From the Repertory of Patent Inventions, &c.]
Specification of the Patent granted to JOHN SMITH, for a certain Improvement on Chisels or Instruments for cutting or dressing Stone, and certain other Substances. Sealed December 23, 1834.

In ordinary millstone chisels, and also in chisels for cutting, dressing, or working other stone, and also for dressing cast iron, it is well known that the cutting edges quickly become worn, and consequently constantly require sharpening, which operation is performed by heating the same and forging such cutting edges to the degree of sharpness required; the operation of tempering is then to be performed; all which requires much time and judgment, and in places distant from a forge becomes a matter of considerable consequence. Now, the object of my invention is to use a thin plate of steel, properly tempered, which being supported on either side by cheeks, such steel plate, (as it becomes worn,) being capable of movement in order that a sufficient quantity for the cutting edge shall project beyond the ends of the cheeks, yet such thin steel plate, when in use, is rigidly held between the two cheeks, and prevented receding from its work by a screw, whereby the whole, when combined, will produce a strong and highly useful chisel, as will be hereafter more clearly described.

Fig. 1 represents the side view of a chisel constructed according to my invention.

Fig. 2 an edge view thereof.

Fig. 3 represents the two cheeks, which I usually construct of iron and case-hardened them.

Fig. 4 is a flat view, and also an edge view of the thin steel plate which constantly supplies a cutting edge to the chisel.

Fig. 5 is a short male screw which fits the female screw formed in the cheeks of the chisel.

Fig. 6 is a small screw, with a ball or knob at the top, which screws into the upper part of the chisel when the same is intended to be used with a mallet. And it may be desirable here to remark, that when the chisel is used for dressing millstones it is affixed in a wooden handle similar to those used for ordinary chisels.

Fig. 7 is a hammer for driving the socket and also the wedge or cotter hereafter mentioned; and on the end of the handle is formed a key for screwing up the internal screw, fig. 5, in order to press forward and support the steel blade as it becomes worn.

Having thus generally referred to the figures in the drawing, the construction of the parts there shown will be evident to any competent workmen, I will enter shortly into the manner of putting the same together, first observing that in each of the figures shown in the drawing the same letters of reference indicate similar parts. *a* and *b* are the two cheeks which constitute the main frame of the chisel; these cheeks go together by means of the mortice, *c*, and the studs, *e, e*, which latter into recesses formed in the cheek, *b*, as will be evident on inspecting the various figures. The thin steel plate is next inserted between the two cheeks, *a* and *b*, the socket, *f*, is then to be placed on the end of the cheeks of the chisel, which being wedge form, the driving up of the socket will cause the same to bind more closely on the steel plate between them, and hold the same rigidly, and thus prevent lateral spring. It should be remarked, that on the cheek, *a*, is formed a groove, and in the socket, *f*, are two openings through which the wedge or cotter, *g*, is inserted and driven, by which the whole

of the parts are securely held together. The screw, fig. 5, is to be screwed up within the female screw, in order to press against the other end of the steel plate, to assist in preventing its receding from its work. In using a chisel so constructed, the steel plate which constitutes the cutting edge will only require occasionally to be rubbed or ground on a stone in order to improve the sharpness, and as the same becomes worn away, in order to project a further quantity beyond the end of the cheeks, *a, b*, it will only be necessary to remove the wedge or cotter, *g*, and slide down the socket by giving it a few blows on the knob, *i*, the screw, fig. 5, may then be screwed up by the key on the handle of the hammer (fig. 7), which will project a further quantity of the steel plate below the ends of the cheeks, and such will be the case till the screw, fig. 5, arrives at the end of the female screw, when there will require a fresh steel plate to be inserted. At each time of projecting the steel plate the socket is again to be driven up, and the cotter or wedge inserted as before described.

Having thus described the nature of my invention, and the manner of carrying the same into effect, I would have it understood that I do not claim any of the parts separately of which the same is composed, but I do hereby declare that I confine my claim of invention to the combining of the various parts as above described into a chisel for cutting or dressing stone, and certain other substances, whereby I am enabled to use a thin plate of steel as the cutting edge, which may from time to time, as it becomes worn, be projected forward and offer fresh quantities for use, and yet, when in use, be rigidly held between the two cheeks, and prevented receding by the male screw, as above described.

Enrolled Feb. 23, 1835.

[From the London Mechanics' Magazine.]

HUNTER'S STONE-PLANING MACHINE.

In March last, a patent was granted to Mr. James Hunter, of Leys Mill, Arroboth, "for certain improvements in the art of cutting, or what is commonly called facing and dressing certain kinds of stone." The specification of Mr. Hunter's method has not yet been enrolled; but from a Report, with a copy of which we have been favored, made to the proprietor of the Leys Mill Quarries, (W. F. L. Carnegie, Esq.,) by Messrs. Carmichael and Kerr, engineers, of Dundee, who were invited to see the method in actual operation at these quarries, and to verify the results, it appears to be immensely superior to any other hitherto devised. Mr. Hunter has seemingly realized that great desideratum, a power-machine for the cutting and dressing of stone, capable of withstanding the extraordinary friction to which it must necessarily be subjected. The despatch with which immense blocks of stone are cut up and dressed, by Mr. Hunter's apparatus, is prodigious; yet the cost of tools is next to nothing—"only a half-pennyworth of steel for every hundred feet of planed surface!"

Report of Mr. Charles Carmichael and Mr. John Kerr, Engineers, Dundee, on the power of Mr. James Hunter's Stone-planing Machine.

Sir,—Agreeably to your desire, we have visited Leys Mill Quarries, and attended minutely to the performance of the stone-planing machines. These machines do their work most effectually, as the following experiments, which we witnessed, will testify.

Experiment First.

We went to one of the machines that had six stones laid on the bench, one of which was planed, and the second begun to be operated upon; while this was doing, we took the dimensions of the other four stones, viz.:

Number of Stones.	Length of Stones.	Breadth of Stones.	Thickness of Stones.	Finished Thickness.	Quantity taken off.
1	5 3	2 6	3 1/2	2 1/2	1 1/2
2	5 0	2 8	3	2 1/2	5/8
3	5 6	2 6	6	4 1/2	1 1/2
4	4 0	2 3	4	2 1/2	1 1/2

The average thicknesses of the above stones are given, but many parts of them were much more than the thickness stated. One of the broad finishing tools was blunted ere the experiment began, and was changed when No. 2 was in the operation of being planed. No. 3 was a very hard stone, and was what is technically called yolk, in planing which one of the roughing tools broke at the point; still it wrought out the stone, and was then replaced. A splinter came off the face of the last stone, when about half finished, which was another cause of delay, as they had to go over it again; but, notwithstanding the delay occasioned by the breaking of one tool, by another being changed, and by having to go over the one half of the last stone twice, yet the time altogether was forty-five minutes, being at the rate of sixty-five superficial feet per hour.

Experiment Second (same machine.)

Five stones were now put on the planing machine, of the following dimensions, viz.:

Number of Stones.	Length of Stones.	Breadth of Stones.	Thickness of Stones.	Finished Thickness.	Quantity taken off.
1	4 3	2 2	4 1/2	2 1/2	2
2	3 9	1 10	4 1/2	3 1/2	1 1/2
3	3 4	2 8	6	4	2
4	3 6	2 0	6 1/2	4 1/2	1 1/2
5	3 8	3 6	5 1/2	4 1/2	1

These stones were planed in forty-two minutes.

The above stones were taken from the quarries without selection, and the men that were working the machine were not informed of the object of our visit. Experiment first began at half-past twelve o'clock, noon, and experiment second was concluded at nine minutes past two; thus leaving twelve minutes for cleaning and reloading the bench of the machine. Had all the stones been 5 1/2 feet long, they would have been planed in exactly the same time, for the machine travels the distance for that length; so that nearly sixty-seven feet of surface would have been planed in forty-two minutes.

The stones, as they come from the

machine, are remarkably smooth and straight on the face; and were it not for the shade left by the tools, we would be apt to think them polished, as they feel as smooth as a polished stone.

We were told by the foreman, that during the last week there was planed* 4,400 superficial feet, more than half of which was planed on both sides, (indeed more than half of all the stone that leave the quarry are planed on both sides,) by four machines. We saw the pay-list for the week: the amount was £6 1 6

Add blacksmith for dressing and grinding tools, 12 0

£6 13 6

We were further informed by the manager, that during the last summer there were upwards of 100,000 feet of pavement planed by four machines; and there was one thing that struck us most forcibly, which is the small degree of wear on the tools. Three shillings a week, or sixpence per day, is the cost of the labor for dressing and grinding the tools of one machine; and the whole consumption of steel during the last year was under a hundred weight, so that, if we measure both sides of those stones that were actually planed on the two sides, it will be seen a pound of steel will plane 1,500 feet, or about a half-pennyworth of steel for every 100 feet of planed surfaces.

There are now five machines working in the quarry, wrought by a steam engine of six-horse power, the steam cylinder of which is sixteen inches diameter, stroke two feet. Besides the machines, the engine has to work two inclined planes, one of which is for dragging up the pavement from the quarry to the machines; the distance on the incline 48 feet, ascent 1 foot in 5; average quantity about thirty tons per day of ten hours.

The second incline is for dragging up the rubbish from the quarry to the place where it is deposited; distance 87 feet, ascent 1 foot in 4; quantity from 50 to 60 tons per day of ten hours.

The above shows what the engine is actually doing; and we have no hesitation in saying that the engine would work eight machines besides the inclines without being overloaded; and our opinion is that a machine, on the average, is not much more than one-half-horse power.

We are, Sir, your most obt's serv'ts,

C. CARMICHAEL,
JOHN KERR.

To W. F. L. Carnegie, Esq., Kimblethmont, Arbroath.

Note by Mr. Carnegie.

To explain the difference which is apparent between the quantities of planed stone, which, according to the statement of the engineers, might be produced in a given time by the machines, and the quantity stated to them as in one week actually sent to market, it is necessary to remark,—1st, That it is found in practice to be cheaper to dress the stones by the machine in the rough state and shapeless form in which they are taken from the quarry, and to square them by hand

* See subjoined Note by Mr. Carnegie, on this point.

afterwards, than to follow the opposite course, as is done where the whole work has to be performed by hand; thus a great quantity of work measured by the engineers, but not available in the market, is nearly lost. 2d, A considerable quantity is required to be dressed over twice on one side, or on both sides, according to circumstances; thus the stones, No. 3, in Exp. 1, and Nos. 2, 3, 4, 5, in Exp. 2, being too thick, were redressed on the under side to suit the market. 3d, The quarry does not always afford stones of a size to fill the benches, when much power is lost, as the machine has to traverse the whole width. 4th, Other circumstances, (such as bad weather, &c. &c.) which will readily present themselves to the minds of those conversant in these matters, always occur to prevent general results from attaining the extreme limit, which may be calculated as possible from the data of a short experiment. Mr. L. C. having been present, can confidently testify as to the correctness and impartiality with which these experiments were conducted, and to the truth of the information furnished to the engineers, by those in his employment.

[From the Journal of the Franklin Institute.]

Abstract of the Specification of a Patent for a Machine for Moulding Bricks.

Granted to WILLIAM C. GRIMES, of York, in the county of York, in the State of Pennsylvania, Dec. 2d, 1834.

This machine is constructed upon the following general principles. A wheel is affixed horizontally to, and revolves with, an upright shaft, the latter being properly supported above and below by a suitable step and box, in which its gudgeons turn. The moulds in which the bricks are to be formed are placed around and upon the face, or upper side, of the wheel, near its periphery; these may stand in the direction of radii from the centre of the wheel, or otherwise. Two or more moulds may be united or connected together. A hopper, or trough, of sufficient capacity, is placed in an inclined position, with its lower end over one or more of the moulds at a time, as they pass under it. This hopper is to contain the tempered clay of which the bricks are to be made, and though that part of the bottom of it which projects over the mould, or moulds, an opening, or openings, are made of the length and width of a brick, through which the clay is to descend into the moulds. The motion of the wheels is not to be continuous, but intermitting; while it is at rest, a mould is immediately beneath the opening in the bottom of the hopper, or trough, and the clay is then forced by a piston down into it; the piston then rises, and the wheel moves, and the moulds are thus filled in succession. As the filled moulds pass round upon the wheel, they are removed, and replaced by empty ones.

It is manifest that two or more moulds may be filled at the same time, by the use of two or more openings and pistons, and the employment of such other devices as may thereby be rendered ne-

cessary, sufficient power being applied for that purpose.

The number of moulds will depend upon the diameter of the wheel, which will admit of considerable variation, but from four to six feet I think the most convenient.

The moulds must be slightly attached to the face of the wheel, which may be done in various ways, the following being among the best. From the under side of the moulds project two dowel pins, which fit into corresponding holes in the face of the wheel, by which means the moulds are kept from any lateral or horizontal movement. The dowel pins should be short, so that the moulds may be readily disengaged from the wheel. The holes for the pins, or dowels, in the face of the wheel, should be pierced through it, so as to prevent them from being filled, or choked with dirt, &c.

Two or more moulds may be united in one frame, as is usual in brick moulds. The frames of the moulds are inclined from each other, like key-stones, so as to stand as radii from the centre of the wheel, thus forming the proper arch or curvature around the wheel, and their upper surfaces should form a true plane. Each frame of moulds has a thin plate, or board, which is equal in length and breadth to its corresponding frame, and forms the bottom or bed of the moulds. The aforesaid dowel pins pass loosely through holes made for the purpose in this plate; the latter not being otherwise fastened to the moulds, its use will be apparent to any one acquainted with the usual mode of moulding bricks.

The machine may receive its motion by a strap, carried around the fly-wheel, and over a drum, or pulley, which last may be driven by any competent power; or the machine may receive its motion by a crank attached to the fly-wheel shaft, or in any other convenient mode.

I do not mean to confine myself to the particular form or arrangement of the parts as before specified, but to vary them as experience or convenience may dictate, whilst the general principle remains unchanged.

What I claim as new, and as my invention, and for which I ask letters patent, is, 1st. The moulding of brick upon, or in moulds upon, the face of a revolving horizontal wheel, disk, or rim, constructed and acting upon the principle herein specified.

2d. The manner of forcing the clay into the moulds, by the combined action of a feeder and piston.

3d. The general construction and combination of the respective parts of the above described machine, from which general combination it derives that character by which it will be readily distinguished, by any competent machinist, from the various machines for moulding bricks already in use.

And I do hereby declare that I do not intend to claim as my invention, the piston, cranks, hopper, or any other part of the said machine, taken separately and individually, as these may constitute the

elements of other machines; but, as aforesaid, the construction and combination of these parts upon the principle by me devised, and herein fully exemplified.

WILLIAM C. GRIMES.

The foregoing comprises about one-half of the specification, the remainder generally referring to the drawings. The same remark will apply to the next patent, and also to those for making nails. The machines manifest much ingenuity, and an account of their performance, when completed, has been promised, which, if satisfactory, will appear in the Journal. —[Ed. J. F. I.]

Abstract of the Specification of a Patent for a Machine for Pressing Bricks.

Granted to WILLIAM C. GRIMES, of York, York county, Pennsylvania, December 2d, 1834.

The general principle of the construction and operation of this machine is briefly as follows.

Upon a vertical shaft, or spindle, is fixed a wheel, disk, or rim, of sufficient size, which is to revolve horizontally. In the upper face of this wheel are a number of holes, or mortises, which are the moulds in which the bricks are to be pressed. The bottoms of these moulds are not a fixed portion of the moulding wheel, but are the upper faces of movable pistons, that slide up and down in the moulds, as the wheel revolves. The rods, or posts, which support and guide the pistons, descending vertically from them. The lower ends of the piston rods, or posts, slide round as the wheel revolves, upon a circular horizontal platform, or rim, or rather upon two platforms, one-half of the circle, or thereabouts, being elevated above the other about two or three inches. When the pistons rest upon this elevated portion of the circular rim, or platform, their upper faces are flush with, or above, the upper surface of the wheel; hence the bricks which have been pressed, being thus raised, can be removed with facility; while upon the opposite side of the wheel, the pistons upon the lower portions of the rim have their upper surfaces sunk down within the moulds, leaving cavities into which the bricks are dropped, as the pistons are depressed, the motion of the wheel, which is intermitting, not being too rapid for that purpose.

Just before the pistons rise on to the elevated portion of the circular rim, they pass under the short end of a strong iron lever, which projects over the face of the horizontal moulding wheel, far enough to cover the moulds as they pass under it. The lever receives a continuous motion from a crank and shackle bar, the latter being jointed to the opposite, or long end, of the lever. The crank is regulated and assisted by a heavy fly-wheel, in passing that point in which there is the greatest resistance to its motion.

While a brick is being pressed by the short end of the lever, the moulding wheel is at rest, as it receives its motion by a pall, or movable hand, that has a vibratory or reciprocating motion, which it receives

from a crank fixed for that purpose on to the end of the fly-wheel shaft.

The horizontal moulding wheel may be of iron, and cast in one entire piece, of such thickness as may be necessary to its strength, the requisite depth of the moulds being formed by a flanch, rim, or projection, standing out upon the face of the wheel, the said rim, or flanch, making the sides and ends of the moulds. The moulds being in a circle, are placed as near to the periphery of the wheel as a proper thickness of metal will allow; the inner ends of the moulds may approach very near to each other, leaving only sufficient strength of metal between them; hence it may be seen that the number of moulds in the face of the wheel will depend entirely upon its diameter, which may be very much varied, but from three to six feet I think the most suitable.

The moulding wheel, pistons, horizontal rim, and fly-wheel, should consist of cast iron, and, in fact, the whole machine should be made of metal.

Motion may be given to the machine by a strap, carried round the fly-wheel, or by the crank attached to the end of the fly-wheel shaft, which may project beyond its bearing for that purpose.

I do not mean to confine myself to the particular form and arrangement of the parts as before specified, but to vary them as experience or convenience may dictate, whilst the general principle remains unchanged.

What I claim as new, and as my invention, in the above described machine for pressing brick, and for which I ask letters patent, is—

1st. The revolving horizontal wheel of moulds, constructed in the manner, or upon the principle, herein described, in which the processes of putting in, pressing, and removing the bricks from the moulds, are all done at one and the same time.

2d. I also claim the revolving pistons, as connected with the revolving moulds, and operating in the manner, or upon the principle, set forth in the foregoing specification.

3d. I also claim the employment of the stationary rim with a double platform, for raising and depressing the pistons, as before described.

4th. I also claim the scolloped rim, or flanch, for the purposes hereinbefore set forth.

5th. I also claim the pressing of brick by means of a lever, operating, and operated upon, as herein shown.

6th. I also claim the general construction and combination of the respective parts of the above described machine, from which general combination it derives that character by which any competent machinist will readily distinguish it from any of the brick pressing machines previously in use. But I do not claim the pistons, fly-wheel, shafts, or any other part, taken individually, as these may constitute the elements of other machines; but, as aforesaid, the construction and combination of these parts upon the principle by me devised, and herein fully exemplified.

WILLIAM C. GRIMES.

AGRICULTURE, &c.

[From the Maine Farmer.]

NORTHERN SHEPHERD.—The book lately published by the Kennebec County Agricultural Society, with this title, contains much valuable matter, and particularly in those parts of it which treat of the management and diseases of sheep, with the cures of the same.

As this work is before the public under the authority of the Agricultural Society, whatever it contains, which may tend to misdirect public opinion, should be corrected. The intention of the subscriber is to confine himself to the correction of a very mistaken view of the Dishley breed of sheep, compared with the Merino breed.

The Dishley breed of sheep has been introduced into this country at a great expense, and has been highly approved of in Pennsylvania and Massachusetts, and should not therefore be hastily condemned.

With due deference to those of the Committee who prepared this comparison, it does appear from the Vote of the Society, that its object was (through its Committee) to ascertain "*the best breeds of sheep and the mode of improving them.*" Would it not then have been better, and more consistent with this vote, to have described the character and qualities of each breed noticed, and to have left it to the judgment of individuals to make their own selection. The course the Committee have taken tends to depreciate a breed of sheep in high estimation in the first agricultural country in the world, and to check important experiments which might prove beneficial to this country. It is very remarkable that the British depend almost entirely on the importation of Merino wool for the manufacture of the finest broadcloths, and give their attention to other breeds which are more profitable.

It is well known that the rage for Merino sheep had nearly swept the country of what was called the "native or common breed." Aware of the consequences, the subscriber pursued a course that would secure to the farmers a breed better suited for domestic use than the Merino.

Having previously sold his Merino flock, he bought of Col. Jacques, of Charlestown, a ram and ewe lamb of the Dishley breed, with long and fine wool, and selected twenty ewes of the Merino breed, intending by this cross to improve the shape and constitution of the Merino breed of sheep, and add to the fineness of the wool of the Dishley.

The following facts will show what benefits have been derived from this cross, and will prove that the Merino breed of sheep will not compare with the Dishley for profits, notwithstanding the Merino wool is finer.

In comparing the few sales of the Dishley and its cross, with the prices of the well washed Merino wool, there is no great difference.

Col. Green, of Winslow, had an offer of 55 cts. per lb. for the wool of his pure flock.

In 1831, the wool from this cross was

sold for 60 cents, when well washed Merino wool sold from 60 to 65 cents.

The purchase of such wool by Mr. S. C. Whittier averaged 62½.

In 1833, from the same flock with the sales of 1831, the wool was sold for 41½ cents per lb., and well washed Merino wool on the sheep's back sold for 45½ cents at the same date.

Thus far the value. It is proposed now to furnish the evidence of the greater quantity of wool from the Dishley and the cross of it, than from the Merino.

Col. Reuben Green had a Dishley buck weighing, in health, 300 lbs., which gave of wool at one shearing 8 lbs.; 3 ewes gave 18 lbs.

Joseph Pillsbury, Esq., on the Thorndike farm in Jackson, has under his care 1000 sheep, whole or in part Saxon, which on the average yield to the fleece 3 lbs.

Dr. Bates, of Norridgwood, has a flock of 52 Merino and some half blood Saxon and Merino. The average weight of a fleece, 3½ lbs.

Mr. Allen Lambard, of Augusta, has a flock of 130 Merinos, part Saxon. The average weight of a fleece in his flock, 3 lbs.

Mr. Moses Taber has a flock of Merinos mixed with the Saxon. Before he had a buck of the mixed breed he has sheared from rams of the Saxon breed from 6 to 10 lbs.; no average of his flock.

Mr. S. C. Whittier has made extensive purchases of Merino wool, and the average of the fleeces, well washed on the sheep's back, does not exceed 2½ lbs.

Dutchess County, New-York. This county furnishes the largest quantity of the best quality of Merino wool. From a source that may be relied on, in very extensive sales, the average weight of a fleece of well washed wool on the sheep's back does not exceed 2½ lbs, with a loss in cleansing of about 30 per cent.

The Northern Shepherd, page 128, states the average weight of Merino fleeces at 3½ lbs.

This weight of 3½ lbs. as an average, exceeds the weights stated from various sources, and ought not to be considered as the average to be used in the comparison between the Merino and the Dishley with its cross. It is not intended to dispute the fact, that the writer of the note had himself or knew of some sheep that gave this average weight of 3½ lbs., but it is a well known fact that weight may be added to a fleece, through an increase of yolk, by leaving the sheep 15 or 20 days after washing before they are sheared. This will at once account for the excess in weight over all other flocks mentioned. However this may serve the sellers, it is surely injurious to the purchaser, who has to cleanse the wool (of the yolk) before it is manufactured, at a loss of 30 per cent.

It will be fair to consider the 2½ as the fair average, it being the result of extensive purchases made by one individual in our county, and is proper to use in the comparison. The weight of the average, after well washing and without cleansing, is per fleece 2½.

Of the mixed breed the following facts

are furnished. Mr. R. C. Rogers, of Ripley, Somerset county, had a buck of this breed about 6 years since. For 6 years the fleece averaged per annum 7 lbs. At the time he took this buck, his flock yielded 2½ lbs. on the average, and the average now is 4 lbs.

David Webster, of Rome, had a buck of this breed in 1830. The fleece, after it was well washed, weighed 7½ lbs. In 1833, after the fleeces were washed, the average weight of the same was 4 lbs.

Edmund Parker, of Norridgwood, had a buck of this breed in 1830—no weight of fleece. In 1831, 11 lambs were selected, which were sheared August 4, 1831—weight of wool 21 lbs. 14 oz.

In 1832, at the usual time of shearing, and after they were well washed, an average fleece was taken, and its weight was 5 lbs.

4 bucks were sent to Dover, Penobscot county. Several of the fleeces of the lambs, from this cross with the common sheep, after washing weighed 6 lbs. and a Saxon lamb 6½.

Col. R. Green, of Winslow, from 6 half blood lambs had 38½ lbs.

Mr. Moses Taber's largest fleeces from this mixed Merino 6 lbs. From wethers of the same cross from 4 to 5 lbs. It should be noticed here that the wool of this breed, when well washed, is fit for the manufacturer without cleansing.

The result of the preceding is, that the fair average of the Merino fleece is 2½ lbs. The fair weight of bucks of the mixed breed is 7 lbs. The average may be about 6 lbs.

The average of fleeces from this mixed breed with the Merino and common sheep is from 4 to 5 lbs.

The public must decide how far the wool of the mixed breed exceeds in weight the wool of the Merino, and whether the small difference in value in favor of the Merino wool will make up the great difference of weight in favor of the mixed breed.

Mutton. The mutton from the Merino sheep is in no estimation. The lambs and wethers of the mixed breed afford the best meat that has been in the market.

Mr. Joseph Howland killed a wether, the 4 quarters weighed 76 lbs. and in his opinion it was the best of mutton.

The subscriber killed a wether, the 4 quarters weighed 60 lbs. The flesh was marbled with fat, and as well mixed as in a fat ox. I sold a hind quarter for 8 cents per lb. which was pronounced by the best judges, who partook of it, the best they ever tasted—juicy and high flavored.

This article, already lengthy, would be too long if further details were furnished from communications on hand. It may however be stated, from the experience of those who have the mixed, that the ewes are better mothers, will keep in better order on coarse food in winter and in poorer pastures in summer. That they have a remarkable disposition to fatten, and to have this fat in the fleshy parts, and that the lambs are fat and well grown early in the season.

As the Committee have omitted; to

notice the qualities that constitute a perfect sheep, and which notice would have been useful to the farmer in the choice of his flock, the subscriber, for the farmer's benefit, offers two extracts, one from a valuable English work, entitled "The Complete System of Husbandry," by R. W. Dickinson, M. D., in 2 volumes quarto. The other is taken from a communication made to the Pennsylvania Agricultural Society, entitled "Hints for American Husbandmen," &c. The first of these gives a decided preference to the Dishley breed of sheep over all other long woolled sheep. There is a table giving the comparative value of 16 different breeds of sheep. No. 1 is the Dishley—No. 16 is the Merino or Spanish,—and the latter is the only breed in the list where there is no estimate made of it for mutton. A two year old wether gave 8 lbs. of wool, and the four quarters weighed 100 lbs. The extract follows:

"The advantage of this Dishley breed consists in its producing a better profit to farmers, *in proportion to the quantity of food consumed*, than most others; in being *more perfectly formed*, and consequently *more disposed to fat quickly*; in containing *a much larger proportion of meat to the weight of bone*; in thriving well on such pastures as would not support other sorts of the same size; in being capable of being kept or fattened in larger proportion to the acre than other breeds of the same size of carcass; in the wool being more valuable, though less in quantity, than the other combing woolled sheep, such as Lincoln and Teeswater; in being *ready for the butcher in the early part of Spring instead of the Autumn*. They usually have their lambs in proportion of $\frac{1}{2}$ of the ewes; to which may be added, they are *peaceable feeders* in summer, and *heartly feeders* without waste of food in winter."

An extract from the "Hints for Husbandmen," &c.: "There is no mistake more prevalent, and more egregious, than that which ascribes excellence to *great size*. Unless it be had *easily* and at comparatively small expense, large size does not more determine the extent of usefulness in the quadruped than in the man. Weight is not always ascertained by size—it is ascertained more by compactness and squareness in certain parts, with rotundity of the barrel, than by mere extension of the frame. If the hind quarters be *long, deep and wide*—the shoulders be *placed well back*—the *breast be ample*—the brisket be *protruded*—the back be *broad*—the *loins wide*—the *girth behind the fore legs and over the chine be large*,—the animal must possess not merely the *frame which weighs most*, but the form which carries most weight in the valuable parts, and affording sufficient room for the action of the lungs; without which, health and thrift can be seldom found. Some animals have good forms, but are "shelly," as it is technically termed, conveying the idea of the absence of the due quantity of flesh. Some breeds produce too much fat in proportion to flesh; those which carry comparatively a large quantity of flesh "*marbled when ripe*," with the propensity to become fat *at an early age*, and in the shortest time, are those best

fitted for grazing purposes. The quantity and quality of the wool is a matter of serious importance, when the value of sheep is to be determined. I do not mean by quality, the fineness of the fibre alone, nor do I mean to confine the remark to sheep whose wool is of the finest sort. The filaments of combing wool should part readily—those of fine wool should be *soft and elastic*, as if it had been frizzled. The mere fineness of the fibre, or length of the staple, is not the only test of excellence: a diseased or half starved sheep produces fine wool, but not an elastic nor useful material. The sheep which produce the finest fleeces are not *necessarily* the best to form a *breeding flock*. If their constitutions be not good, if *their forms be bad*, the secretion of yolk, which is essential for the support of the fleece, must be small; the offspring, consequently, will be a degenerate race. Thus in selecting Merinos, regard should be given to their forms, even in those parts of the country where the demand for the carcass is so small as to make mutton of little value."

I believe it was in 1831 that Mr. Sanford Howard bought some ewes, making his "selection for the carcass, and not for the fleece. With the exception of one, they had very little Merino with them, and the fleeces did not weigh more on an average than 3 lbs." These ewes were crossed with Col. Green's Dishley buck the past season and with mine since. The result follows:

1 3 year old ewe,	$\frac{1}{2}$ blood, from C. Green:	54
1 2 do. wether,	$\frac{1}{2}$ do. C. V.	5
1 1 do. ewe,	$\frac{1}{2}$ do.	44
1 1 do. buck,	$\frac{1}{2}$ do.	44
1 2 do. ewe,	$\frac{1}{2}$ do.	44
1 1 do. wether,	$\frac{1}{2}$ do.	54
1 1 do. buck,	$\frac{1}{2}$ do.	44

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or 4 lbs. 124 oz. to the fleece on the average.

The 3 year old $\frac{1}{2}$ Dishley gave 184 of wool in three years. Mr. Roach's communication is a valuable article, and fixes the value of the South Down sheep.

Yours, CH'S. VAUGHAN.

[From the Cultivator.]

THE GOOSEBERRY is among our choicest garden fruits, and is one of the earliest species which is fit for the table. But in many locations it is subject to mildew, which not only blights the fruit, but the anticipations of the cultivator. Mildew, according to Darwin, is a plant of the fungus kind, which vegetates without light, or change of air, in the same manner as the generality of mushrooms; and penetrates with its roots the vessels or plants to which it adheres. Wyllich says it is a topical disease, only to be cured by a topical remedy. We have heard and seen somewhat ourselves of the effects of topical remedies, in which lime, salt, or sulphur, have constituted the preventive or cure of this disease, not only upon the gooseberry, but upon the grape, wheat, &c.

In the grape houses about Boston, and in our own grape house, sulphur is efficaciously employed in its dry state, dusted upon the young fruit, to prevent mildew, or to check it where it has already appeared. Here neither winds or rain oc-

cur to wash or blow it off; and one or two applications suffice for the season. It may be applied out doors in a liquid form, by first mixing the sulphur with milk, with which it incorporates—and then diluting freely with water, sprinkle it upon the leaves and fruit with a white-wash or other brush.

A weak brine, or salt, scattered about the roots of the gooseberry and grape, in May, is said to operate as a preventive. Before we were aware of it, we perceived our gooseberry crop affected with mildew, when the fruit was about the size of peas. We immediately applied a weak brine, and three days afterwards dusted the bushes with lime. The disease was checked, and the berries have continued to swell, and appear healthy. Whether the salt or lime were separately or jointly beneficial, we are unable to say; but the remedy seems to have proved effectual. In the application of either of these substances care must be taken not to apply them in excess, lest they should destroy the plant as well as its parasite. Salt is best applied to vegetation in a liquid form, as it is then more equally distributed. Lord Manners applied it with great success, in the proportion of one ounce of salt to a gallon of water. Two ounces to a gallon proved hurtful to vegetation, but the second year the herbage where it was applied was abundant. All the land on the coast is treated with sea water in China and Hindostan. The utility of salt in preventing or destroying mildew has been announced by the Rev. E. Cartwright, [of London, as a discovery of great importance to agriculture. He declares it to be an absolute remedy for the mildew in wheat. His directions are: take "salt one part, water eight; with this mixture let the diseased grain be sprinkled; in three or four days the mildew will vanish, leaving only a discoloration on the straw where it had dried off. Two hogheads of the mixture will suffice for an acre. The best mode of applying it is with a white-wash brush, having a tin collar, made water tight, to prevent the mixture dripping down the operator's arm, and running to waste. The operator having a pail of the mixture in one hand, with the other dips the brush into it, and makes his regular casts as when sowing broadcast; in this way he will readily go over ten acres a day."

T. A. Stoughtenburgh, Esq., of Johnstown, has an east and a west high tight fence to his garden. His gooseberries on the east fence, he informs us, which do not get the morning sun, have been uniformly free from mildew; while those on the west fence, the soil at both being similar, are covered and spoilt by mildew. This has happened for years. In the compact part of Albany, in the small enclosures, excluded by buildings from the morning sun, the gooseberry is seldom affected with mildew.

THE CURRANT, like the gooseberry, should be in every farmer's garden. The fruit of the red and white varieties is nutritive and pleasant, and affords in

many ways nice dishes for the table. Like the gooseberry it is propagated by cuttings, and requires no great space or labor to make it profitable in the family, and for the market.

Propagation.—Take thrifty, well ripened shoots of the preceding season's growth, and cut them twelve to eighteen inches in length, and if it is desired to make them trees, or to grow them on a single stem, gouge out all the eyes with a sharp knife, except three or four upon the upper extremity, which are destined to form the branches. Cut the lower end square at a bud; it will sooner granulate, and throw out roots; and when planted insert two thirds of the cutting in well dug ground. The cuttings are best when taken off in autumn, soon after the leaves fall. They may be put out then, or, what is better, kept till spring, in a cellar, or buried in the ground. Thus every man may procure cuttings in autumn or winter to be planted in spring. They may be planted where they are to stand, or in a nursery bed, to be removed after one or two years. They may be planted in rows ten feet apart, and four feet in the rows.

The culture consists in digging the ground about the bushes in the spring, keeping down weeds, thinning the wood, and cutting in the long shoots.

The fruit may be used for culinary purposes while green, and in its ripe state is converted into wine, jelly, and is used extensively, in various ways, for the table, with other food, in which forms it is gently laxative, emollient, and sometimes anodyne. The jelly is grateful and cooling in fevers, and no less so as a conserve at table; and the wine affords an excellent summer drink, especially with the addition of water. Directions for making the jelly and wine will be found annexed.

Sorts.—There are two varieties of both red and white, termed the common and Dutch kinds, the latter growing on lower bushes, and affording larger fruit than the common kind. The Champaign is another kind, distinguished principally by its pale color. Mr. K. has produced a sweet kind, not yet introduced into our culture.

"TO MAKE CURRANT JELLY.—Take the juice of red currants, 1 lb.; sugar, 6 oz. Boil down. Or,

Take the juice of red currants and white sugar, equal quantities; stir the mixture gently and smoothly for three hours; put it into glasses, and in three days it will concreate into a firm jelly."

FOR MAKING CURRANT WINE numerous methods have been published. The juice of the currant consists, principally, of water, saccharine matter, and vegetable mucilage. Its conversion into wine is effected by what is termed the vinous and spirituous fermentations, which transform the saccharine matter into alcohol. If the must, or expressed juice, is deficient in saccharine matter, the fermented liquor will be weak and vapid, and run into the acetous, or vinegar, and sometimes into the putrid fermentation. Hence the practice

of adding sugar to the must, to give it body, &c. The more violent the spirituous fermentation, the more the strength of the liquor will be dissipated; and therefore the process should progress as slowly as possible, and under a temperature not exceeding 70°. The vinous and spirituous fermentations not only convert the sugar into spirits, but they separate the mucilage, or yeast, from the liquor, in a great measure, which latter then becomes clear and transparent. If the fermentation, in wine or cider, is checked, by natural or artificial means, before the saccharine matter is converted into spirits, the liquor remains proportionably sweet; but when the conversion is complete, the product is what is termed a dry liquor. If the mucilage is left in the cask after it has performed its office, it is apt to commingle again with the liquor, render it turbid, and induce, under a warm temperature, the acetous fermentation. Hence the practice, in some cases, of conducting the vinous fermentation in open vessels, and of then separating it from the scum and lees; and in other cases, of racking it off, before the action of summer heats upon it. We shall give directions for making wine in both these modes. The first is from the American Philosophical Transactions, and the latter from our friend Judge Patterson, of Columbia, who successfully adopted it for many years. For ourselves, we prefer the latter mode, though we think the brandy superfluous, where 80 lbs. sugar are employed in the fabrication of a barrel.

First mode.—Gather the currants when they are fully ripe, and dry; break them in a tub or vat; then press and measure the juice, to each gallon of which add two gallons of water, and to each gallon of the mixture put 2 1-2 lbs. sugar; agitate the whole till the sugar is dissolved, when it may be barrelled. The juice should not be left to stand during the night, as the fermentation ought not to take place till all the ingredients are compounded. Lay the bung lightly on the hole, to prevent flies, &c., creeping in, and in three weeks bung up, leaving only the vent-hole till it has fully done working, which will be about the latter end of October. Rack into a clean cask the spring following. For a barrel of 28 gallons will be required,

8 gallons currant juice,
16 gallons water,
4 gallons sugar, or 60 lbs.

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Second mode,—in which the vinous fermentation is managed in an open vessel. Pick and press the currants as before, and add two gallons of water to one of juice, and 80 lbs. of sugar to a barrel of 32 gallons. Stir well, and cover the must, in an open vessel, with a linen cloth; place it where the temperature is from 60° to 70°, and next day skim off the impurities which rise to the surface, and stir again the liquor. Repeat the operation as long as the scum rises. Then barrel, rejecting the lees, adding 2 1-2 gallons good brandy, and bung close. No racking is required.

In the last mode the vinous fermentation is completed before barrelling. The spiri-

tuous soon follows, if the temperature remains as high as 60°, and abates in 6 to 12 days.

If the wine becomes foul or ropy, take half an ounce of chalk in powder, half an ounce burnt alum, the white of an egg, and a pint of spring water; beat the whole in a mortar, pour it into the cask, and roll it ten minutes; and as soon as the wine becomes fine, rack it off.

REMARKS.—There is too much apathy among our farmers with respect to fruit. Strange as it may seem, it is no less strange than true, that while fruit affords the greatest profit of any branch of common husbandry, besides the pleasure of enjoying in abundance, as every farmer ought to do, it is a thing almost wholly neglected by common farmers as altogether beneath their notice. Even those who do not entirely neglect it, seem to think they do well if they have a few apple trees, which, without pruning, or any other attention, bear poor apples. Probably more than one half of our farmers never saw a handful of gooseberries in their lives. We think if some of them should visit some garden where they are in plenty, and in perfection, and after regaling with them pretty freely, get a treat of good currant wine, we should soon see them cultivating currants and gooseberries.

NEW-YORK AMERICAN.

AUGUST 22—23, 1835.

EUROPEAN INTELLIGENCE.

LATER FROM EUROPE.—By the packet *Geo. Washington*, Capt. Holdredge, from Liverpool, we have our London papers to the 23d ult. inclusive—and annex the most important extracts.

Among these, that which is least expected, is a statement that the successor of Francis of Austria does not mean to follow in the footsteps of his predecessor—as a member of the Holy Alliance—but to withdraw therefrom. The following is a summary thereof:

Private intelligence, received from Vienna, confirms a report previously spread abroad, to the effect that the Emperor Ferdinand was about to secede from the Holy Alliance. Ferdinand has signified his determination neither to be personally present, nor to be represented, at the great review of the northern powers at Kalisch. In vain have couriers been dispatched to him from Berlin and St. Petersburg, with the most pressing invitations; in vain has Russia pleaded the policy of displaying the power of the imperial and royal confederates, in order to overawe the more liberal governments of western Europe; in vain has Prussia rung the gongs of his august father in his ears, and even included Switzerland in the list of the invited States.—The Emperor excuses himself on the plea of a necessity of attending to the internal affairs of Austria; and he refuses to send the complement of troops, alleging that they cannot be spared without endangering the security of the empire. The King of Prussia has done all in his power to obviate these objections, by offering to reduce the thirty thousand troops, first demanded, to six thousand cavalry, and to change the place of consultation from Kalisch to Toplitz, should Ferdinand prefer the latter as the more convenient place for holding the meditated Congress of Sovereigns. But all will not do; and the other great Powers are now sensible that their policy will not find a champion in the Monarch of Austria.

In the House of Commons, on the 21st July, Sir Robert Peel made a very able speech, on a motion made by him, to divide the Irish Church bill. The object of the motion, was to obtain the separate action of the House on the two main features of the bill—that making arrangements respecting tithes, and that contemplating an alienation of the surplus of the Irish Church property to purposes other than ecclesiastical. The Hon. Baronet is said to have surpassed, in this speech, any of his former efforts. The motion was resisted by ministers—the debate had been adjourned to a third day.

In the House of Commons Mr. F. Burton moved for a Committee of inquiry into the treatment of the aborigines of the British settlements. These were stated by Mr. B. to number five millions! At the Indian Islands and the Cape there were more than one millions of the aborigines. In Australasia, there were from two to three millions, and in New Zealand and other South Sea Islands, not to speak of Van Diemen's land, there were large numbers. These aborigines, from the Hurons of Lower Canada, to the Caffres of the Cape, Mr. B. said, had been treated with desolating severity, by the British occupants: the motion prevailed.

Mr. Ewart obtained a committee "to inquire into the best means of extending a knowledge of the arts, and of the principles of design, among the people, especially among the manufacturing population,—and also to inquire into the Constitution of the Royal Academy, and the effects produced by it." It was admitted on all sides that a knowledge of art was both refining and profitable. Among others,

Dr. Bowring gave his most cordial support to the motion, on the ground that the cultivation of the arts of design had been productive of the most beneficial results in France. In that country art was popular, in England it was aristocratical. In point of fact the French had become *artistic* from habit, and he believed that if this committee were appointed and followed up by practical results, the people of England would soon acquire mechanical aptitude for the fine arts. The works of art were open to all the population of France, and had created in that country what he would call an atmosphere of art. He expected that a similar result would take place in England if schools of design were opened in our large manufacturing towns, as they were in Lyons and other large manufacturing towns of France, for the instruction of the children of our poorer artisans.

The *Morning Chronicle* asserts that the Duke of Cumberland is the person of the "highest rank," alluded to by Mr. Hume in the House of Commons last night, as being, if Mr. Hume's information was correct, liable to impeachment for high crimes and misdemeanors against the State. The Duke is Grand Master of the Orangemen; and the *Chronicle* states that "it was a prevalent rumor in the House that several original 'warrants for lodges' in the various regiments, signed by the Royal Grand Master, have been produced in Committee."

If it shall appear that Orange Clubs really exist to a great extent in the army, it will be an additional reason for disbanding a large portion of it, and remodelling the remainder. It is not consistent with public safety that the Army should continue in its present state. That it is fearfully demoralized, the records of our Police offices prove; but if it is also under a secret party and political organization, there can be no question as to the method of dealing with it which Parliament should adopt.

Until the evidence is published, we shall abstain from making more than one additional remark. If the existence of Military Orange Clubs is proved, Lord Hill, as Commander-in-Chief, must be called to account. If he is cognizant of the formation of such clubs, and has not brought the offenders to trial, his breach of duty will have been extremely gross. If he is not cognizant of them, what are we to think of his vigilance, or of the propriety of continuing him in the command of the Army in these times?

LONDON, July 22.—It appears by the private letters from Amsterdam, that all fears of a renewal of the recent disturbances there had ceased, and that it was generally current that the obnoxious tax, as well as its arrears, will be abandoned by Government. The large standing army kept up in Holland since the insurrection in Belgium has somewhat increased the burthens of the Dutch people, and may be considered as the actual cause of the recent violent proceedings, although from his proximity to the "brave Belges," we do not exactly see how his Majesty the King of Holland could have done otherwise than keep up this force, or leave his frontiers exposed to the predatory incursions of his exceedingly heroic neighbors, who, however they may dislike steel and bullets, have not the slightest antipathy to silver spoons, or, as George Robbins would say, to "jewels and other effects," if the same can be obtained without the aid of "villainous gunpowder."

The Duke Maximilian of Leuchtenburgh, arrived on the 5th at Copenhagen, and was to proceed thence to Stromstad, where his sister the Princess Royal of Sweden and her husband were to meet him.

In France the Peers are still trying the Lyons insurgents—and the French troops at Algiers were harassed, and had suffered serious loss, by the attacks of the Arabs.

M. de Rigny, it is said, will proceed to Naples as French Ambassador.

Prince Leopold of Sicily, left Paris for Switzerland on the 18th. It was rumored in consequence that his proposed match with the Princess Mary of Orleans was put off.

The *Moniteur* publishes a statement of the receipts of the indirect contributions in the first six months of the current year, amounting to 288,983,000 francs, and presenting an increase of 12,134,000 francs, as compared with the first half year of 1834.

The *Moniteur* publishes a royal ordinance, appointing Marshal Clausel Governor-General of the French African possessions instead of Gen. d'Erion. The same official print announces that Louis Philippe has granted 10,000 francs out of his civil list towards relieving the calamities which the cholera has inflicted upon Toulon. The cases, since the invasion of the disease, amount to 757, and the deaths to 575. At the same date there were 56 cases at Marseilles, of which 11 had proved fatal. The cholera is stated to have broken out also at Montpellier.

LONDON, 23d July.—The Paris papers of Tuesday, received by express, communicate some particulars relative to the defeat sustained by General Trezel at the hands of Abdel Kader, the Arab Chief near Mecta, on the coast of Africa. This serious affair is modified in these journals by the name of a check, although it is admitted that 500 men had fallen, that the fugitives, in their retreat had not time to bring off all their guns and baggage, nor even their wounded; that it was with the utmost difficulty that the infantry were embarked, and that General Trezel with the remains of the cavalry found his way back to Oran. The forces under Abdel Kader are represented as having been well armed, and amounting in number to 15,000; the strength of General Trezel's brigade having been greatly inferior. This misfortune appears to have taken place on the 27th of June, a preliminary engagement having occurred on the 26th, in which the French lost 92 men, including 9 officers, in killed and wounded. It was evidently in the knowledge of this defeat that Marshal Clausel received sudden orders to embark for Algiers, in order to resume the Governorship of the colony.—The foreign legion intended for the service of Her Catholic Majesty appears to have suffered severely in this affair, so that it may be doubted whether what remains of it can be spared until reinforcements are sent out to strengthen the army of occupation.

The affairs of the Queen of Spain look somewhat better. The Queen issued a decree, on the 4th, by which the order of Jesuits is suppressed, and their property ordered to be sold. This is described as being a very wise and popular act. The Jesuits are not favorites with the Spanish populace, though the Mercedian Friars are beloved.

LITERARY PROPERTY IN GERMANY.—The Diet

of the German Confederation adopted, on the 2d of April, last year, the following resolution, conformably to article 18 of the Act of the Confederation: "The Governments have agreed that literary piracy is to be prohibited in all the States of the Confederation, and literary property to be regulated and protected on uniform principles." This resolution is announced by an order of the Ministry of the 19th inst., and it is further stated, that the measures adopted by the respective Governments to enforce their protection "will be made public, after having been notified to the Diet."—[German paper.]

For several years the amateurs in pigeons in Antwerp, have taxed their skill to send a certain number of pigeons to Paris. The first which arrived there gained great rewards for their owners. A similar experiment has been recently made in Paris. One hundred and eighty travelling pigeons were let loose on the morning of June 25th, at the Exchange, at half past 7, for the city of Antwerp, a distance of 90 leagues. One of them, the Great Napoleon, the dean of pigeons, the oldest ariel traveller, was first let loose—he was the bearer of the order of ascension. The other pigeons then took their flight. They had all affixed to one of their wings, the latest telegraphic news in the Exchange—"Zumalcarreguy died June 25." After having soared over the Exchange for about five minutes, they took their course toward the north. A great crowd of people were collected to witness their departure.

SUMMARY.

The Dutch frigate *De Maas*, Captain Arriem, of 44 guns, and 340 men, 17 days from Curacao, having on board his R. H. Prince Henry, son of his R. H. the Prince of Orange, and the Dutch brig of war *Sneeneid*, Captain Ferguson, of 14 guns, and 74 men, arrived yesterday afternoon at the Quarantine ground. They each fired a salute, which was returned by Fort Hamilton.

The annual Commencement of Yale College was celebrated on Monday last.

Seventy-three youths were graduated with the degree of A.B.

From sixty-five to seventy have entered for the Freshman class of next year, and twelve for the Sophomore.

The honorary degree of Doctor of Medicine, on the recommendation of the Medical Society, was conferred on William Hyde, Nathan Shelton, Lyman Catlin, and Charles Eldridge.

FALL OF A PUBLIC STORE.—The floors of the new public store, at Staten Island, fell in on Friday night with a great crash. The architecture of the center was supported by wooden timbers, standing perpendicularly, and resting at the base upon stone piers, which went down to solid rock. The store has been filling up recently for the first time, and had in it four thousand boxes of sugar, a large quantity of cotton, and various other goods, presumed to contain yellow fever and other pestiferous diseases, to so virulent a degree, that nothing but a large fee to the quarantine officers, could purify them. The goods are now tumbled in one grand *mêlée* into the cellar, where all the seeds of disease must have the very best opportunity to ferment and send forth deadly miasmata. Yet we have no doubt that such is the devotion of the officers there, to the public good, that for a very moderate compensation, they will venture into the center of death's arcana, where they would by no means permit the citizens generally, to hazard their lives.—[*Journal of Com.*]

A singular accident occurred to a steamboat on the Mississippi, on the 12th July. While running close to the shore to avoid the current, a large cotton tree suddenly fell across the boat with a tremendous crash, breaking through the boiler dock to the lower, on which a dozen men were sleeping, all of whom had but time to leap out of danger before the huge trunk sunk deep into the deck, nearly severing one poor fellow in two, crushing the head of another, and slightly wounding one or two others. After the alarm caused by this occurrence had subsided, the tree was cut away and the boat proceeded on her voyage. The tree was ninety feet long and four feet in diameter.

SINGULAR EXPLOSION.—At Boston, on Saturday

the schooner Sarah, lying alongside Central wharf, and loading for Hartford, suddenly blew up, with an explosion that shook the surrounding buildings, and broke all the glass panes in the neighborhood. Happily, no lives were lost. Such, however, was the force of the explosion, that a cask of copper, as we are informed by an eye witness, was thrown on the roof of one of the four story stores on the wharf. The vessel sank immediately.

The extraordinary part of the affair is, that there was no gunpowder on board the vessel—the chief cargo was lime and saltpetre. We are at a loss to account for such an accident under these circumstances. A son of John Tyler, Esq. was injured.

MR. LAUREAT AND SON'S ASCENSION.—BALLOON.—The ascension of balloons has become so common in this city, that they have ceased to attract any considerable crowd. Without much public notice, and without it being generally known in the city, Mr. L. A. Laureat made one of the most beautiful ascensions we have ever witnessed. The atmosphere was clear, wind light at S. W. A few minutes before six, P. M., yesterday, the Aeronaut stepped into his car, accompanied by his son, a lad about twelve years of age, and rose gradually, but beautifully, almost perpendicularly, over Castle Garden, where he continued, apparently, for a quarter of an hour and almost stationary, waving his flag; he soon took a current of air which took him gently over the city in an easterly direction, and remained in full view of the citizens for nearly an hour, when the balloon was seen descending over Long Island, in the direction of New-town. Of all the beautiful spectacles of the kind, we think we have never seen one more pleasing than that we have just described. There were comparatively few persons on the Battery, or in the Garden.

10 o'clock.—Mr. Laureat has returned with his Son: he landed in perfect safety alongside Prince's Garden, at Flushing, twelve miles from this city—and having been one and a half hour in the air.—[Daily Adv.]

The London Literary Gazette, in noticing Fenimore Cooper's last abortion, says that it sent *The Monikins*, with a considerable fee, to one of the monkeys in the Zoological Gardens, in order to have it reviewed in an authentic manner; but the volumes were returned, accompanied by the following laconic note:—"D—d dull nonsense. Yours faithfully, JACOPO!"

STEAMBOAT SIAM SUNK.—We are informed by the St. Louis Daily Herald, that the Steamboat Siam, on her passage up the Mississippi from New Orleans, sunk nearly opposite Red river. "The cause of the accident," says the Herald, "was the breaking of her shaft, whereby, in some way, one of her paddles was driven through her bottom, so that she sunk immediately. Most of the cargo was saved, and no lives were lost.

"The Siam was soon raised again, and towed back to New Orleans."—[Cincinnati Whig of 19th Augst.]

FEMININE AMUSEMENTS.—The New Orleans papers give notice that a lady has established a shooting gallery on the opposite side of the river for amateurs of both sexes. The hostess proposes to furnish pistols and powder, but gentlemen are expected to bring their own fowling pieces, and ladies their targets! We hope the lady may find "a good run of custom" in this novel and gente establishment of her's; but it strikes us that she ought to provide accommodations for leap frog, and now and then a boxing match between these male and female "amateurs."—[Cour. & Enq.]

PRINTING OFFICE DESTROYED BY FIRE.—The printing office of the "Delaware Gazette and Watchman," at Wilmington, was burnt down on Sunday afternoon last.

NEW ORLEANS, Aug. 10.

The excessive rains we understand have so much injured the cotton crops of West Florida, that the planters have abandoned the Cotton fields; the corn crops are abundant.

Sugar Crops.—We regret to state, from good authority that the sugar crop of this State cannot yield more than one half as much as the last season. The prospect in Attakapas it is stated is better than on the coast; some planters on the river

cannot turn out any thing except corn, of which most abundant crops have been made.

New Flour.—Flour from new wheat was received in market yesterday by the steamboat Rob Roy, from the Ohio, and found immediate sale at \$7 per barrel.

We are happy to announce the arrival in this city of Col. Stephen F. Austin, of Texas—he came passenger in the brig Wanderer, eleven days from Vera Cruz.

THE TREASURY DEPARTMENT, }
22d August, 1835. }

This Department acknowledges the receipt of an anonymous letter, without date, enclosing the sum of three hundred and forty dollars, which the writer states is "supposed to be due the United States by error in the settlement of an account."

ROYAL REWARD.—By the annexed documents, addressed to this office, and which we translate, it will be seen, that the King of the French, offers one hundred thousand francs, about twenty thousand dollars, as an inducement to seek, and restore to their country, the officers and crew of the French vessel of war *La Lilloise*, employed on a voyage of discovery, on the coasts of Iceland and Greenland.

Our ships, we believe, have little, or no, communication with those shores, and therefore it is not probable, that, through American navigation, the lost will be found, if they ever should be found.—Nevertheless, we give publicity to the documents in question:—

[Translation.]

PARIS, June 18, 1835.

Cabinet of the Minister of the Interior.—Bureau of special attributions.

MR. EDITOR:—Permit me to ask of your indulgence, the publication at an early day, of the annexed Report, addressed by Admiral Duperré, Minister of Marine, to H. M. the King of the French, relative to the Brig *Lilloise*.

You will, I hope, appreciate the importance we attach to giving publicity to this document, and comply with the request here made.

Accept my thanks for so doing, and be pleased, on occasion, to dispose without reserve of my services. I have the honor to be, &c., &c.

CHAS. ~~MINISTRE~~, Chief of Bureau.

To the Editor in chief of the N. A. American.

PARIS, June 17, 1835.

[Report to the King.]

SIRE:—The King is apprised that since August 1833, no news of any sort has been received of the *Lilloise*, which under the command of M. de Blossville, lieutenant commanding, (lieutenant de Vaisseau) was employed on a mission to the coasts of Iceland and Greenland.

In order to add to the means hitherto adopted to obtain intelligence of this vessel and her crew, your Majesty having expressed the purpose of interesting the mariners of France, and of foreign nations that frequent those regions, I have the honor to propose for your decision—

1st. That a sum of One hundred thousand francs be allowed to any French or foreign mariners, who shall bring back to their country, the whole, or any part, of the officers and crew of the *Lilloise*:

2. That a reward proportioned to the importance of the service rendered, should be granted to those who shall communicate the first certain intelligence concerning them, or procure the restitution to France, of any of the papers, or effects, belonging to the expedition.

I am, with the most profound respect, Sire, your Majesty's very humble, obedient, and faithful servant,

Admiral Peer of France, Minister of Marine and the Colonies.

Approved,

LOUIS PHILIPPE.

By the King,

Duperré,

Admiral, &c. &c.

MISCELLANY.

THE LONDON QUARTERLY REVIEW, No. CVII, for July, 1835.—This number reached us by the Europe, and has occupied some agreeable hours. It is a very good number.

We add some extracts from the capital paper on Gastronomy and Gastronomers.

'APHORISM.—Of all the qualities of a cook, the most indispensable is punctuality.

I shall support this grave maxim by the details of an observation made in a party of which I was one—*quorum pars magna fui*—and where the pleasure of observing saved me from the extremes of wretchedness.

I was one day invited to dine with a high public functionary;* and at the appointed moment, half-past five, every body had arrived, for it was known that he liked punctuality, and sometimes scolded the dilatory. I was struck on my arrival by the air of consternation that reigned in the assembly; they spoke aside, they looked into the court-yard; some faces announced stupefaction: something extraordinary had certainly come to pass. I approached one of the party whom I judged most capable of satisfying my curiosity, and inquired what had happened. "Alas!" replied he, with an accent of the deepest sorrow, "Monseigneur has been sent for to the Council of State; he has just set out, and who knows when he will return!"—"Is that all?" I answered with an air of indifference which was alien from my heart; "that is a matter of a quarter of an hour at most; some information which they require; it is known that there is an official dinner here to-day—they can have no motive for making us fast." I spoke thus, but at the bottom of my soul I was not without inquietude, and I would fain have been somewhere else. The first hour passed pretty well; the guests sat down by those with whom they had interests in common, exhausted the topics of the day, and amused themselves in conjecturing the cause which had carried off our dear Amphitryon to the Tuileries. By the second hour, some symptoms of impatience began to be observable; we looked at one another with distrust; and the first to murmur were three or four of the party, who, not having found room to sit down, were by no means in a convenient position for waiting. At the third hour, the discontent became general, and every body complained, "When will he come back?" said one, "What can he be thinking of?" said another. "It is enough to give one one's death," said a third. By the fourth hour, all the symptoms were aggravated; and I was not listened to when I ventured to say that he whose absence rendered us so miserable was beyond a doubt the most miserable of all. Attention was distracted for a moment by an apparition. One of the party, better acquainted with the house than the others, penetrated to the kitchen; he returned quite overcome; his face announced the end of the world; and he exclaimed in a voice scarcely articulate, and in that muffled tone which expresses at the same time a fear of making a noise and the desire of being heard: "Monseigneur set out without giving orders; and, however long his absence, dinner will not be served till his return." He spoke, and the alarm occasioned by his speech will not be surpassed by the effect of the trumpet on the day of judgment. Amongst all these martyrs, the most wretched was the good D'Aigrefeuille,† who is known to all Paris; his body was all over suffering, and the agony of Laocoon was in his face. Pale, distracted, seeing nothing, he sat crouched upon an easy chair, crossed his little hands upon his large belly, and closed his eyes, not to sleep, but to wait the approach of death. Death, however, came not. Towards ten, a carriage was heard rolling into the court; the whole party sprang spontaneously to their legs.—Hilarity succeeded to sadness; and in five minutes we were at table. But, alas! the hour of appetite was past! All had the air of being surprised at beginning dinner at so late an hour; the jaws had not that isochronous (*isochrone*) movement which announces a regular work; and I know that many guests were seriously inconvenienced by the delay.

The meditation entitled *Gourmandise* is replete with instructive remark; but we must confine our-

* No doubt Cambacères.

† The friend and principal aid-de-camp of Cambacères.

selves to that part of it which relates to the ladies, who, since Lord Byron's silly prejudices upon the subject were made public, think it prettiest and most becoming to profess a total indifference as to what they eat. Let them hear our professor on this subject—

'Gourmandise is by no means unbecoming in women; it agrees with the delicacy of their organs, and serves to compensate them for some pleasures from which they are obliged to abstain, and for some evils to which nature appears to have condemned them. Nothing is more pleasant than to see a pretty *gourmande* under arms: her napkin is nicely adjusted; one of her hands is rested on the table; the other conveys to her mouth little morsels elegantly carved, or the wing of a partridge which it is necessary to pick; her eyes are sparkling, her lips glossy, her conversation agreeable, all her movements gracious; she is not devoid of that spice of *coquetterie* which women infuse into every thing. With so many advantages she is irresistible; and Cato the Censor himself would yield to the influence.

'The penchant of the fair sex for *gourmandise* has in it somewhat of the nature of instinct, for *gourmandise* is favorable to beauty. A train of exact and rigid observations have demonstrated that a succulent, delicate, and careful regimen repels to a distance, and for a length of time, the external appearances of old age. It gives more brilliancy to the eyes, more freshness to the skin, more support to the muscles; and as it is certain in physiology, that it is the depression of the muscles which causes wrinkles, those formidable enemies of beauty, it is equally true to say that, *ceteris paribus*, those who understand eating are comparatively ten years younger than those who are strangers to this science. The painters and sculptors are deeply penetrated with this truth, for they never represent those who practice abstinence by choice or duty, as misers or anchorites, without giving them the paleness of disease, the leanness of poverty, and the wrinkles of disquietude.

'Again, *gourmandise*, when partaken, has the most marked influence on the happiness of the conjugal state. A wedded pair endowed with this taste have once a day, at least, an agreeable cause of meeting. Music, no doubt, has powerful attractions for those who love it; but it is necessary to set about it,—it is an exertion. Moreover, one may have a cold, the music is not at hand, the instruments are out of tune, one has the blue devils, or it is a day of rest. In *gourmandise*, on the contrary, a common want summons the pair to table; the same inclination retains them there; they naturally practise towards one another those little attentions, which show a wish to oblige; and the manner in which their meals are conducted enters materially into the happiness of life. This observation, new enough in France, had not escaped the English novelist Kiehlind; and he has developed it by painting in his novel of 'Pamela' the different manner in which two married couples finish their day.

'Does *gourmandise* become gluttony, voracity, intemperance? it loses its name, escapes from our jurisdiction, and falls within that of the moralist, who will deal with it by its precepts, or of the physician, who will cure it by his remedies. *Gourmandise*, characterized as in this article, has a name in French alone; it can be designated neither by the Latin *gula*, nor the English *gluttony*, nor the German *Isaerahelt*; we, therefore, recommend to those who may be tempted to translate this instructive book, to preserve the substantive and simply change the article; it is what all nations have done for *coquetterie*, and every thing relating to it.

Considering the high privileges attached to the character of a *gourmand*, we are not surprised at finding that it is not to be assumed at will. The next Meditation accordingly is headed *N'est pas Gourmand qui veut*, and begins as follows:—

'There are individuals to whom nature has denied a refinement of organs, or a continuity of attention, without which the most succulent dishes pass unobserved. Physiology has already recognized the first of these varieties, by showing us the tongue of these unfortunates, badly provided with nerves for inhaling and appreciating flavors.—These excite in them but an obtuse sentiment; such persons are, with regard to objects of taste, what

the blind are with regard to light. The second is composed of *distraits*, chatter-boxes, persons engaged in business, the ambitious, and others, who seek to occupy themselves with two things at once, and eat only to be filled. Such, for instance, was Napoleon; he was irregular in his meals, and ate fast and ill: but there again was to be traced that absolute will which he carried into every thing he did. The moment appetite was felt, it was necessary that it should be satisfied, and his establishment was so arranged, that in all places and at all hours, chickens, cutlets, and coffee, might be forthcoming at a word.'

The habit of eating fast and carelessly is supposed to have paralyzed Napoleon on two of the most critical occasions of his life—the battles of Borodino and Leipzig, which he might have converted into decisive and influential victories by pushing his advantages as he was wont. On each of these occasions he is known to have been suffering from indigestion. On the third day of Dresden, too, the German novelist Hoffman, who was present in the town, asserts that the emperor would have done much more than he did, but for the effects of a shoulder of mutton stuffed with onions—a dish only to be paralleled by the pork chops which Messrs. Thurtell & Co. regaled on after completing the murder of their friend Mr. Weare.

The gifted beings predestined to *gourmandise* are thus described:—

'They have broad faces, sparkling eyes, small foreheads, short noses, full lips, and round chins.—The females are plump, rather pretty than handsome, with a tendency to *embonpoint*. It is under this exterior that the pleasantest guests are to be found; they accept all that is offered, eat slowly, and taste with reflection. They never hurry away from the places where they have been well treated; and you are sure of them for the evening, because they know all the games and pastimes which form the ordinary accessories of a gastronomic meeting.

'Those, on the contrary, to whom nature has refused an aptitude for the enjoyment of taste, have long faces, long noses, and large eyes: whatever their height, they have always in their *countenance* a character of elongation. They have black and straight hair, and are above all deficient in *embonpoint*; it is they who invented trousers. The women whom nature has afflicted with the same misfortune are angular, get tired at table, and live on tea and scandal.'

Out of the many modes proposed of testing this theory, we shall confine ourselves to one—the judicious employment of *eprouvettes*:—

'We understand, by *eprouvettes*, dishes of acknowledged flavor, of such undoubted excellence, that their bare appearance ought to excite in a human being, properly organized, all the faculties of taste; so that all those in whom, in such cases, we perceive neither the flush of desire nor the radiance of ecstasy, may be justly noted as unworthy of the honors of the sitting and the pleasures attached to it.'

A distinguished gastronome, refining on this invention, proposes *eprouvettes* by negation. When, for example, a dish of high merit is suddenly destroyed by accident, or any other sudden disappointment occurs, you are to note the expression of your guests' faces, and thus form your estimate of their gastric sensibilities. We will illustrate this matter by an anecdote which our author has forgotten to note.

Cardinal Fesch, a name of honor in the annals of gastronomy, had invited a large party of clerical magnates to dinner. By a fortunate coincidence, two turbots of singular beauty arrived as presents to his Eminence on the very morning of the feast. To serve both would appear ridiculous, but the Cardinal was, notwithstanding, most anxious to have the credit of both. He imparted his embarrassment to his chef—'Be of good faith, your Eminence,' was the reply, 'both shall appear: both shall enjoy the reception which is their due.' The dinner was served: one of the turbots relieved the soup. Exclamations unanimous, enthusiastic, religious, gastronomical—it was the moment of the *eprouvette positive*. The *maitre d'hôtel* advances: two attendants raise the monster and carry him off to cut him up; but one of them loses his equilibrium: the attendants and the turbot roll together on the floor. At this sad sight, the assembled Cardinals became pale as death, and a solemn silence reigned in the *conclave*—it was the moment of the *eprouvette negative*—but the *maitre d'hôtel* suddenly turns to the attendant—'Bring another turbot,' said he, with the most perfect coolness. The other appear-

ed, and the *eprouvette positive* was gloriously rewarded.

[From "Ship and Shore."]

We did not reach Catania till a late hour of the morning. Here we took thirteen mules—five as substitutes for our own legs—five as sumpters—and three for the accommodation of the guide and muleteers. Thus equipped, with provisions for three days, and with great coats and blankets sufficient to protect us in a region of ice, we started a little before mid-day for the top of Etna. We were determined to see the next sun rise from the summit of that mount.

Our road lay for fifteen miles, among the rugged reefs of lava, disgorged in the last eruption. Every thing around had the appearance of a vast lake, tumbled in a storm, and suddenly changed to solid blackness. The sides of the mountain, as we approached it, presented features of a still bolder fierceness. The huge rock, the toppling crag, the protruding bluff, stood forth in frightful wildness from the channels and chasms which past torrents of fire had left behind. The summit, with its cloud of smoke and shaking cone, crowned the whole with a dark befitting terror.

At sunset, having reached the verge of the woody zone, we alighted for rest and refreshment. We here changed our summer apparel for that of winter; the great coats which had been put on our sumpters by our trusty guide—and which we should wholly have neglected—were now in eager requisition. Thus protected, and with spirits and strength renovated by the repast, we mounted again and renewed the ascent. Daylight had gone, but the sky was clear, and the light of the stars was sufficient for our practised guide. Our mules were sure footed, and we had only to relinquish ourselves to their superior sagacity.

At a little before midnight, while approaching the foot of the great cone, where we were to part with our faithful animals, and where indeed we were to wait for the break of day, things began to wear a fearful change. Frequent clouds swept past us; but there was one at some distance which seemed more stationary—gathering in bulk and blackness. Our guide anxiously watched it, as it collected its strength and threw out its snagged flukes, and quickly leading the way up a steep ledge, called vehemently upon us to follow. We had only gained the ridge when the tempest came. It appeared to me to be the last position one should seek under the tornado which now swept us, for we were obliged instantly to dismount and hold on to the sharp points of the rock. Our mules placed themselves instinctively in a posture presenting the least resistance to the rushing element. It was soon apparent why our guide had taken refuge on this unsheltered steep; for, as the cloud struck the side of the mountain, its enfolded lake descended in deluge and thunder. Rocks and large masses of ice, disengaged by its violence, rolled down on each side of us and over the very track on which we were moving but a few moments before. Though separated from each other but a few feet, yet no one could make himself heard; the torrents around and the thunder above overpowered even the loudly vociferated admonitions of our guide. There was at one moment a darkness that might be felt, and then at another the lightning, flashing down through the rifts of the cloud, would make the slightest pebble visible in its searching light. An hour of these dread alternations, while torrents and rocks were rolling on each side of us—and the storm went past. We were drenched to the skin, while our outer garments began to be stiff with the ice, yet with a shivering accent, we could speak to each other once more. It was the language of one spirit rallying and animating another. Captain Read with characteristic energy, was the first to mount.

Nil actum reputans, si quid superesset agendum.

The reader, without undergoing our fatigue, or being wearied with a detail of incident, will now conceive us about two thousand feet above the point where we had encountered the storm—in a substantial shelter at the foot of the great cone—around a grate of coal, which we had brought with us from Catania—warming our fingers—snapping the ice out of our coats—tasting Etna in a bumper of its own wine—and watching for the break of day. That hour comes: and now let him take his stand with us on the highest point of the cone, ten thousand feet above the level of the sea, and imagine the whole island of Sicily with its peaks and glens, its torrents and valleys, its towns and forests,

† It is a strange coincidence that Goethe, in *Wieland Meister*, expresses a similar dislike to seeing women eat.

with the broken line of its bold shores stretched beneath in one vast panoramic view—the sun, wheeling up out of the distant sea—the heavens flushed with its splendor—the mountain pinnacles burning in its beam—the great cone abating with the throes of the unresisting element within—the crater sending up its volumes of steep cloud—and the central lake of fire flashing up through the darkness, like terrific glimpses of the bottomless abyss! But the reality overpowers all description! I drop my pen, and half accuse myself of rashness in having made even this brief attempt.

We effected the descent without any serious injury, though I had myself rather a narrow escape. My mule made a misstep—the only fault of the kind he had committed during the excursion. I fell over his head, and turned many somersets; on looking back, I saw my mule standing on the verge of the slope, and disregarding every thing else, directing his anxious look to me. There was sorrow and self-accusation in that look—I forgave him. Beckoning to him, he came down, snuffed about my mangled hat, and when I remounted, pricked up his ears, and started on with the most assured tread.

The Etna fever, which hurried us blindly past all other objects on our way to the mount, having subsided we determined to defer our return to the ship, and glance at some of the features of Catania. This is a beautiful city, though built upon one vast field of lava, with the dead beneath, a volcano above, and the frightful monuments of the earthquake around. I know not why it is, but some how in this strange world, beauty, danger and death, are always in the same group. The sweetest violet I ever saw, bloomed among wreaths of snow on a sister's grave.

The amphitheatre, where the ancient Catanians held their sports, and where they may have been suddenly engulfed in a flood of fire, stands seventy feet beneath the gay promenade of the present town. This gigantic structure is built itself of lava, and for aught we can tell, may have been reared over play-houses, entombed in some eruption of a still earlier date. Thus it ever is in this world; on land, the votary of pleasure indulges his mirth over the bones of a perished race; and on the ocean, the mariner lightly lymns his song on a wave, through which have sunk thousands to re-appear no more. We present to heaven a picture of life and death, mirth and madness, over which angels might wonder and weep!

Nature often atones for the fierceness of present calamities in the beauty of remote results. The ashes that fall in the burning breath of the volcano nourish plants which are to bloom above those they have buried; and the forest, which now encircles Catania, waves more luxuriantly than the one charred beneath. The vegetable life and bloom which followed the subsiding waters of the great deluge, were not less fresh and fair, than what had been swept away. But man covers the world with his slain—leaving their flesh to the vultures, their bones to the accents of the last trumpet, and his own guilt to the disposal of a final Judge.

We visited, while at Catania, the museum of the prince of Biscari—the largest and most richly stored private cabinet in the world. I pass by the statues of the ancient deities, for time and disaster have been as fatal to their forms as inspiration has to their worship. I pass by the collection of shells, for none in all their vast variety, has the tone and rainbow beauty of the one through which the mermaid breathed my dying dirge. I pass by the vases which held the wines, and the lamps which lighted the festivities of the ancients; for who would gaze on the nail of the coffin, in which youth and affection have sunk from light and life? I pass by the countless minerals and gems—they shed no rays of such living light as those which beam from the eye of the bright gazelle. I pass by the million of embalmed insects, others swarm the field and forest happy in the life which they have lost. I pass by—no I will not—the expressive statue of Cleopatra. The heart throbs beneath its beauty—the eye swims when lifted to that last look of suicidal despair.

Leaving the museum, we encountered a humble Franciscan in his simple attire—his uncovered head and sandals. He presented us with some flowers, and received in his thin pale hand our little charities. Poor pilgrim! what is this world to thee? Thou hast renounced its wealth, its pleasures, its restless spirit of enterprise: thy home is not here—is it in heaven?—art thou indeed going to that better land, where the strife and vanities of

earth never come? May the privations of thy lot atone for the mistaken virtues of thy creed.

If I determine to become a monk, I will come here and join the Benedictines. They have a splendid monastery, richly endowed—luxuriant gardens—sumptuous fare—nothing to do—they live like gentlemen. If any one questions the usefulness of such a life, I can only say, let him attend to his own business. What concern is it of his, if, like a silk-worm, I wind myself up in my own web? Let him not attempt to wind my house on to his bobbin.

Cicisbeism prevails among the higher classes in Catania. It passes as a pure platonic affection—inflicting no marriage obligation—no law of morality—no rule of rigid propriety—merely a chaste friendship—innocent as a new-born babe. It does, to be sure, encourage a peculiar intimacy, and may perhaps diversify the features of the younger members of the family; but what of that? No sentiment of delicacy has been publicly shocked—and no one dies before his time comes:—let the exquisite arrangement alone. Never was there a charmer of the bird with so beautiful a skin, so bright an eye, and so venomous a fang! It is the devil himself disguised as an angel of light!

Leaving Catania—the excellent hotel of the attentive Abatti—and travelling the remaining half of the day and the succeeding night, we arrived at Messina at the break of day. The leaves were wet with the dew, and the first rays of the sun were among them.

Sketch of a Kingston Boarding-house.

From Dr. Madden's twelve months' residence in the West Indies.

I have given one of my friends a little sketch of an hotel in Barbados, the following is a short one of a boarding-house in Kingston:

The stranger, on his arrival, is conducted (perhaps like myself) to a first-rate establishment in East street: his conductor draws up before a large mansion of an imposing exterior, with a multiplicity of windows, on which the late war has evidently conferred no taxes, or at least none affecting the transmission of light or the sea-breeze,—which is so essential to health and comfort that Mr. Pitt should have been ashamed for neglecting to lay a duty on its enjoyment. The stranger is ushered into a wilderness of a saloon, which runs in extent from front to rear, with the exception of a narrow gallery at either extremity, the whole breadth of the building. The saloon is destitute of windows; but there is no dearth of doors on either side and these lead to the bed-rooms. Carpets, window-curtains, and hangings are, very properly, no part of the paraphernalia of the saloon; but, in lieu of these, the stranger slides, at the risk of his neck, over a highly polished floor; and sits down, as he imagines, at the peril of his life, in a state of liquefaction, in a thorough draft, and, for the prevention of cold, calls for a glass of sangaree; and, in the course of half an hour, to obviate the heat—which is fusing his yet "too solid flesh," he is advised to have recourse to the old, simple, unadulterated, "and best beverage after all"—plain water diluted with brandy,—and, before he goes to dinner, to give him an appetite, and dissipate the confounded languor that clogs his energies, he cannot decline a small wine glass full of bitters mixed with Madeira.

He very properly pays his respects, before he dines, to the lady of the house;—on Mohammed's principle of going to the mountain, which will not come to him, he accordingly presents himself before the figure of a stout young gentlewoman, seated in the end gallery, who scarcely moves as he approaches. The stranger is afraid she is an invalid: he asks the way to the dinner-room; the lady points with her chin to the apartment: he fears the poor young woman is a mute; he determines to ascertain the fact:—"I presume, madam, you are the lady of the house?"—The young woman again points her chin in the direction of an old emaciated brown lady, stalking through the court-yard:—"What would your gracious figure" intimate by that? asks the stranger with an inquiring glance. The young woman moves her lips, and, in due time, she deliberately articulates two words:—"My mother."

Why the deuce, thinks the stranger, could she not say so at first, instead of sitting with her hands behind her back, and pointing out her chin, to avoid the trouble of pointing with a finger?

Well, the dinner table is prepared in one of the end galleries, with all the jealousies thrown open to admit the breezes; the wine-bottles are dripping

in the window in their cotton bags; the gentlemen are mustering in their white jackets, and the poor ladies plying their cambric handkerchiefs; while the brown waiters, like feathered Mercuries in a galloping decline, are doing violence to the laws of nature in the West Indies; and some invisible agent is accelerating their movements on the stairs, till the dinner is at length served up.

King James says, in one of his treatises, if he were to invite the devil to dinner, he would have three things for his entertainment—"a pig, a poll of ling, and a pipe of tobacco for 'digesture.'"—Were it my painful duty to entertain his satanic majesty, I would set before him three dishes, common enough in the West Indies—pigeons, prawns, and pickled salmon; and if these did not astonish his "digesture," I don't know what would.

King-fish and turtle, beef and mutton mystified in various shapes, prawns and roasted pigeons, yams and sweet potatoes, calaloo and garden-egg, and various other delicacies are tried, commended, and despatched; and believe me, sir, an alderman on a voyage of discovery, like the late Sir William Curtis, in his cruise in the Mediterranean, in quest of culinary novelties, might travel a great deal farther than Jamaica and fare infinitely worse, whether in a boarding-house or at a private table.

The attendance, however, is not equal to the fare. Once the stranger loses sight of the waiters, black or brown, he may bid adieu to the light of their greasy countenances, perhaps for hours to come. He may knock at the table till he is tired, shout till he is hoarse—(ring a bell he cannot)—he may call Ned, Frank, Cupid, or Columbus—ay, he may call niggers from the kitchen depths, but, query, will they come? till, at last after apostrophizing them as "waiters!" "boys!" "black fellows!" "you rascals, there!" he winds up with a magical noun substantive of the congregative kind—"Somebody, I say, there!" and, after a decent interval, the die-away tones of the drawing voice of the stout lady below stairs are heard in the interesting inquiry of—"Will nobody come there?" and lo and behold! at last everybody does come, at the rate of a brown nut, which is about a step and a half in ten seconds.

The First Discovery of Columbus.

By the Author of "Specimens of the Early Poetry of France."

[The crew of Columbus, having lost all hope of land, and finding that what he had thought so proved but clouds, began to murmur against this bold Italian, and determined to give him only three days longer to fulfil his promises.—The first of these days he became convinced, by the sunset, that land was near—in the night he espied lights. Two hours after midnight, 11th of Oct., 1492, land was clearly visible. The island on which they landed was Guanahana, which they called St. Salvador.]

"The howling winds forbid us
To trust the fatal main—
Oh turn our wand'ring vessel
To harbor once again!
Why to this 'bold Italian'
Our lives, our hopes confide:
No golden land awaits us
Beyond the shoreless tide—
How long shall he deceive us
With boasting vain and loud?
And when we gaze for land,
He can show us but a cloud!"

The gallant leader heard,
But he listen'd undismay'd,
Tho' he saw their furious glances,
And their daggers half display'd,
No fear was in his soul,
But his heart was wrung with woe;
Shall he quail before their marmars,
And his glorious meed forgo?
Had he braved the ocean's terrors
In darkness and in night;
And shall he furl his sails
With the promised goal in sight?
For he look'd towards the horizon
And marked the setting sun;
And, by its ruddy light,
He knew his toil was done!

'Twas in the deepest midnight,
As they cut the yielding wave,
When not a star was shining
To guide them, or to save,
As in awful, hopeless, silence,
Their onward course they steer,
Far in the murky distance
Lo!—glimmering lights appear!

In breathless joy and wonder
They watch the op'ning sky;
And, with the morning, rise
Their rapturous certainty.
Thro' silvery vapor gleaming
Extends the welcome strand,
And trees, and rocks, and mountains,
Before their view expand.
They breast the foaming surges
And shouting leap to shore,
While every echo answers
"God! and Saint Salvador!"

(FOR THE NEW-YORK AMERICAN.)

Musings.—By *Flaccus*, in the Country.

SERENADE.

"Avec toi tout est jouissance,
Et rien sans toi!"—
The night is still—but not my soul—
How calm is nature's sleeping breast!—
Would that, in mine, her quiet stole,
And I, like her, were thus at rest.
The gentle moon looks mildly down,
At her sweet gaze the vapours flee;
But ah!—the clouds that round me frown,
No beam of love will chase from me—
The night-bird, from his native tree,
Pours on the air his lulling strain;
But harshly thrills his melody,
Amid the discord in my brain.
The winds, a load of sweets divine,
From out the wood's deep bosom, bear;
But ah!—the sighs that gush from mine
Breathe only of the bitter there—
Not song of bird, nor glance of moon,
Nor breath of woods, my smile inspires—
Thy voice, thy face, thy sighs, alone,
Can give the peace my soul requires—

No. 9—

W.

FOLGER'S FLOATING DRY DOCK.—We have examined the model of this new and ingenious invention, now exhibiting under the Exchange, and see no reason to doubt that it presents a mode, both cheap and effectual, of repairing—and building too for aught we see—ships, in Dry Dock.

The principle is simply this:—a floating cradle, water tight, and of the dimensions proportioned to the vessels to be docked, is constructed, with a falling gate at one extremity; this being lowered the cradle sinks, so that the vessel may pass into it—when by windlasses the gate is closed—the water within pumped out by a steam engine, and, as it is withdrawn, the vessel is shored up, and supported along the inner sloping walls of the cradle.

Several such docks, of sizes proportioned to merchant ships and vessels of war, would cost little, compared with a permanent Dry Dock, and would have the advantage of being available for use anywhere—without regard to locality—where they could float. We commend the invention to the notice of the public.

RUSSIAN COMMERCIAL SPECULATION.—The foreign journals contain articles attributing great activity to the Russian Government in seeking to open new sources of commerce, and to improve the old. One thing remarkable is, that in most of the projected enterprises a communication with India is contemplated, as is the case in the following speculation extracted from a Hamburg paper received yesterday:—

"It is said, that in the late journey of the Emperor Nicholas to Moscow, the plan for a junction of the Dnieper and the Duna, and for making these two rivers throughout navigable, was taken into consideration, and recognised as a practical undertaking, which, when completed, must have great influence on the half of Europe. While the Danube, being now navigated by steam-vessels, will become a more animated channel of commerce, and the routes of communication with India will be directed more and more to the east—while the intended railroad from Vienna to Galicia appears as a gigantic undertaking, there will be in future numerous ways of intercourse in that direction, and lead Asia to a higher degree of civilization.

"Russia wants nothing but such grand routes to acquire a rapid increase of prosperity and population, as it includes, by its geographical position, all the productions of the north and south. The line of the southern provinces begin to be an important branch of commerce, and will become more so when the intended channels of communication, which will be available at least six months in the year, shall be established. Among them a connexion of the north with the Wolga is spoken of, whether by means of canals or iron railroads is not determined."

Much employment for capital is presenting itself in the United States, and generally speaking it bears a good character with the monied interests of this country. Among the contracts lately entered into is a New York loan, for supplying the city with water, \$20,000, 5 per cent; a Maryland State loan, for canals, 400,000, 6 per cent; and an Alabama State loan, for railroads, 300,000, 5 per cent. The terms of the contract do not appear to be known here at present.—[English paper.]

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-4

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred), 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-4f

NOTICE TO CONTRACTORS.

Sealed Proposals will be received at the Hudson and Berkshire Railroad Company's Office, in the city of Hudson, until the 5th day of September next, for excavating and embanking 14 miles of their Road from Arnold's shop, near Groat's, at Chatham Four Corners, to the state line, and also for constructing 8 Bridges, from 60 to 70 feet each, between the abutments. Plans of the masonry and superstructure of the bridges will be exhibited at the Railroad Office. Contractors will be required to furnish all the materials for bridges; and the masonry to be completed by the 1st of December next. The road to be graded for a double track, 24 feet wide. A part of the road will be heavy rock and gravel excavation. Profiles of this part of the route will be exhibited at the Railroad Office, in Hudson, and also at the Office of the Engineer, at Chatham Four Corners. The road will be divided into sections of one half and one mile each in length, and prepared for examination by the 10th of August.

Proposals will also be received for furnishing 500,000 feet, B. M., of White Oak Rails, 6 by 7 inches square, and 16 feet long. Also, 15,000 Oak or Chestnut Ties, 6 by 7 inches square, 8 feet long, or, if round, not less than 8 inches in diameter, at small end. Also, 500,000 feet of Chestnut, Pine, or Hemlock Sills, 4 by 10 inches, 12, 16, or 20 feet long.

The whole to be subject to the inspection of the Engineer, and to be delivered on the line of the road, by the 15th of April, 1835.

The remaining 18 miles of the route will be put under contract as soon as the line can be prepared.

Persons applying for contracts will be expected, unless personally known to the Engineer, to present with their proposals recommendations as to ability to perform their contracts.

Any information on the subject afforded at the Engineer's Office, Chatham Four Corners.

JAMES MELLE, President.

GEORGE RICH, Chief Engineer.

Hudson, Aug. 1, 1835.

31-5t

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.

9 Liberty street, New-York.

BACKUS, AMES & CO.

8 State street, Albany.

34-yf

RAILROAD IRON WORK.

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.

Paterson, Aug. 19, 1835. 34-ly

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J26 tf

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. M-ly feb14

RAILROAD AND CANAL MAP.

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country Price \$2.

D. K. MINOR,

35 Wall street, New-York.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. FRANKLIN CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.12-ly

RAILWAY IRON.

95 tons of 1 inch by 1/2 inc. Flat Bars in lengths of 280 do. 1 1/2 do. do. 14 to 16 feet, countersunk 40 do. 1 1/2 do. do. holes, ends cut at an angle 800 do. 2 do. do. of 45 degrees, with 800 do. 2 1/2 do. do. of 45 degrees, with applying plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 3 3/4, 4, and 4 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and incorporated Governments, and the Drawback taken in part payment. A. & G. HALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,

J21 6t

corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG.

Mathematical Instrument Maker, No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1835.

In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accident to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend, JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad. Philadelphia, February, 1835.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

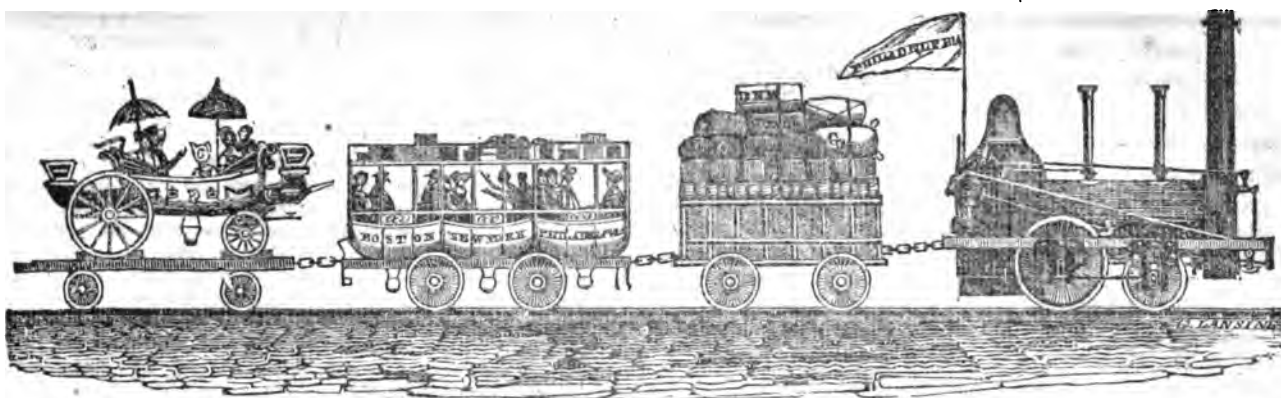
Germantown, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germantown, and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, SEPTEMBER 5, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, SEPTEMBER 5, 1835.

NEW-YORK AND ERIE RAILROAD.—We are gratified to learn that about 40 miles of this road along the valley of the Delaware is nearly ready to be put under contract, and that the work will be commenced this season. In addition to this, some thirty-five miles more, on this side of the Shawangunk mountain, will also be ready to be put under contract this fall; and that the work will be prosecuted with great vigor on the opening of the ensuing spring. This is as it should be; and we trust that the work will be looked upon by the next Legislature with less of jealousy than by the last.

It will be recollected by those who read the report made by Judge Wright to the Legislature, and published in this Journal, that Mr. Seymour, the Assistant Engineer, who had charge of the surveys on the eastern division, suggested the propriety of tunnelling this mountain—by which about one hundred feet elevation would be avoided. This suggestion was favorably received by the Company, but in order that a measure of such magnitude might be duly considered before it was undertaken, it was deemed advisable to take counsel from some of the ablest and most experienced Engineers in the country; and in accordance with this decision, JONATHAN KNIGHT, Esq., Chief Engineer of the Baltimore and Ohio Railroad, and MONTEGUE ROBINSON, Esq., formerly of Virginia, but now, we believe, of Pennsyl-

vania, were invited by the Company to examine this route. In compliance with this invitation, those gentlemen have passed over the ground in company with Judge Wright, Mr. Seymour, and some of the Directors, and have advised the tunnelling of the mountain, as suggested in the report of the Engineer, to the extent of about half a mile, and at a cost of about \$150,000. By this measure the elevation will be overcome by locomotive power alone, and the inconvenience of stationary power avoided at that point altogether.

Messrs. Knight and Robinson have also, we understand, expressed much confidence in the feasibility of the entire route of the road, and have concurred with Judge Wright in recommending a plan of the whole work, which will reduce its cost below the original estimate made by the Directors—which opinions will serve to confirm those who were before confident, and convince those who doubted, of the practicability and entire success of this important work.

We shall endeavor to give the very able report of these gentlemen in our next.

ENLARGEMENT OF THE ERIE CANAL.—We find, in a late number of the *Utica Observer*, an able communication upon the subject of the enlargement of the Erie Canal. It treats the subject coolly and dispassionately, yet in a manner which shows the writer to be master of the subject on which he writes, and that he duly appreciates the importance, now that we can do so, of correcting those errors which, for want of experience in its construction, were almost unavoidable.

It is highly important, in a second effort, that the plan adopted should be fully equal to the prospective demand. What does it matter, now that it has been tested, and found capable of sustaining itself upon almost any scale of magnificence which may be adopted, in its enlargement, if it cost ten, or even fifteen millions, if the business of the country will warrant it? At this day, the question should not be *what will it cost*,

but rather *what will the business require within the next fifty years!* Answer this question, and then make the work for the least money possible. It is therefore highly important that the people at large should be heard upon the subject—and we would recommend that meetings be held for that purpose, especially in this city; for no part of the country is more deeply interested in the measure than the city of New-York.

AUBURN AND SYRACUSE RAILROAD.—The Auburn Journal of 26th August says, "by a notice to contractors, in our advertising columns, it will be seen that the contracts upon this road are soon to be made. The route, for a good part of the distance, is already decided upon, and the intermediate space will be settled in the course of a week or two."

The completion of this road will surely be of immense importance to that flourishing village. The citizens of Auburn will secure to themselves, by their enterprize and energy, the immense travel which they would have lost, if the Railroad were to be made along the line of the Canal. Let them complete this road in a substantial manner, and they cannot be deprived of the travel.

While upon this subject, we would call attention to the description of that beautiful and flourishing village, which will be found in this number of the Journal. To the correctness of most of it, we bear testimony from long acquaintance, and doubt not of its becoming one of the most extensive manufacturing towns in the interior of the State.

It affords us pleasure to be able to lay before our readers information from authentic sources in relation to those flourishing inland towns which are rapidly growing to be cities.

The river is in excellent condition, and the canal is in the "full tide of successful experiment." Four steamboats were busily engaged, this morning, in taking in cargo.

The weather is remarkably cool, the effect, no doubt, of heavy rains to the north, so that we confidently anticipate an additional and considerable rise of the river by Wednesday.—[Pittsburg Gaz, Aug. 31.]

[For the American Railroad Journal.]

Auburn—its present growth; its future prospects; its railroad; its manufacturing power, &c.

Public attention is awakened to the advantages and value of property at Auburn. Real estate is cheaper there than it is in any other growing village in our State. There has not been a period from its foundation in 1805 to the present time, when it has a population of 6 or 7000 inhabitants, that it has not been in a healthy progressive state from its own inherent energy; and whoever looks upon it now will discover no appearance of decay, but in its beautiful dwellings, scattered in every direction, and in its long ranges of three and four story stores of hewn stone, its magnificent hotels, its numerous and splendid churches, and other public edifices, completed and in the progress of erection, will see much to gratify his taste and assure him that he is in a thriving village. When he reflects that this place was once upon the great turnpike thoroughfare, but by the construction of the canal, which passes it at a distance of 8 miles, it was thrown in the back ground, he will naturally look around him for the causes of its constant growth and present apparent prosperity. A little observation and familiarity with the surrounding country will satisfy him. He will discover that it is a central point in one of the most fertile regions of the globe, and that it must always command the trade of the country lying between the Cayuga and Skaneateles lakes; that it is in the neighborhood of the quarries of plaster, (or gypsum,) which supply the farmers with that article in Pennsylvania and New-York, and near to the supplies and manufactories of salt at Montezuma and Salina; and that it has within a few miles of it navigation by the canal, by the Cayuga and Seneca lakes, by the Seneca river and the great lakes, Ontario, &c., to all parts of our continent. This country, abounding in wealth, from its agricultural productions and its mines, and the means of transportation, must have a vast amount of internal commerce. Its only disadvantage, which is its want of means of transportation to the great channels of internal commerce, is soon to be removed by the construction of the *Auburn and Syracuse Railroad*.

A railroad company is formed under an act of the Legislature with power to transport persons and merchandize from Auburn to Syracuse. The stock has been wholly taken by the citizens of the two villages and the intermediate and surrounding country. The surveys are now completed, except that a part of the line is to be re-examined. The company intend to complete the work in the course of the next season. The engineers estimate the whole cost of the road, which is to be made in the most substantial manner, at \$300,000. The capital of the company is \$400,000. The distance is about 26 miles.

This road, in addition to being a part of the line of the great thoroughfare, will

have the advantage, not only of carrying goods and produce, as part of the great western trade, but also, of the local transportation from Auburn and its vicinity, and intermediate country, to the canal at Syracuse. The amount of this business is almost incalculable. It embraces the merchandize and country produce which is bought and sold at Auburn; the produce of the inexhaustible stone quarries and lime at Auburn; the raw materials and manufactures at the State Prison, which employ constantly 700 hands; the trade through Owasco lake from Homer and its surrounding country; the trade from Skaneateles, Camillus, Marcellus, &c., and also the great manufacturing power of the village. To these sources of revenue, which must make it one of the most profitable railroads in the State, may be added the great travel which the business between the two places must necessarily create.

Manufacturing Power.—The water power at Auburn is immense. The small amount of it which has yet been improved does not, perhaps, so much exhibit a want of enterprise among its citizens as it does the remarkable fact, that it has so long escaped the prying scrutiny of speculation. It may, perhaps, be accounted for by the fact, that enterprise has, for a few years past, followed closely the line of public improvement, and neglected many advantages not directly in its course. Within a mile from the centre of the village, upwards of 130 feet of perpendicular fall can be created in the Owasco creek: a never failing stream, which issues from a lake, two miles from the village, forming a basin 12 miles long, with an average of one and a half mile wide. The stream is subject to no floods: the water gradually rising and falling in the lake about five feet in the course of a year. The bottom of the creek is limestone rock, and the banks convenient for damming and erecting works. An incorporated company is about constructing a canal for navigation, as well as hydraulic purposes, from the lake to the village, which will afford them a head of forty feet water, and enable them to discharge the water from their works into the pond of another owner in the centre of the village. The amount of flouring mills, manufactories, machinery and mechanics, which the water power at this village may put in operation, is incalculable. There can be no doubt, that from its position in the centre of a fertile and populous country, where provisions are abundant, the excellence of building materials, the perennial supply of water, its equable discharge, its great reservoir, its immense fall, its access to market, that Auburn is one of the best, if not the very best, manufacturing stations in our State. It is destined, beyond all question, to become within a very few years, from the number and magnificence of its public and private structures, and the beauty of the surrounding country, one of the largest and most desirable and popular of our interior cities.

[From the Utica Observer.]

An Appeal to the Citizens of Oneida county, on the Enlargement of the Erie Canal

The importance of the project which was authorized by the last Legislature, to wit., the enlargement of the Erie Canal, demands the most serious attention of the citizens of Oneida. Their interests it is apparent is common with many other counties of the state, indeed all that have an interest in the navigation of the Canal must be concerned in this measure, which is designed to extend its capacity, the economy of its navigation and its general usefulness. But we appeal especially to the citizens of our own county, with whom we feel a common interest in its character for its intelligence and enterprise, and also for its prosperity. To you, fellow citizens, we look for an attentive examination of a project which deeply affects your interest.

Had any man predicted at the time the Erie Canal had its original dimensions settled, that in less than 10 years after its completion the Legislature would have authorized the doubling of its locks, and the enlargement of its dimensions, and that this would be done because the Canal had already about reached its capacity with single locks, he would no doubt have been considered a visionary, whose opinion was entitled to no more weight than a dream. But, chimerical as it would have appeared, experience has unfolded its reality; yes, in less than 8 years the Canal Commissioners recommend the construction of a second set of locks, and in less than 9 the Governor recommends the enlargement of the Canal, as a necessary measure in connection with the doubling of the locks.

In his last annual message to the Legislature, the Governor, in relation to doubling the locks, says, "I regret that the measure was not accompanied with another almost equally necessary, providing for the enlargement of the capacity of the Canal: for I deem it important that the new locks should be made with reference to this latter improvement." The Canal Commissioners on the subject, (see their report of January 1835, Assembly Documents 143,) remark,—"But on the eastern section of the Erie Canal, the crowd is already considerable and rapidly increasing." * * * * "It is the common navigable strait between the Atlantic and the great western lakes, and by position designed to accommodate the trade and travel of the enterprising and rapidly increasing population of the territories bordering on those lakes and their tributaries, almost illimitable in extent and inexhaustible in fertility. The necessity, now felt, of affording increased capacity to the Canal east of Syracuse, will in a few years be felt in its whole extent: the precise period may be disputed, but the event is certain." Page 20 of same report, the Commissioners say, "If, in the spirit of an enlightened and liberal policy, adequate capacity shall be afforded to the Canal, our western brethren will be accommodated, and their comforts increased; the resources of the state be augmented; a rich and increasing commerce will excite and reward the industry, enterprise, and skill of our citizens, in agriculture, arts, and commerce; and the state, by affording the utmost facility to that busy intercourse of trade, which improves the moral and social relations of civilized life, will at once confer on its own citizens the most lasting benefits, and on all others, in the only measure in which a bountiful Providence permits states to do them good—the greatest benefits and

blessings. "The Commissioners, therefore, respectfully submit to the Legislature that provision be now made by law for all improvements in the Canal which the Legislature shall deem necessary. The extent of these once settled, every step in the progress will be uniform, consistent, and tend to the desired result. The limits of the canal once prescribed beyond the reach of probable change, our own citizens will be the better enabled to make their contiguous and substantial improvements and direct their energies, to the increase of their wealth and happiness. The citizens of other states, in these improvements, once authorized, will find a perfect guarantee, that the products of their industry, through this Canal, will always find a free and easy transit to and from the Atlantic and the Lakes,—and trade and transportation will be invited to it, by the strong inducements of interest."

The Canal Committee of the Assembly, to whom this subject was referred, made a special report, (see Assembly Documents 354,) which, together with the document above quoted from, should be carefully read by every citizen who thinks himself worthy to reflect on the interests of the public. The committee remark—"The history of the past fully confirms the opinion entertained by those who have had the opportunity of observing the progress of our internal trade, that the time is not very far distant when the business on the Erie Canal will require the constant use of double locks, with all the advantages of an enlarged Canal and the consequent increase in the tonnage of boats."

"Within the last eight years the business on the Canal has nearly doubled, although but a small portion of that business has been derived from places beyond our own limits. Still our resources are but partially developed, and without regarding the trade from other quarters, it is not too much to anticipate that the Canal in its present condition will soon be inadequate to the wants of our own citizens. It is estimated that one seventeenth part only of the trade on the Erie Canal, is from parts without the limits of our own state; and yet the business during the last season was nearly or quite equal to the capacity of the Canal for its accommodation. It is already estimated that the detentions of a boat making a trip from Albany to Buffalo and back, during the most active season of navigation, are equal to the loss of two days; and this difficulty must increase with the increase of internal trade."

"Although but a small part of the revenue of the Erie Canal has thus far been derived from abroad; the progress of settlement and cultivation in the great and fertile regions of the west, which must naturally seek a market through the state of New-York, affords the most satisfactory assurance that the tonnage on the Canal will very soon be doubled, without taking into account the increase of our own trade."

In the reports referred to, there is much interesting matter in relation to the importance of securing to the state the trade of the extensive territory beyond its borders, which from its physical geography will most naturally seek New-York as the avenue of communication to the Atlantic. This trade is highly important to the state in general, in regard to the revenue it will produce. The city of New-York has a deep interest in its full development, and it will greatly augment business in the vicinity of this great thoroughfare. But to us, in Oneida, the great object is to have an easy and cheap communication to the Atlantic

market. The influence of the question of enlargement on the economy of transportation, is highly interesting to all concerned in the navigation of the Canal, and particularly to the agricultural interest. It is obvious that our agricultural productions constitute a large item in the tonnage of the Canal, and when taken in connection with the heavy articles of merchandize, salt, lime, and gypsum, consumed by the agricultural portion of our community, the interest of the farmers of our county, in obtaining cheap transportation, will appear far greater than that of other citizens: and demands from them a corresponding attention to the great enterprise under consideration.

In relation to the economy of transportation, the Canal Commissioners in their report before referred to, observe: "The increased width and depth of water would afford a canal of easier traction, and in the navigation of which, boats would be less exposed to injury than they are at present from contact with each other, or the banks. A moderate increase in the length would add much to the tonnage of the boat, and if the cross sections were the same, would require but a small addition to the power of traction. In truth if the Canal and boats were enlarged in this manner, to double the tonnage now usual, the crews to manage and the teams to move the boats would be about the same as now employed on the Canal."

On this point the Canal Committee in their report (before quoted from) says: "By doubling the locks, and increasing the capacity of the Canal, so that it will admit boats of 120 tons burthen, will reduce the charges for transportation more than 50 per cent. exclusive of tolls, which will be a reduction of over 25 per cent in the aggregate expense; and the Canal will be in a condition to accommodate more than four times the present amount of business." A reduction of 25 per cent. on the freight now constituting the regular tonnage, is itself of great importance. Last year it was estimated that more than \$3,000,000 was paid for transportation; twenty-five per cent. would be a saving of \$750,000—or more than half the tolls—and when the business reaches four times the amount of last year, this item will be three millions per annum. When this period arrives, we could afford to pay half the present tolls and have a navigation cheaper than the present Canal would be free of toll. But there is another, and to our county perhaps more important, advantage in this reduction of expense: in the facility it will afford of sending to market articles that will hardly bear transportation at present rates. The soil and climate of Oneida county in general is better adapted to produce the coarse grains than wheat. At times, the Atlantic market will enable us to pay transportation on these products, but the price is not always sufficient. If the reduction contemplated may be realized, then our corn, oats, and barley would become articles of cash value at fair rates. We could rely upon a fair cash price for our corn, with as much certainty as the farmer in Monroe does for his wheat. The importance of the contemplated reduction is too apparent to need further demonstration, to an intelligent community; and we only call attention to the leading points on this subject, believing our fellow-citizens will not be slow to see their importance, or to pursue such measures as will secure the object.

From the quotations before made, it will have been seen that, whether we regard the capacity that will be required, or the

economy of its navigation, the enlargement of the Erie Canal is highly important. The opinions given are not those of men enamored with a darling project that has little to recommend it but their enthusiasm, but they are the result of indubitable facts; facts that are open to the investigation of all that feel an interest in the subject. The facts have indeed compelled the adoption of opinions more rapidly than most men were willing to yield assent to the evidence of their senses, the mind being reluctant to keep pace with the rapidly accumulating demands of business. The subject has not received the attention its great importance demands from an intelligent community. This is obvious from the fact that, in all the recommendations, no definite dimensions are proposed, and it is known that the Legislature authorized nothing specific, but gave the Canal Board authority to settle such dimensions as they should deem proper. The Canal Committee proposed that the enlargement should be sufficient for boats of 120 tons, but the dimensions most suitable for this they left to be decided by the Canal Board.

The Canal Board have had a meeting and decided to enlarge the Canal to 6 feet deep and 60 feet wide: but have also authorized an estimate of the cost of 6 feet deep and 60 feet wide, and of 7 feet deep and 70 feet wide, to be submitted to them at a meeting to be held the 20th of October next. The authority for the estimate may be considered a tacit expression of the Board, that they will re-consider this matter at their October meeting. The dimensions, as settled, are believed to be entirely incompatible with the prospective demands of the business, and it is therefore proposed to examine the question.

The Canal was originally constructed 4 feet deep, and the water has subsequently been raised from 3 to 9 inches generally. The boats draw usually 2½ feet, and rarely exceed 32 inches, and carry an average burthen of about 35 tons. To raise the water from 15 to 21 inches is, therefore, all that will be practically obtained in additional depth over the present water. It may be asked, why do not the boats draw a greater depth? The reason is, the sand and mud that is deposited in many places on the bottom of the Canal, forms bars that are liable to ground boats of greater draft, and the delay to which boats of deeper draft are subject to, prevents their general adoption. As a further reason, it is generally believed that boats do not manage as easily when drawing near the bottom. The Board propose to lengthen the chamber of the locks 15 feet, which will increase the capacity of the boat. It must be kept in mind, that a small boat may navigate a Canal of less comparative dimensions than a larger one. A small boat may be controlled and its direction more readily changed in the danger of contact with other boats, or objects against which it is liable to run, than a larger one; consequently the large boat requires more liberal proportions in the Canal it navigates.

The present Canal is adapted (as appears by a table in the report of the Canal Commissioners) to boats of about 30 tons burthen, to afford the most favorable traction at a moderate velocity, and a Canal of about 6 feet deep, 60 feet wide, and locks of 105 feet chamber, (as directed by the Canal Board,) would by the same calculation be suitable for boats of about 70 tons burthen. But the Erie Canal boats are estimated to average about 35 tons, and in some instances boats have carried 50 tons. Judging from the usual practice on the present Ca-

connected with the fact that a large boat will require more proportioned dimensions in the Canal, we are not warranted in calculating the enlarged Canal as adapted to boats of more than 70 tons burthen, or double the present capacity; and when the locks are doubled equal 4 times the present capacity with single locks. Is this calculation at all commensurate with the prospective magnitude of the trade to be accommodated? The Canal Committee in their report recommend such a Canal as will accommodate boats of 120 tons burthen; and by a table given in their report, as also in the report of the Canal Commissioners, it appears that a Canal adapted to the most favorable navigation; of boats of 130 tons burthen, requires 8 feet depth of water and 80 feet width [at surface]. But the dimensions settled by the Canal Board will only be sufficient for about half this burthen. Now, it is not pretended, such a Canal will not float a larger boat, nor that a larger one could not be navigated: but it is settled by the rule of calculation referred to, that such a size is necessary, for the most economical and convenient navigation. This is also corroborated by experience on the Erie Canal, when the average load exceeds the rule of calculation only about one sixth; and it is apparent the rule should not be exceeded when applied to larger boats, if safety, convenience, and economy in the navigation, is to be secured.

In adopting a liberal plan for the boats in general use, we shall have the advantage of a navigation, that in seasons of great pressure in business, an additional 20 or 30 tons may be taken in the boat that usually carries 120 tons, a consideration of great importance.

The Canal Commissioners consider it important, as will be seen in the quotation from their report, that such dimensions should be settled as will meet the prospective demands of the trade, and thereby avoid the necessity of further enlargement: which is no doubt the correct view of the subject. The inhabitants of towns, villages, and cities on the Canal, will desire to make permanent improvements on its banks; which will render further enlargement expensive, and a severe encroachment on the established business arrangements of the country; it will be less expensive to make all necessary enlargements at one, than at two different times; and the work may be better done.

When the Canal was commenced, its success and ultimate productiveness, was, in the view of a large portion of the citizens of the state, highly problematical; and many believed it would load the state with debt, only to be relieved by heavy taxation. But the problem has been solved by experience, which now exhibits the most conclusive demonstration, and will leave us wholly without excuse, if we fail to meet the question, on the scale demanded, by the clearest evidence of its prospective magnitude and importance.

The Canal Commissioners, in their report, say, "that doubling the locks will not double the capacity of the Canal." This is obvious, as no lock can be placed so conveniently for the navigation as the one that lays directly on the towing-path. Boats will enter and leave this more conveniently, and with less delay than they can the 2d lock. A 3d lock should never be thought of, as the delay in passing a 3d set on the eastern section would greatly embarrass the navigation, if only one towing-path was used. The passing each other on one path, of such a number of boats as would require 3 set of locks, would produce delay and ma-

terially enhance the expense of navigation. Very little reflection is required to show, that the most economical navigation would be that which required only one set of locks, which is a further consideration for a canal of liberal dimensions, that the navigation may not be subjected to the delay incident to the necessary use of the 2d set of locks, when it is practicable to avoid it. To remedy this by a towing-path on the berme side, is considered by the Canal Commissioners, in their report, as incompatible with the accommodation of business on its borders, as also the convenient navigation of the Canal itself: We are, therefore, brought to a single towing-path and a double set of locks, as affording the maximum capacity of the canal.

From the suggestion of the Canal Commissioners and our own observation, we infer that the 2d set of locks would do about two-thirds the business of the 1st set: and if the capacity of the boat is doubled, we may estimate the entire capacity of the Canal when enlarged to 6 feet deep and 60 feet wide, in comparison with the present capacity as 10 to 3, or a fraction over 3 times.

By the report of the Canal Committee, it appears the business on the Canal has, excepting a small fraction, been confined to our own state. In view of the increased facilities that will be afforded by the enlarged Canal, in cheapening transportation, the improvements that may confidently be expected in our agriculture, the extension of our mechanic and manufacturing operations, and the tributaries that will be created by new lateral Canals, can we entertain any reasonable doubt, the business of our own state will alone double in the course of the next twelve or fifteen years? Since the completion of the Canal it has doubled in about eight years. If then the Canal is made 6 feet and 60, at the end of fifteen years we shall have it fully occupied for single locks, by the business of our own state; and the only resort to provide for further increase of our own business would be in doubling the locks; and if no other trade was to be provided for, this subject might be considered a reasonable provision. But when we look beyond the limits of our own state, and traverse the extensive and fertile regions that will naturally seek this channel as the avenue of intercourse with the Atlantic market—a district just emerging from a wilderness, and filling up with an intelligent and enterprising population,—can we doubt for a moment, that the capacity of the canal should be at least as large as will accommodate boats of the capacity recommended by the Canal Committee, to wit: 120 tons burthen. It is not necessary to enter on any contested ground, for there will be as much as we can accommodate by a Canal on the most liberal scale, that will seek this route in preference to any other, if we provide the means for its accommodation. But if our means are inadequate, still a large share will press into the Canal, and we must feel the delays and embarrassments it will unavoidably produce, in the enhanced price of transportation.

If this project was one that might load the state with a heavy debt, that could only be paid by imposing a general tax on its citizens, then, however bright might be the prospects of its ultimate utility, to those immediately interested in its navigation, there would be reason to proceed with greater circumspection in the degree to which the improvement should be carried. But on this point there is no further ground to doubt. On the contrary, there is the most ample reason to conclude that the surplus

revenue will in a few years, (at most 4 or 5,) pay the difference between the cost of 6 and 8 feet depth. It is believed by men familiar with this work, that the difference between 6 and 8 feet depth and corresponding width will not be more than \$4,000,000. But to provide most liberally, suppose it cost \$5,000,000 more; it will not require the revenue on the present tolls, over and above its maintenance, more than 4 or 5 years, and then we shall have a navigation that may be considered good for the next 50 years. Is it wise to do less?

We do not censure the Canal Board; they have been compelled to make their decision without any expression of the wishes of their fellow-citizens on the subject; for until their decision was published, we were slumbering over this important matter. We have been informed that one of the considerations that influenced the Board was, that no public meeting of citizens or their memorial indicated the importance in which they viewed the project of enlargement. But, as before observed, the Board have left this subject with a tacit expression, that they hold it open for re-consideration in October next. Let us then lose no time in obtaining such an expression of opinion, by public meetings and memorials, as will leave the Board no ground to doubt, that to comply with the wishes of their fellow-citizens, as well as to meet the magnitude of the object, a Canal of 8 feet in depth, and from 70 to 80 feet in general width, is indispensable.

While surrounded by pressing calls of business, we have briefly called your attention to some of the considerations involved in this project, and we hope, fellow-citizens, you will take such measures as will secure your own interest, and promote the honor and prosperity of the state.

Shall a work of eminent usefulness, deeply affecting the interest of the state, fail to receive that degree of perfection which is demanded by the clearest demonstrations of its importance? It is not for the benefit, or to please the ambition of an individual, who may control the destinies of millions, to gratify a love of splendid things; but, on the simple principle of usefulness, in affording the means of easy communication to market for a numerous people, it is a magnificent project, and peculiarly demands the attention of a government that is formed for purposes of utility. The means of accomplishment are fully provided in the work itself; not the least prospect of embarrassing the state with tax to defray the cost, can be indulged. It is indeed the grand artery, through which circulates the elements of our prosperity. Shall it then be said, the people of the State of New-York have not the sagacity to appreciate the importance, or the enterprise to promote a work so deeply affecting their interest, and which at the same time is of so easy an accomplishment? They have only to say the word, and the work is done. And what will be done? Let every citizen who regards the interests or the honors of the state, read carefully the reports that have been referred to, and reflect on the importance of the project, and we feel assured that an efficient effort will be put forth to accomplish the work on a scale that will be commensurate with its importance, and, in point of utility, will render it an imperishable monument of the wisdom and enterprise of a free people.

[From the Newark *Dat. Ado.*]

NEW-JERSEY RAILROAD.—We have received from an authentic source the following statement of the number of passengers carried on the Railroad between Newark and New York, since its opening for use, which, it will be recollected, was in the

middle of September last. The immense number of passengers which have passed over the Road, and particularly the great and constant increase, notwithstanding the large patronage which the Steamboats and Stages are receiving, demonstrates we think, conclusively, that, in a year or two, the intercourse between our town, and the city of New York, will be almost like a continuous ferry communication.

The facilities now afforded our citizens for carrying on their business with the Emporium, furnishes a substantial cause for the present great and pervading prosperity of Newark, and (whatever may be the mania in other places,) justifies the steady advance of real estate in all parts of the town.

Statement of the number of passengers carried on the New Jersey Railroad between Newark and New York, from Sept. 15, 1834, to August 1, 1835.

From September 15, 1834, to March 1, 1835, 51-2 months, there were carried an average number of	7,594 passengers per month, or	41,712
From March 1, 1835, to April 1, 1835,		8,316
From April 1, " to May 1, "		10,036
From May 1, " to June 1, "		12,540
From June 1, " to July 1, "		13,222
From July 1, " to August 1, "		16,223

Total 109,049

If the number for August be the same as July, 16,223
And half that number to the 15th Sept. 8,111

The total number carried in a year will be 126,483

The Cincinnati Gazette of the 22d instant, says, that the Ohio River, at this time, is becoming quite low; affording sufficient water only for light draught steamboats to Wheeling. We are informed that the average depth of water in the channel above, is not more than twenty-six inches.

There is only three feet water in the Louisville Canal.

The Pittsburgh Gazette of the 26th inst., says, that the river is in good navigable condition, and from the present appearance of the weather, we judge that we will have more rain, and an additional rise of water.

The Cincinnati Gazette of 22d August says, that in consequence of repairs to the aqueduct, on the lower level of the Miami Canal, about ten miles from the city, the Canal has been only in partial operation for the last two weeks. It will be nearly the same length of time before it is fully repaired, so that boats can travel the entire route.

In addition to the daily line of packet boats between Cincinnati and Dayton, there is to be a new one established soon. Two of the boats, the *Richard Hone* and *Buffalo*, have already come down the Ohio river from Portsmouth, to take their places in the line, whenever the water in the locks will admit their passage up.

[From the Boston Atlas.]

PUBLIC LANDS IN MAINE, No. 1.—As the Timber Land mania is raging with such violence at this time, we have been induced to look a little into the subject, with the view of furnishing such information as might be interesting or important to our readers. We have been indebted for the following facts, to a series of articles, written by a gentleman thoroughly acquainted with the subject, and originally published in the *Portland Advertiser*.

About forty years ago, that tract of country now comprising the counties of York, Cumberland, Lincoln, Kennebec, and a little of the south part of Oxford, constituted the great Lumber Region of Maine. The whole country east of Lincoln and north of Kennebec, and the southern towns of Oxford, contained probably less than two thousand families. Machias was then an old establishment, and its lumber men had penetrated to some distance up the West and East rivers; but more than nine-tenths of their timber was still standing.—Quoddy contained about one hundred fishermen, but was to all intents an unknown land. "The rivers from there to St. George had hardly begun to strew sawdust in the way of the salmon." Logs had been brought down the Sago from the Fryeburg and the Ossipee, but no visible impression had been made on their immense forests. The

Presumpscot at that time had hardly floated a pine above Sebago lake. The more enterprising of the lumberers were beginning to bring logs down the Little Androscoggin, the then remote wilderness of Hebron. On the Great Androscoggin, the pine forests at any distance from the river were hardly touched higher than Lewiston. The Kennebec and its tributaries, as high up as Sandy river, had yielded a portion of their timber to the market.—But one hundred and thirty townships, of six miles square, would comprise all the territory on which any considerable quantity of pine timber had been cut in Maine. A very large portion of these were covered with dense forests of the best of pine, nine-tenths of which was still standing. In general this territory was even then as well timbered as any other part of the District.

The population of this tract was then about equal to that which is now in the counties of Penobscot and Somerset alone. To the men of that day, the timber within its limits seemed inexhaustible.—But where is it now? There is not a pine in the region large enough to tempt the axe of a Penobscot lumberman.

Since that day, and in some cases before, the lumberers have either been the pioneers of the agricultural settlers, or have followed immediately on their footsteps. No township has been long settled before destruction has overtaken its pine timber.—This destruction has been, and is still proceeding, in advance of the settlement, to an extent, and with a rapidity, that can hardly be credited. Since the period of which we have been speaking, about one hundred and fifty towns have been begun and settled, and the timber, in those of them that contained any, is now wholly cut off. Besides these, there are one hundred additional townships; some of which are partly settled, and in all of which, containing any timber of consequence, the best and largest part of it is gone.

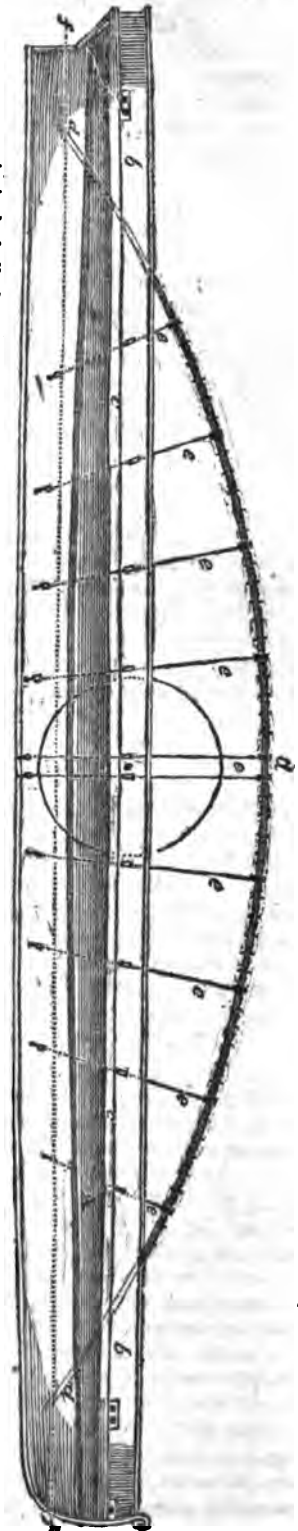
RAILROAD ACCIDENT.—On Monday afternoon, as the *Locomotive* and train of cars, from Saratoga to Ballston, came to where the old Saratoga road crosses the railroad, about half a mile east of the latter place, a one horse wagon, with a man and woman in it, stopped on the track; the engine came up at the moment, crushed the wagon, killed and mangled the woman in a shocking manner, and killed the horse—the man escaped uninjured.

IRISH RIOTS ON THE WABASH AND ERIE CANAL.—Very serious riots have occurred on this Canal between two militant parties of the Irish employed in its construction. The *Corkonians* appear to have been the strongest, until the *Fardown*, the rival faction, were reinforced, when both parties prepared for battle, and commenced arming with every thing they could lay their hands upon. Three kegs of powder were taken forcibly from a wagon on the road, and several citizens' houses were entered and robbed of muskets. A bloody battle was to have been fought between them on the 12th instant, the Anniversary of the Battle of the Boyne, but some volunteer companies from Fort Wayne and Logan's Fort, made their appearance, and Messrs. the *Corkonians* and the whole chivalry of the *Fardown*, scampered like "brave Belgians." About one hundred were taken prisoners, and fourteen of the ringleaders, including Sullivan, a very active and conspicuous one of the number, were taken to Indianapolis, for safe custody. Quiet had been completely restored.—[Cou. & Enq.]

STEAM ENGINES IN GLASGOW.—To such an extent is the business of steam engine making now carried on here, that there are thirteen firms engaged in it. Some of the works are more like national than private undertakings. Three houses alone employ upwards of a thousand persons. Dr. Cleland has ascertained that in Glasgow and its suburbs there are thirty-one different kinds of manufactures where steam engines are used, and that in these, and in the collieries, quarries, and steamboats, there are 355 steam engines, equal to 7,366 horse power—average power of engines rather more than 20 horse each.—[Ency. Britt., 7th edition.]

Improved Draft of the Hull of a Steamboat.

A, the hull; b, the transverse or bulwark; c, c, the outer edge of the girth; d, d, d, the arched or semicircular bracing, consisting of six or more thicknesses of oak plank, 2 inches thick by 12 inches wide, fastened together by screw bolts and nuts, and firmly built in and bolted to the hull, at the extreme ends, supporting the boat by its connection with the keelson, timbers, &c., with the wrought iron twisted screw bolts, e, e, e, converging to one common point. Note.—The dimensions and distances are not written, as the draft is drawn on a scale, viz., 35 feet to an inch.



To the Editor of the *Mechanics' Magazine*:

SIR,—The favorable reception you gave an article of mine in your last number, has induced me to offer the annexed draft of the hull of a steamboat, with an elevated deck, and an arched or semicircular bracing, the objects of which are the more effectually to guard against the boat being thrown out of shape by the weight of the engine, boilers, &c., &c., and the depression of the bow and stern; or the necessity of building them with such heavy materials as to cause

them to draw too much water for extreme speed, or the navigation of shallow waters; added to which, the raising of the deck in the centre (in this draft two feet) not only enables light and air to be more easily introduced to the cabins, but also brings the upper surface immediately under the water-wheel shafts, which both passengers and engineers must admit is a very desirable improvement.

I had prepared a full explanation of the draft according to my views, but upon deliberation concluded that, to those who are competent to judge of it, any explanation that I could give would be superfluous, preferring to defend its merits, if doubted, either in person or through the same medium this is given; at the same time, with all due deference, challenging a refutation of its advantages or origin, with the writer, although I am well aware that on the latter ground I shall be met with the fact, that two boats lately built are now running, each of which have improvements somewhat similar to the above, but it is no less a fact, that the design from which this draft is taken was made by me twenty-one months since, which can be duly substantiated by a

YOUNG ENGINEER.

Aug. 10, 1835.

New Hydrometer—Query.

To the Editor of the Mechanics' Magazine:

SIR,—In June, 1831, the notice now enclosed ran the rounds of all the London papers. It reads "a piece of metal," but what metal is not stated. May I request you to say in your next, whether zinc, platina, copper, or any other? If you are not aware which kind, please desire information in your valuable work.

Respectfully, your reader,

ASMODEUS.

July 18, 1835.

"A NEW HYDROMETER.—A new instrument to measure the degrees of moisture in the atmosphere, of which the following is a description, has been recently invented by M. Baptiste Lendi, of St. Gall. In a white flint bottle is suspended a piece of metal about the size of a hazel-nut, which not only looks extremely beautiful, and contributes to the ornament of a room, but likewise predicts every possible change of weather 12 or 14 hours before it occurs. As soon as the metal is suspended in the bottle with water, it begins to increase in bulk, and in 10 or 12 days forms an admirable pyramid, which resembles polished brass, and it undergoes several changes till it has attained its full dimensions. In rainy weather this pyramid is constantly covered with pearly drops of water; in case of thunder or hail, it will change to the finest red, and throw out rays; in case of wind or fog, it will appear dull and spotted; and previously to snow, it will look quite muddy. If placed in a moderate temperature, it will require no other trouble than to pour out a common tumbler full of water and put in the same quantity of fresh."

Any of our friends or correspondents who will solve this question, will much oblige.

[From the London Mechanics' Magazine.]

ANTIS' IMPROVED CHIMNEYS.

SIR,—If the following paper, abridged from *Hazard's Register of Pennsylvania*, will tend at all to a discontinuance of the revolting practice of employing climbing boys in chimneys, I shall be happy to see it in your valuable and instructive publication.

Yours faithfully, A. Z.

To construct a chimney which would carry smoke has been found in practice one of the most precarious objects of mechanism. So little has the theory of smoke and draft been understood, that if ever a chimney was constructed to draw well, it was evidently a matter of accident; for no mechanic seemed to have any rule for constructing chimneys which would ensure a good one. We have been extremely gratified within a few days, by the inspection of a flue, and a set of fireplaces, constructed upon a plan entirely new in principle, invented by Mr. Henry Antis. We had not the pleasure of seeing Mr. Antis' model; but we saw the practical effect of his discovery, by a chimney and fireplaces in operation, in the house of Mr. Joseph Wallace, in Front street, the success of which is complete, and triumphantly sustains Mr. Antis' theory on the subject. His theory is, that cold atmospheric air tends to the centre of gravity, till it meets with some obstruction, which gives it another direction; that heated or magnified air is exactly vertical in motion; that hence, the flue to carry it off should be perfectly vertical, and in no place of smaller dimensions than at the bottom or first inlet. He maintains that it matters not how many inlets there be to it, provided the area of a cross section of the flue be equal to those of all the inlets combined; it may be greater, but must never be smaller. He therefore starts with a single flue from the cellar, regulating the size to cover the area of all the contemplated inlets from bottom to top. He carries it up all the way of the same size, in exact perpendicular direction; nor need the wall be more than the width of one brick in thickness. Wherever he wants a fireplace, he attaches jambs of the usual shape, leaving the common perpendicular wall of the flue for a back, throwing an arch across at the proper place in the usual form, covering it tight to the back wall. Immediately opposite or below the covering of the arch, he leaves a horizontal aperture in the flue, the whole width of the fireplace, from jamb to jamb, in size according to calculation previously made, and according to the height of the arch, which, for jambs from twenty-four to thirty inches high, must not be less than three inches perpendicular in the opening.

There seems to be philosophy in this theory; and practice, so far as tried, proves that there is truth in it; and we have no doubt the plan will, on a little further trial, be universally adopted by builders.

Beneath each grate, fitted in a fireplace, is an opening left, which descends

obliquely into the flue. In this opening, on a level with the hearth, is a fire grate fixed, through which the ashes descend from the grate above. And such is the effect, that while a strong current of air is produced by the heat from the fire in the grate, through the horizontal aperture above, a moderate draught is also maintained in the oblique one below, which carries off all the dust; so that from a coal fire not a particle of dust escapes into the room. He also affixes a valve to each inlet, hung in such an ingenious manner, that the mere pulling of a small brass knob closes it entirely; and thus, in case the chimney should take fire, all the currents of air may be stopped in a moment, and the fire dies at once. Not a particle of soot can ever enter your room or your fireplace; for that, as well as the ashes, all descend to the bottom of the flue in the cellar, where an opening, with a sheet iron door, is constructed, from which these articles can be taken, and through which a sweep may enter and perform his duties, without disturbing the business, or amusements, or quiet, of any part of the family. Where necessary, he also carries up side flues in the jambs, by which air can be introduced, to regulate the temperature of your room, or the force of your draughts.

The advantages of this improvement are,

- 1st. Fewer materials are used, which cheapens the work.
- 2d. Less room is engrossed by dead brickwork.
- 3d. No annoyances from soot or ashes in your rooms—not even when a sweep ascends to clean out your flue.
- 4th. Power to regulate the temperature of your rooms, without opening doors or windows.
- 5th. Perfect security against smoke in every room in your house.

AGRICULTURE, &c.

This communication, together with another, from an esteemed correspondent, both received in time, was by some means mislaid at the proper period for publication; they are both from practical men, and of much consequence to other practical men, although somewhat out of season for this year, to be omitted entirely—and we therefore give them now, trusting to the good memory of those who may be benefitted by them to apply them next year.

East Lyme, Giant's Neck, April, 1835.

To the Editor of the New-York Farmer:

SIR,—Living retired in a dark corner of the world, I have seen your paper the last winter, and find many valuable rules in farming in your paper; I will give you a plan of planting potatoes. If you think it worth publishing, I have no objection.

The first thing get your ground well prepared by ploughing, it should be mellow and soft, I think twice ploughing preferable. Then spread your manure on the furrows from ten to twenty or thirty loads to the acre, just as you have it to spare, then take a large iron tooth harrow, and harrow the

manure well into the ground as well as possible; then furrow your ground with an old fashion Dutch plough, if you have one without any share, just to make a mark, say two inches deep. I prefer large potatoes for planting, they should be cut into two or three pieces, calculating to have three good eyes on a piece, plant one piece in a hill, calculating to have your rows two and a half feet apart, and eighteen inches between hills.

The reason I have for cutting potatoes is this, a small or middling size potatoe has, many times, as many eyes as a large one. Therefore when you plant them, you have too many shoots in a hill, and these increase your number of potatoes, and not the quantity, but rather diminish the quantity; in planting the large ones cut, you have a greater quantity, and better quality, they are more sizeable or larger. Potatoes are much better to grow top of the ground, they produce better, the quality is better, and much less labor to raise them; potatoes should have a sharp peaked hill, when you hill them up the last time. The plan is simple, I recommend farmers to try it.

Respectfully yours,
G.

[From the Tennessee Farmer.]

SAVING CLOVER SEED.—The two great objects to be attended to, in raising clover seed with profit, are—first, to secure the production of as large a crop to the acre as practicable—and secondly, to harvest the crop in such a manner as to bring as large a portion of the seed into the barn and to leave as small a portion of it as possible in the field.

To attain the first object, that of securing a large product, we have in our preceding numbers, in observations on the culture of clover, given the necessary directions, we will now only repeat, that the main things to be attended to are the following:—1st, That the land be fertile. 2d, That it be well prepared before sowing the seed, as heretofore directed. 3d, That a sufficient quantity of seed be sown to the acre. 4th, That it be evenly distributed over the ground. 5th, That whenever the land requires its aid, gypsum or plaster be sown on the clover. And 6th, That it be not injured by injudicious or excessive grazing. If these particulars be well attended to, an acre of ordinary land will produce three bushels of seed in a common season, often more.

We now come to speak of the more difficult and laborious operation of safely and economically harvesting and securing it. This requires care and attention. The great objects to be aimed at are, to cut the seed at the period when there is the largest portion of ripe seed on the ground, in that stage of maturity which will admit of its being collected into the barn, and so to handle it as to prevent the seed from being shattered off and left on the field, while straw or haulm only is collected in the barn. It is, we believe, to the improvident and ruinous neglect of strict attention to these two latter objects, that most farmers may attribute their failure in making clover seed. We will lay before our readers the results of our own observation and experience on these important points, hoping that those of our patrons, who may have discovered a better mode of effecting these objects than the one recommended, will yet communicate to us their practice in time to enable us to lay it before the public in our next number.

Time of Cutting.—As the clover seed, from the time the first heads ripen, until the close of the season, are daily arriving

at maturity, the great desideratum is to ascertain the precise period when there is on the ground the greatest portion of ripe seed in a state which will admit of its being collected and brought into the barn. If the clover be cut before this period, there must evidently be a loss sustained, from the immaturity of too large a portion of the seed. If the cutting be deferred beyond this period, an equal, and perhaps a greater loss, will be sustained, from the impossibility of saving the seed first ripened, generally the best, on account of its being so easily shattered off. We would recommend, as the most eligible time for cutting, the period when about two thirds of the heads have become ripe and assumed a black color, many of the others, at this time of a brown color, will ripen after cutting.

Mode of Cutting.—Where the clover has not lodged, and is high enough to admit of it, by far the most expeditious, and in every point of view the most eligible mode of cutting, is to cradle it as we do grain, only throwing it into double swarths, that is laying the clover cut from two lands in one swarth. If the grass be so short as to require it, a strip of linen may be fastened on the fingers of the cradle so as to prevent the heads falling through them.

Mode of Curing.—If this crop be not heavy and the weather be good, the swarths may lie undisturbed for several days, until the hay be perfectly cured; it should then, in the morning or evening, while sufficiently moist from the dew, to prevent its shattering off too easily, be gently raked into small bunches, such as can be conveniently raised with a fork and laid on the wagon. When not too damp, these bunches should be hauled to the barn, and either stowed away in mows, or, which is best, threshed off, and either immediately cleaned, or else the heads stowed away in a room prepared for the purpose until winter, to be then threshed or trodden out. But should there be rain on them, or should they be suffered to remain in the field any considerable length of time after being raked up, these bunches must with a fork be gently turned bottom upwards, and laid in a new place, after every rain to which they may be exposed, and after every two or three days they may have lain in the field in fair weather. This is necessary to prevent the seed from being injured by the heat and moisture to which they will have been exposed, from the sun, the rain, and the moisture of the earth. After being sufficiently cured, while dry, let the seed be gently laid on the wagon or sled, and hauled to the barn, using every necessary precaution to ensure that as little of it as possible be left in the field or scattered along the road.

Mode of Cleaning.—Various methods are practised for cleaning the seed from the chaff. The only two as far we know used in this country, are treading it out with horses, or cleaning it in a threshing machine: the first is tedious, laborious, filthy and unwholesome, both to man and beast, the latter is far preferable in every respect, but as all are not provided with threshing machines, and as therefore many must still continue to tread out their seed, we will submit a few observations on the mode of performing this operation. Having covered the barn floor with seed in the chaff to the depth of from 12 to 16 inches, put on the horses and tread one day, the next morning run the chaff through a fan, much of it will have been beaten to dust and will be blown away, as will also the light chaff having no seed, and that from which the seed has been separated,

but much the larger portion of the seed, still enveloped in the chaff, will be found in the rear of the fan; this, having been separated from the empty chaff adjoining it, must be again spread on the floor, and having added another portion of untrodden chaff, the horses must be again put on and made to tread it another day, when it should be again run through the fan as before; the produce of this will far exceed that of the first day's treading, but still much good seed will be found immediately in the rear of the fan not yet separated from the chaff—this must be again spread on the floor, and a new addition be made of untrodden chaff, and this process must be repeated until the whole crop is trodden out. The seed, after passing through the fan, should first be run through a sieve, sufficiently coarse to permit the clover seed to pass through, but retaining all larger seeds and trash. It should then be again run through a finer sieve, retaining the clover seed, but permitting the passage through of all smaller substances; by these two processes, the clover seed will be thoroughly cleansed from all kinds of filth and prepared for market. The only advantages derived from cleaning the seed rather than sowing it in the chaff, are the ascertaining with greater certainty the quantity sown and the ensuring a more equal distribution of the seed—where, therefore, a sufficient quantity can be afforded to ensure the desired thickness in every part of the ground, sowing in the chaff will not only do as well, but is to be preferred, as it is believed more likely to come up and to stand.

In reply to our correspondent's 3d query, as to the time of ploughing under clover for wheat, we would recommend that it be done so soon as a considerable portion of the seed has become ripe—the wheat should then be sown and well harrowed in, but the land should by no means be again ploughed, until the wheat has been taken off.

As to briars and sedge grass, we refer our subscriber to what we have said in former numbers, and in the present—the sedge grass he will find easily subdued, if the ground be ploughed and harrowed in the winter; pasturing and deep ploughing are the only effectual modes we have tried for extirpating briars and sprouts, we have much confidence however in the efficacy of the mode described in the receipt published in this number.

Harmon's threshing machine will thresh out, if properly attended to, from five to ten bushels of clover seed, and from 150 to 200 bushels of wheat per day. This machine will cost about fifty dollars, exclusive of the house and millwright's work; this is the only machine for cleaning clover seed used in this part of the country—of which we are apprised; we have used it for two years past with great advantage, especially in cleaning clover seed.

[From Hovey's Gardener's Magazine.]

Notices of some of the Gardens and Nurseries in the Neighborhood of New-York and Philadelphia; taken from Memoranda made in the Month of March last.
By C. M. H.

THE ESTABLISHMENT OF MR. G. C. THORBURN, SEEDSMAN AND FLORIST, in Liberty street, (formerly the property of our excellent correspondent, now of Hallett's Cove,) demands mention for its judicious and tasteful arrangement, and for the fine variety of plants it contains. All

though not so much attention may be given to their growth, as in nurseries where the cultivation of plants is the sole business of the proprietor, still they have the appearance of strength and health, and well fitted for exportation to various parts of the country.

It is now upwards of thirty years since our correspondent, Grant Thorburn, Esq., first commenced the business of a seedman in New-York. After a series of years of toil and labor, in endeavoring to establish himself and his business in the confidence of the public, he was subjected to the great loss of nearly all his property, which was destroyed by fire. A few years afterwards he was also nearly ruined by his attempting to raise seeds, which could not be imported, in consequence of the late war. This expensive method of procuring seeds in this country, with the little knowledge of their growth at that time, could not otherwise than prove an unprofitable and fruitless attempt; he however again resumed his former business, and by the help of friends was enabled to establish the foundation of what the establishment now is. Mr. Thorburn's sons were, a few years since, connected with him in the business; one of them left, and it was carried on by himself and eldest son. Mr. Thorburn has lately retired from the business altogether, and given it up to his son, Mr. G. C. Thorburn, who now conducts the whole.

We have been thus particular in mentioning these facts, although they may be already well known to most of our readers, for many reasons; the first of which is, that we cannot but think the establishment of such a place, in the very centre of so large and populous a city as New-York, and at a time when gardening was little known, has been of exceedingly great importance in spreading, and much more extensively diffusing, a general taste for floricultural pursuits. The nursery of the Messrs. Prince, on Long Island, and of others in Philadelphia, date their origin at a much earlier day, but they are not situated where the public could have that easy access to them that they have had at this place. We have no hesitation in saying, that this establishment has tended as much toward the dissemination of a taste for gardening pursuits, as any nursery or garden in our country. Who has not noticed Lawrie Todd, as our correspondent still styles himself, in the various papers and periodicals of which he is a frequent contributor? Who has not listened to his oft-told story of his first landing upon the shores of our country—of his future success—of his great, if it cannot be called lucky, success in acquiring a competent fortune; few indeed there are, especially those interested in Horticulture, who have visited, or passed through New-York, who have not availed themselves of the opportunity of walking through the establishment of the Messrs. Thorburn.

This place, as most of our readers are probably aware, has lately been sold for an immense sum of money, realizing al-

most a fortune to its former owner. It is soon to be razed to the ground, and the place, which has long been the resort of the horticulturist and the florist—where for many years the gorgeous tulip has arrayed itself, and the hyacinth given out its fragrant odor, where the dahlia, the pride of the autumn, has reared its magnificent head, and where even winter appeared with not half its rigors, by the continuous bloom of the snowy white Camellia, through the dreary weather,—is to be built up with blocks of stores or dwellings. The value of land in New-York will soon cause every garden, as it has nearly already, to be removed without the city.

In the green-house we did not find many flowers in bloom; here, as well as at Mr. Hogg's, an immense number of bouquets of flowers are cut throughout the winter, and more particularly in the months of February and March. We saw, however, in flower, *Amaryllis formosissima* and some other species. *Camellia japonica*, var. *imbricata*, was splendidly in flower: we believe this was the only place where we observed it in bloom during our visit. It has since flowered at Col. Perkins', in Brookline, and also in our garden. It is one of the finest of *Camellias*; it is figured in Chandler's illustrations of the *Camellia*, and in the Botanical Register; in the former, the flower is represented of a deep crimson color, and is stated as occasionally being striped with white; in the latter, it is striped or edged with white, exactly the same as the three different plants which we have had the opportunity of seeing. It is rather singular that it should have been described as being of a deep crimson color: the plant at Col. Perkins' had several flowers upon it, all of which were nearly alike. Here were also fine large plants of *C. variegata*, *C. incarnata*, and others with several flowers expanded. Mr. Thorburn's stock of *camellias* is large, and contains a fine variety; we noticed among the rest, *colvillii*, *reticulata*, *eximia*, &c. Here were some fine plants of *Magnolia grandiflora* raised from seed; *Pandanus* (sp. ?) and large American aloes. Mr. Thorburn, sen., when he was last in England, brought home several vases, which, in March last, ornamented the green-house. Two plants of *Ardisia colorata*, were growing in two of them; the largest plant of the Indian rubber tree (*Ficus elastica*) we have ever seen, was growing at this place. It is a most admirable plant, and few are aware of its great beauty when plunged out in the border, or if large plants, placed in vases, and set upon the lawn, or among the shrubbery of the flower garden; its large, strong, thick, fleshy, and deep-green leaves, have a noble appearance; it is also a fine ornament to the green-house or conservatory. *Pæonia moutan*, var. *Banksia*, was in flower, with several blossoms expanded; several pots of *lachenalias*, and *hyacinths* were in full bloom. We here observed several plants, of a species of beet, which are grown for the beauty of their leaves and footstalks,

some of which are of a bright yellow, and others of a deep crimson. Many other plants we noted down, but as they were not in flower, our enumeration of them would not be of interest to our readers. We have lately understood that Mr. G. C. Thorburn intends removing early in the fall; to what place we are not informed.*

NURSERY OF MESSRS. SHAW & THORBURN, HALLET'S COVE, LONG ISLAND.—This nursery has been established within a few years. It is about twenty acres in extent, and situated near the landing of the ferry at Hell-Gate; the distance, we believe, of about five or six miles from the city. It was first established under the direction of Mr. John Thorburn, who erected a large and extensive green-house, and also one or two smaller ones, for the forcing of flowers for the purpose of cutting bouquets during winter, with which he supplied (and still continues to) his brother in New-York. About a year since, Mr. Shaw, formerly of the old Botanic Garden, was taken in a partner, and the business is now conducted in their name.

Their collection of plants is quite large, and embraces many fine and choice kinds. In *camellias* and *geraniums* they are very rich; they have, also, a fine collection of *amaryllises*, including many of the seedlings raised at Colville's. Among the *camellias* we saw in flower, varieties *florida*, *coccinea*, (*Alnuds splendens*), *variegata*, *Woodsii*, *incarnata alba plena*, *compacta*, *anemoneflora alba*, and a kind supposed *concinna*; the latter was extremely beautiful; but the label having been lost, or accidentally exchanged, it was misnamed. There was here a good stock of *rhododendrons* and *azaleas* of the newer kinds, including the *R. altaclegreen*, *morterii*, *Russellianum*, &c. The green-house is divided by a glass partition, and one part is kept at a considerable higher temperature than the other, answering the purpose of a hot-house or stove. In this we observed that curious and singularly beautiful plant the Canary bird flower, (*Tropæolum peregrinum*), covered with its copious wreaths of flowers; this plant, like many other twiners or climbers, is remarkable for the footstalks of its leaves, answering the purpose of tendrils; it quickly attaches itself to any thing in its way, and often attains to a great height: we should think that this plant extended several feet, and had open several hundred flowers. We mentioned this plant not long since (204) as being in bloom in Mr. R. Buist's, Philadelphia. We then gave it the specific name of *pentaphyllum*, with some observations on a new genus, &c. We wrote from memory without any reference, and inadvertently fell into this error: it will be found corrected in the present number, in our notices of new plants. We again state that it is easily propagated from cuttings or seeds, and that it is deserving a place in every green-house. Among the *amaryllises* we observed in flower John-

* He has removed to John st., near Broadway.

sonia, venusta, and several other equally beautiful kinds. Here was a good stock of the cacti, and we noticed a plant of *C. mallisoni*, a splendid new hybrid. We observed many other fine things in the stove compartment, but want of time prevented our making a memorandum of them.

In a small pit or green-house adjoining the larger one, we observed a large number of roses, and flowers in bloom, for cuttings for bouquets. In this were placed several camellias which had been budded the preceding fall, and had taken well. The method of budding was different from that in general use: the bud is prepared by taking off a piece of the bark with the bud attached, cutting it exactly of the same size as the piece taken out of the stock, in order that the edges may meet as close as possible. The size of the bud will vary according to the strength of the wood; but in general it should be about half or five-eighths of an inch in length, and one or two eighths in breadth: the whole should be covered with grafting wax, as bass matting alone will not keep the air from the bud. This method answers very well for increasing the camellia, the wood of which is so hard, that the old method of inserting the bud under the bark cannot be performed with much certainty. We here observed *Erica baccans*, with its elegant tufted heads of rosy-colored flowers, in full bloom; the common *Keria japonica* was flowering, trained to the back wall. *Lupinus mutabilis*, that new splendid annual, was throwing up spikes of flowers; the plants were taken from the flower border, and placed in pots, early in the fall, our summers being scarcely long enough for it to open its flower buds in the open air; its changeable flowers are extremely showy. There was also here a fine stock of that gem of the garden we have so frequently noticed, the *Petunia phoenicea*. Messrs. Shaw & Thorburn's gardener appeared very industrious and well informed, and the plants under his care looked exceedingly well.

TO DESTROY THE CANADA THISTLE.
—Cut them off near the ground, when they are full in the blow or a little past. This process I have tried for three years, and find that it entirely eradicates them from the fields by once mowing. I have noticed several modes of destroying this noxious weed in the Cultivator, but find none attended with so small expense as mine, which has induced me to send you the above. SOLOMON W. JEWETT.
Weybridge, Vt., July 23, 1835.

Remark.—In confirmation of the above, we can state, that in 1834 we unexpectedly found a quarter of an acre of rank thistles in a piece of grass ground recently laid down. They were in full bloom when the grass was mown. The present year, the number was apparently diminished five-sixths, and what remained were stunted dwarf plants. The thistle spreads most in ploughed ground and in highways, where they are rooted among by the hogs.—[Cultivator.]

THE GENESSEE FLATS.—We have often heard of the extraordinary fertility of these fine lands; but the annexed paragraph from the *Mount Morris Spectator*, even exceeds our previous conceptions of the extent of that fertility.

GOING AHEAD!—Mr. Editor: Please give the following a place in your paper for the benefit of the Genessee Valley farmers: Messrs. Geo. and Philo Mills have harvested this season, from twenty-seven acres of the Genessee Flat lying near this village, 1,270 bushels of wheat; threshed, cleaned, and delivered the same to B. & J. Campbell, in four days, for one dollar per bushel. Can the far-famed "West," beat this.

Forty-seven bushels of clean wheat to the acre, and that not in a small field of two or three acres, but for 27 acres, cannot, we may well believe, be exceeded, either in the "far famed West," or elsewhere.

We may add, that this is part of the land offered for sale, in the columns of this paper, by B. W. Rogers.

To the Editor of the New-York American.

Dear Sir,—I observe in the American of last evening, an article taken from the *Mount Morris Spectator* of 30th August, in which it is stated that on 27 acres of the Genessee Flats, P. & G. Mills, who are tenants of mine, had raised this season 1270 bushels of wheat, being 47 bushels per acre.

As this appears to have excited your surprise, and as the *Mount Morris Editor* has pleasantly challenged the "far West" to beat it, and as the fine lands of the Genessee Valley, at a distance from the great travelled road, are too little known, permit me to state some additional facts respecting them.

Mount Morris is in Livingston County, six miles beyond Genesee. When there in July last, General Mills informed me that from 80 acres of the Mount Morris Flats, lying in one body, he raised the last year 3,200 bushels of wheat of best quality, and that it was accurately measured under his own inspection, being 40 bushels per acre.

The 27 acres are not of superior quality to the adjoining flats, and not equal to some of the Leicester flats on the opposite side of the Genessee river. As in your notice of the above you refer to these, as being some of the lands advertised for sale by me in your country paper, permit me to state, that, on farm No. 1, containing 400 acres, lying in Leicester, there are at least 350 acres, in every respect equal to, and on farm No. 2, containing 170 acres, more than half is superior, in quality to the above 27 acres.

From 170 acres lying in one body in number one, Dr. Wm. C. Dwight, the present tenant, raised two years since, twelve thousand eight hundred bushels of shelled corn, being upwards of 75 bushels per acre; and on number two, in the summer of 1834 he had 20 acres in wheat, in one body, which averaged 48 bushels per acre; two acres of the best of which he measured off, and of these the produce was 52 bushels per acre.

The editor states that the 1270 bushels of wheat were threshed, cleaned, and delivered in four days. It is customary on these flats to have the thrashing machines taken to the stacks of wheat on the field, by which much labor and time are saved. Some of the large farmers there also make use of machines for cutting the grain, which are moved by horse power. With one of these, one man, with a pair of horses, can cut 12 to 15 acres of wheat between sun-rise and sun-set. The wheat as cut falls upon a platform, and connected with the machine is a revolving rake, which takes the grain from the platform, and places it on the ground precisely in the proper quantity for a sheaf; and though all that is required of the binder, is to make the bands, and bind up the sheaves, I have seen nine active binders busily employed in keeping up with the cutting machine. The work is done with not one-fourth the waste of grain, which takes place in the usual mode of cradling or reaping.

These machines of course are only calculated for fields, free from stumps and brushwood, and cost about 160 dollars each.

If you think this communication of sufficient importance to interest your readers, do with it as you please. Yours, respectfully,

B. WOOLSEY ROGERS.

September 1.

NEW-YORK AMERICAN.

AUGUST 29—SEPTEMBER 5, 1835.

DISCOVERIES IN THE MOON.—We commence to-day, and will finish to-morrow, the republication, from one of the penny papers, the Sun, of a narrative of discoveries, which has the merit of great talent and unquestionable originality. Few things of the sort have been more successful in making their way to general belief—and if scepticism afterwards came in with its cold doubts, the ready believers could not but feel with certainty that they had, at least, been delighted.

We believe both the narrative and the discoveries are the production of this city, and they certainly evince knowledge, fancy, and acquirements, of a high order. We congratulate the Sun upon having such a coadjutor.

Great Astronomical Discoveries.

Lately made by Sir John Herschel, L. L. D., F. R. S. &c. at Cape of Good Hope.

[From the Supplement to the Edinburgh Journal of Science.]

In this unusual addition to our Journal, we have the happiness of making known to the British public, and thence to the whole civilized world, recent discoveries in Astronomy which will build an imperishable monument to the age in which we live, and confer upon the present generation of the human race proud distinction through all future time. It has been poetically said that the stars of heaven are the hereditary regalia of man as the intellectual sovereign of the animal creation. He may now fold the Zodiac around him with a loftier consciousness of his mental supremacy.

It is impossible to contemplate any great Astronomical discovery without feeling closely allied to a sensation of awe, and nearly a kin to those with which a departed spirit may be supposed to discover the unknown realities of a future state.—Bound by the irrevocable laws of nature to the globe on which we live; creatures, "close shut up in infinite expanse;" it seems like acquiring a fearful supernatural power when any of the remote and mysterious works of the Creator yield tribute to our curiosity. It seems almost a presumptions usurpation of powers denied us by the divine will, when man, in the pride and confidence of his skill, steps forth far beyond the apparently natural boundary of his privileges, and demands the secrets and familiar fellowship of other worlds. We are assured that when the immortal philosopher to whom mankind is indebted for the thrilling wonders now first made known, had at length adjusted his new and stupendous apparatus with a certainty of success, he solemnly paused several hours before he commenced his observations, that he might prepare his own mind for discoveries which he knew would fill the minds of myriads of his fellow men with astonishment, and secure his name a bright if not transcendent conjunction with that of his venerable father, to all posterity. And well might he pause! From the hour the first human pair opened their eyes on the glories of the blue firmament above them, there has been no accession to human knowledge at all comparable in sublime interest to that which he has been the honored agent in supplying; and we are taught to believe that, when a work, already preparing for the press, in which his discoveries are embodied in detail, shall be laid before the public, they will be found of incomparable importance to some of the grandest operations of civilized life. Well might he pause! He was about to become the sole depository of wondrous secrets which had been hid from the eyes of all men that had lived since the birth of time. He was about to crown himself with a diadem of knowledge which would give him a conscious pre-eminence above every individual of his species who then lived, or who had lived in the generations that are passed away. He paused ere he broke the seal of the casket which contained it.

To render our enthusiasm intelligible, we will state at once that by means of a telescope, of vast dimensions, and an entirely new principle, the younger Herschel, at his observatory in the Southern Hemisphere, has already made most extraordinary discoveries in every planet of our solar system; has discovered planets in other solar sys-

ness; has obtained a distinct view of objects in the moon, fully equal to that which the unaided eye commands of terrestrial objects at the distance of a hundred yards; has affirmatively settled the question whether this satellite be inhabited, and by what order of beings; has firmly established a new theory of cometary phenomena; and has solved or corrected nearly every leading problem of mathematical astronomy.

For our early, and almost exclusive, information concerning these facts, we are indebted to the devoted friendship of Dr. Andrew Grant, the pupil of the elder, and for several years past the inseparable coadjutor of the younger Herschel. The amanuensis of the latter at the Cape of Good Hope, and the indefatigable superintendent of his telescope during the whole period of its construction and operations, Dr. Grant has been enabled to supply us with intelligence, equal in general interest at least to that which Dr. Herschel himself has transmitted to the Royal Society. Indeed our correspondent assures us that the voluminous documents now before a committee of that institution contain little more than details and mathematical illustrations of these facts communicated to us in his own ample correspondence. For permission to indulge his friendship in communicating this invaluable information to us, Dr. Grant and ourselves are indebted to the magnanimity of Dr. Herschel, who, far above all mercenary considerations, has thus signally honored and rewarded his fellow laborer in the field of science. The following engravings of lunar animals and other objects, and of the phases of the several planets, are accurate copies of drawings taken in the observatory by Herbert Home, Esq. who accompanied the last powerful series of reflectors from London to the Cape, and superintended their erection; and he has thus recorded the proofs of their triumphant success. The engraving of the belts of Jupiter is a reduced copy of an imperial folio drawing by Dr. Herschel himself, and contains the results of his latest observation of that planet. The segment of the inner ring of Saturn, is from a large drawing by Dr. Grant.

We first avail ourselves of the documents which contain a description and history of the instrument by which these stupendous discoveries have been made. A knowledge of the one is almost essential to the credibility of the other.

THE YOUNGER HERSCHEL'S TELESCOPE.

It is well known that the great reflecting telescope of the late elder Herschel, with an object glass four feet in diameter, and a tube forty feet in length, possesses a magnifying power of more than six thousand times. But a small portion only of this power was ever advantageously applied to the nearer astronomical objects; for the deficiency of light from objects so highly magnified, rendered them less distinct than when viewed with a power of a third or fourth of this extent. Accordingly the powers which he generally applied when observing the moon and planets, and with which he made his most interesting discoveries, ranged from 220, 460, 750, and 900 times; although when inspecting the double and treble fixed stars, and the more distant nebulae he frequently applied the full capacity of his instruments. The law of optics, that an object becomes dim in proportion as it is magnified, seemed, from its exemplification in this powerful telescope, to form an insuperable boundary to further discoveries in our solar system. Several years, however, prior to the death of this venerable astronomer, he conceived it practicable to construct an improved series of parabolic and spherical reflectors, which, by uniting all the meritorious points in the Gregorian and Newtonian instruments, with the highly interesting achromatic discovery of Dolland, would, to a great degree, remove the formidable obstruction. His plan evinced the most profound research in optical science, and the most dexterous ingenuity in mechanical contrivance; but accumulating infirmities, and eventually death, prevented its experimental application. His son, the present Sir John Herschel, who had been nursed and cradled in the observatory, and a practical astronomer from his boyhood, was so full convinced of the value of the theory, that he determined upon testing it at whatever cost. Within two years of his father's death, he completed his new apparatus and adapted it to the old telescope with nearly perfect success. He found that the magnifying power of 6000 times, when applied to the moon, which was the severest criterion that could be selected, produced, under these new reflectors, a focal object of exquisite distinctness, free from every achroma-

tic obscurity, and containing the highest degree of light which the great speculum could collect from that luminary.

The enlargement of the angle of vision which was thus acquired, is ascertained by dividing the moon's distance from the observatory, by the magnifying power of the instrument; and the former being 240,000 miles, and the latter 6000 times, leaves a quotient of 40 miles, as the apparent distance of that planet from the eye of the observer. Now it is well known that no terrestrial objects can be seen at a greater distance than this, with the naked eye, even from the most favorable elevations. The rotundity of the earth, prevents a more distant view than this with the most acute natural vision, and from the highest eminences; and, generally, objects seen at this distance, are themselves elevated on mountainous ridges. It is not pretended, moreover, that this forty miles telescopic view of the moon presented its objects with equal distinctness, though it did in equal size to those of this earth so remotely stationed.

The elder Herschel had nevertheless demonstrated that with a power of 1,000 times he could discern objects in this satellite of not more than 122 yards in diameter. If therefore the full capability of the instrument had been elicited by the new apparatus of reflectors constructed by his son, it would follow in mathematical ratio that objects could be discerned of not more than 22 yards in diameter. Yet in either case they would be seen as mere feeble, shapeless points, with no greater conspicuity than they would exhibit upon earth to the unaided eye at the distance of forty miles. But although the rotundity of the earth presented no objection to a view of these astronomical objects, we believe Sir John Herschel never insisted that he had carried out these extreme powers of the telescope in so full a ratio. The deficiency of light, though greatly economized and concentrated, still maintained some inverse proportion to the magnitude of the focal image.—The advance he had made in the knowledge of this planet, though magnificent and sublime, was thus but partial and unsatisfactory. He was, it is true, enabled to confirm some discoveries of former observers, and to confute those of others.—The existence of volcanoes discovered by his father and by Schroeter of Berlin, and the changes observed by the latter in the volcano in the *Mare Crisium*, or Lucid Lake, were corroborated and illustrated, as was also the prevalence of far more extensive volcanic phenomena. The disproportionate height attributed to the lunar mountains—whilst the celebrated conical hills, encircling valleys of vast diameter, and surrounding the lofty central hills, were distinctly perceived. The formation which professor Fraunhofer uncharitably conjectured to be a lunar fortification, he ascertained to be a tabular buttress of a remarkable pyramidal mountain; lines which had been whimsically pronounced roads and canals, he found to be keen ridges of singularly regular rows of hills—and that which Schroeter imagined to be a great city in the neighborhood of *Maurius*, he determined to be a valley of disjointed rocks scattered in fragments which averaged at least a thousand yards in diameter. Thus the general geography of the planet, in its grand outlines of cape, continent, mountain, ocean and island, was surveyed with greater particularity and accuracy than by any previous observer; and the striking dissimilarity of many of its local features to any existing on our own globe, was clearly demonstrated. The best enlarged maps of that luminary which have been published, were constructed from this survey; and neither the astronomer nor the public ventured to hope for any great accession to their developments. The utmost powers of the largest telescope in the world had been exerted in a new and felicitous manner to obtain them, and there was no reasonable expectation that a larger one could ever be constructed, or that it could be advantageously used if it were. A law of nature, and the finitude of human skill, seemed united in inflexible opposition to any farther improvement in telescopic science, as applicable to the known planets and satellites of the solar system. For unless the sun could be prevailed upon to extend a more liberal allowance of light to these bodies, and they be induced to transfer it for the generous gratification of our curiosity, what adequate substitute could be obtained? Telescopes do not create light, they cannot even transmit unimpaired that which they receive. That any thing fur-

ther could be derived from human skill in the construction of instruments, the labors of his illustrious predecessors, and his own, left the son of Herschel no reason to hope. Huygens, Fortuna Gregory, Newton, Hadley, Bird, Short, Dolland, Herschel, and many others, all practical opticians, had resorted to every material in any wise adapted to the composition either of lenses or reflectors; and had exhausted every law of vision which their study had developed and demonstrated. In the construction of his last amazing specula Sir John Herschel had selected the most approved amalgams that the advanced stage of metallic chymistry had combined; and had watched their growing brightness under the hands of the artificer with more anxious hope than ever lover watched the eye of his mistress: and he has nothing further to expect than they had accomplished. He had the satisfaction to know that if he could leap astride a cannon ball and travel upon its wings of fury for the respectable period of several millions of years, he would not obtain a more enlarged view of the distant stars, than he could now possess in a few minutes of time; and that it would require an ultra-rail road speed of 50 miles an hour, for nearly the live long year, to secure him a more favorable inspection of the gentle luminary of night. The interesting question, however, whether this light of the solemn forest, of the treeless desert, and of the deep blue ocean as it rolls; whether this object of the lonely turret, of the uplifted eye on the deserted battle field, and of all the pilgrims of love and hope of misery and despair, that have journeyed over the hills and valleys of this earth, through all the eras of its unwritten history to those of its present voluminous record; the exciting question whether this "observed" of all the sons of men, from the days of Eden to those of Edinburgh, be inhabited by beings, like ourselves, of consciousness and curiosity, was left for solution to the benevolent index of natural analogy, or to the severe tradition that it is tenanted only by the hoary solitaries whom the criminal code of the nursery had banished thither for collecting fuel on the sabbath day.

The limits of discovery in the planetary bodies, and in this one especially, thus seemed to be immutably fixed: and no expectation was elevated for a period of several years. But, about three years ago, in the course of a conversation with Sir David Brewster upon the merits of some ingenious suggestions by the latter, in his article on optics in the Edinburgh Encyclopedia, (p. 644,) for improvements in the Newtonian Reflectors, Sir John Herschel adverted to the convenient simplicity of the old astronomical telescopes that were without tubes, and the object glass of which, placed upon a high pole, threw its focal image to a distance of 150, and even 200 feet. Dr. Brewster readily admitted that a tube was not necessary, provided the focal image were conveyed into a dark apartment, and there properly received by reflectors. Sir John then said, that if his father's great telescope, the tube alone of which, though formed of the lightest suitable materials, weighed 3000 lbs., possessed an easy and steady mobility with its heavy observatory attached, an observatory moveable without the incumbrance of such a tube was obviously practicable. This also was admitted, and the conversation became directed to that all-invincible enemy, the paucity of light in powerful magnifiers. After a few moments silent thought, Sir John distinctly inquired whether it would not be possible to effect a transference of artificial light through the focal object of vision! Sir David, somewhat startled at the originality of the idea, paused awhile, and then hesitatingly referred to the infrangibility of rays, and the angle of incidence. Sir John, grown more confident, adduced the example of the Newtonian Reflector, in which the infrangibility was corrected by the second speculum, and the angle of incidence restored by the third. "And," continued he, "why cannot the illuminated microscope, say the hydro-oxygen, be applied to render distinct, and if necessary, even to magnify the focal object?" Sir David sprang from his chair in an ecstasy of conviction, and leaping half-way to the ceiling, exclaimed "Thou art the man." Each philosopher anticipated the other in presenting the prompt illustration that if the rays of the hydro-oxygen microscope passing through a drop of water containing the larvae of a gnat, and other objects invisible to the naked eye, rendered them not only keenly distinct, but firmly magnified to dimensions of many feet; so could the same artificial light, passed through the faintest focal object of a telescope, both distinctly, (to coin a new word for

the extraordinary occasion) and magnify, its feeble component members. The only apparent desideratum was a recipient for the focal image which should transfer it without infringing it, to the surface on which it was to be viewed under the varifying light of the microscopic reflectors. In the various experiments, made during the few following weeks, the co-operative philosophers decided that a medium of the purest plate glass (which is said they obtained, by consent, be it observed, from the shop window of Mons. Desanges, the jeweller to his ex-majesty Charles X., in High street) was the most eligible they could discover. It answered perfectly with a telescope which magnified 100 times, and a microscope of about thrice that power.

Sir John Herschel then conceived the stupendous fabric of his present telescope. The power of his father's would still leave him distant from his favorite planet forty miles; and he resolved to attempt a greater magnifier. Money, the wings of science as the sinews of war, seemed the only requisite, and even the acquisition of this, which is often more difficult than the task of Sisyphus, he determined to achieve. Fully sanctioned by the high optical authority of Sir David Brewster, he laid his plan before the Royal Society, and particularly directed to it the attention of the President, His Royal Highness the Duke of Sussex, the ever munificent patron of science and the arts.—It was immediately and enthusiastically approved by the committee chosen to investigate it, and the chairman, who was the Royal President, subscribed his name for a contribution of \$10,000, with a promise that he would zealously submit the proposed instrument as a fit object for the patronage of the privy purse. He did so without delay, and his Majesty on being informed that the estimated expense was \$70,000, naively enquired if the costly instrument would conduce to any improvement in navigation? On being informed that it undoubtedly would, the sailor King promised a *carte blanche* for the amount which might be requisite.

Sir John Herschel had submitted his plans and calculations in adaption to an object glass of twenty-four feet in diameter: just six times the size of his venerable father's. For casting this ponderous mass, he selected the large glass-house of Messrs. Hartly and Grant (the brother of our invaluable friend Dr. Grant) at Dumbarton. The material chosen, was an amalgamation of two parts of the best crown with one of flint glass, the use of which, in separate lenses, constituted the great achromatic discovery of Dolland. It has been found, however, by accurate experiments, that the amalgam would as completely triumph over every impediment, both from infrangibility and discoloration, as the separate lenses. Five furnaces of the metal, carefully collected from productions of the manufactory of both the kinds of glass, and known to be respectively of nearly perfectly homogeneous quality, were united, by one grand conductor, to the mould; and on the 3d of January, 1833, the first cast was effected. After cooling eight days, the mould was opened and the glass found to be greatly flawed within eighteen inches of the centre. Notwithstanding this failure a new glass was more carefully cast on the 27th of the same month, which on being opened during the first week in February, was found to be immaculately perfect, with the exception of two slight flaws so near the line of its circumference that they would be covered by the copper ring in which it was designed to be enclosed.

The weight of this prodigious lens was, 14,336 lbs. or nearly seven tons after being polished; and its estimated magnifying power 24,000 times. It was therefore presumed to be capable of representing objects in our lunar satellite of but little more than eighteen inches in diameter, provided its focal image of them would be rendered distinct by the transference of artificial light. It was not, however, upon the mere illuminating power of the hydro-oxygen microscope, as applied to the focal pictures of this lens, that the younger Herschel depended for the realization of his ambitious theories and hopes. He calculated largely upon the most illimitable applicability of this instrument as a second magnifier which would supersede the use, and infinitely transcend the powers of the highest magnifiers in reflecting telescopes.

So sanguinely, indeed, did he calculate upon the advantages of this splendid alliance, that he expressed confidence in his ultimate ability to study even the entomology of the moon, in case also

contained insects upon the surface. Having witnessed the completion of his great lens, and its safe transportation to the metropolis, his next care was the construction of a suitable microscope, and of the mechanical frame work for the horizontal and vertical action of the whole. His plans in every branch of his undertaking having been intensely studied, even to their minutest details, were easily and rapidly executed. He awaited only the appointed period at which he was to convey his magnificent apparatus to its destination.

A correspondence had for some time passed between the Boards of Longitude of England, France and Austria, with a view to improvements in the tables of longitude in the southern hemisphere; which are found to be much less accurate than those of the northern. The high opinion entertained by the British Board of Longitude of the principles of the telescope, and of the profound skill of its inventor, determined the government to solicit his services in observing the transit of Mercury over the sun's disk, which will take place on the 7th of November in the present year; and which, as it will occur at 7h. 47m. 55s. night, conjunction, mean time; and at 8h. 12m. 22s. middle, true time, will be invisible to nearly all the northern hemisphere. The place at which the transits, both of Mercury and of Venus have generally been observed by the astronomers of Europe, when occurring under these circumstances, is the Cape of Good Hope; and no transit of Venus having occurred since the year 1769, and none being to occur before 1874, the accurate observation of the transits of Mercury, which occur more frequently, has been found of great importance both to astronomy and navigation. To the latter useful art, indeed, the transits of Mercury are nearly as important as those of Venus; for although those of the latter planet have the peculiar advantage of determining exactly the great solar parallax, and thence the distances of all the planets from the sun, yet the transits of Mercury, by exactly determining the place of its own node, independently of the parallax of the great orb, determine the parallax of the earth and moon, and are therefore especially valuable in lunar observations of longitude. The Cape of Good Hope has been found preferable, in these observations, to any other station in the hemisphere.—The expedition which went to Peru, about the middle of the last century, to ascertain, in conjunction with another in Lapland, the true figure of the earth, found the attraction of the mountainous regions so strong as to cause the plumb-line of one of their large instruments to deflect seven or eight seconds from the true perpendicular; whilst the elevated plains at the cape unite all the advantages of a lucid atmosphere with an entire freedom from mountainous obstruction.—Sir John Herschel, therefore not only accepted the appointment with high satisfaction, but requested that it might commence at least a year before the period of the transit, to afford him time to bring his ponderous and complicated machinery into perfect adjustment, and to extend his knowledge of the southern constellations.

His wish was immediately assented to, and his arrangements being completed, he sailed from London on the 4th of September, 1834, in company with Dr. Andrew Grant, Lieut. Drummond, of the Royal Engineers, F. R. A. S. and a large party of the best English mechanics. They arrived after an expeditious and agreeable passage, and immediately proceeded to transport the lens, and the frame of the large observatory, to its destined site, which was a piece of table land of great extent and elevation, about thirty-five miles north-east of the Cape town; and which is said to be the very spot on which De la Caille, in 1750 constructed his invaluable solar tables, when he measured a degree of the meridian, and made a great advance to exactitude in computing the solar parallax, from that of Mars and the Moon. Sir John accomplished the ascent by means of two relief teams of oxen, of eighteen each, in about four days; and, aided by several companies of Dutch boers, proceeded at once to the erection of his gigantic fabric.

The ground plan of the structure, is in some respects similar to that of the Herschel telescope in England, except that instead of circular foundations of brickwork, it consists of a series of parallel circles of railroad iron, upon wooden frame work; so constructed that the turn-outs, or rather turn-ins, from the largest circle, will conduct

the observatory, which moves upon them, to the innermost circle, which is the basis of the lens works; and to each of the circles that intervene. The diameter of the smallest circle is 28 feet; that of the largest our correspondent has singularly forgotten to state, though it may be in some measure computed from the angle of incidence projected by the lens, and the space occupied by the observatory. The latter is a wooden building fifty feet square and as many high, with a flat roof and gutters of thin copper. Through the said proximate to the lens, is an aperture four feet in diameter to receive its rays, and through the roof another for the same purpose in meridional observations. The lens, which is enclosed in a square frame of wood, and braced to its corners by bars of copper, is suspended upon an axis between two pillars which are nearly as high as those which supported the celebrated quadrant of Uleg Beg, being one hundred and fifty feet. These are united at the top and bottom by cross pieces, and strengthened by a number of diagonal braces; and between them is a double capstan for hoisting the lens from its horizontal line with the observatory to the height required by its focal distance when turned to the meridian; and for elevating it to any intermediate degree of altitude that may be needed. This last operation is beautifully regulated by an immense double sextant, which is connected and moves with the axis of the lens, and is regularly divided into degrees, minutes, and seconds; and the horizontal circles of the observatory, being also divided into 360 degrees and minutely subdivided, the whole instrument has the powers and regularity of the most improved theodolite. Having no tube, it is connected with the observatory by two horizontal levers, which pass underneath the floor of that building from the circular basis of the pillars; thus keeping the lens always square with the observatory, and securing to both a uniform and simple movement. By means of these levers, too, and a rack and windlass, the observatory is brought to any degree of approximation to the pillars that the altitude of an observation may require; and although, when at the nearest station it cannot command an observation with the great lens with in about fifteen degrees of the meridian, it is supplied with an excellent telescope of vast power, constructed by the elder Herschel, by which every high degree can be surveyed. The field of view, therefore, whether exhibited on the floor or on the wall of the apartment, has a diameter of nearly fifty feet, and, being circular, it has therefore an area of nearly 1865 feet. The place of all the horizontal movements having been accurately levelled by Lieut. Drummond, with the improved level of his invention which bears his name, and the wheels both of the observatory and of the lens-works being facilitated by friction rollers in patent axle boxes filled with oil, the strength of one man applied to the extremity of the levers, is sufficient to propel the whole structure upon either of the rail road circles; and that of two men applied to the windlass, is fully adequate to bring the observatory to the basis of the pillars. Both of these movements, however, are now effected by a locomotive apparatus, commanded within the apartment by a single person, and showing, by means of an ingenious index, every inch of progression or retrogression.

We have not thus particularly described the telescope of the younger Herschel, because we consider it the most magnificent specimens of philosophical mechanism of the present or any previous age, but because we deemed an explicit description of its principles and powers an almost indispensable introduction to a statement of the sublime expansion of human knowledge which it has achieved. It was not fully completed until the latter part of December, when the series of large reflectors for the microscope arrived from England; and it was brought into operation during the first week of the ensuing month and year.—But the secrecy which had been maintained with regard to its novelty, its manufacture, and its destination, was not less rigidly preserved for several months, respecting the grandeur of its success. Whether the British Government were sceptical concerning the promised splendor of its discoveries, or wished them to be scrupulously veiled until they had accumulated a full-orbed glory for the nation and reign in which they originated, is a question which we can only conjecturally solve. But certain it is that the astronomer's royal patrons enjoined a masomic taciturnity upon him and his friends, until he should have officially communicated the results of his great

experiment. Accordingly, the world heard nothing of him or his expedition, until it was announced a few months since, in the scientific journals of Germany, that Sir John Herschel, at the Cape of Good Hope, had written to the Astronomer Royal of Vienna, to inform him that the portentous comet predicted for the year 1835, which was to approach so near this trembling globe that we might hear the roaring of its fires, had turned upon another scent, and would not even shake a hair of its tail over our hunting-grounds. At a loss to conceive by what extra authority he had made so bold a declaration, the men of science in Europe who were not acquainted with his secret, regarded his "postponement," as his discovery was termed, with incredulous contempt; and continued to terrorize upon the strength of former predictions.

NEW LUNAR DISCOVERIES.

Until the 10th of January, the observations were chiefly directed to the stars in the southern signs, in which, without the aid of the hydro-oxygen reflectors, a countless number of new stars and nebulae were discovered. But we shall defer our correspondent's account of these to future pages, for the purpose of no longer withholding from our readers the more general and highly interesting discoveries which were made in the lunar world.—And for this purpose, too, we shall defer Dr. Grant's elaborate mathematical details of the corrections which Sir John Herschel has made in the best tables of the moon's tropical, sidereal, and synodic revolutions; and of those phenomena of the syzygies on which a great part of the established lunar theory depends.

It was about half past nine o'clock on the night of the 10th, the moon having then advanced within four days of her mean libration, that the astronomer adjusted his instruments for the inspection of her eastern limb. The whole immense power of his telescope was applied, and to its focal image about one half of his microscope. On removing the screen of the latter, the field of view was covered throughout its entire area, with a beautifully distinct and even vivid representation of *basaltic rock*. Its color was a greenish brown, and the width of the columns, as defined by their intersections on the canvas, was invariably twenty-eight inches. No fracture whatever appeared in the mass first presented, but in a few seconds a shelving pile appeared of five or six columns width, which showed their figure to be hexagonal, and their articulations similar to those of the basaltic formation at Staffa. This precipitous shelf was profusely covered with a dark red flower, "precisely similar," says Dr. Grant, to the Papaver Rhoas, or rose-poppay of our sublimity cornfields; and this was the first organic production of nature in a foreign world, ever revealed to the eyes of men."

The rapidity of the moon's ascension, or rather of the earth's diurnal rotation, being nearly equal to five hundred yards in a second, would have effectually prevented the inspection or even the discovery of objects so minute as these, but for the admirable mechanism which constantly regulates, under the guidance of the sextant, the required altitude of the lens. But its operation was found to be so consummately perfect, that the observers could detain the object upon the field of view for any period they might desire. The specimen of lunar vegetation, however, which they had already seen, had decided a question of too exciting an interest to induce them to retard its exit. It had demonstrated that the moon has an atmosphere constituted similarly to our own, and capable of sustaining organized, and therefore, most probably, animal life. The Basaltic rocks continued to pass over the inclined canvas plane, through three successive diameters, when a verdant declivity, of great beauty, appeared, which occupied two more. This was preceded by another mass of nearly the former height: at the base of which they were at length delighted to perceive that novelty, a lunar forest. "The trees," says Dr. Grant, "for a period of ten minutes, were of one unvaried kind, and unlike any I have seen, except the largest class of yews in the English church yards, which they in some respects resemble. These were followed by a level green plain, which, as measured by the painted circle on our canvas, of forty-nine feet, must have been more than half a mile in breadth; and then appeared as fine a forest of firs, unequivocal firs, as I have ever seen cherished in the bosom of my native mountains.

Wearied with the long continuance of these, we gradually reduced the magnifying power of the

microscope, without eclipsing either of the reflectors, and immediately perceived that we had been insensibly descending, as it were, a mountainous district of highly diversified and romantic character, and that we were on the verge of a lake, or inland sea; but of what relative locality or extent, we were yet too greatly magnified to determine. On introducing the feeblest achromatic lens we possessed, we found that the water whose boundary we had just discovered, answered in general outline to the Mare Nubium of Riccioli, by which we detected that instead of commencing, as we supposed, on the eastern longitude of the planet, some delay in the elevation of the greater lens, had thrown us nearly upon the axes of her equator. However, as she was a free country, and we not as yet attached to any particular province, and, moreover, since we could at any moment, occupy our intended position, we again slid in our magic lenses to survey the shores of the Mare Nubium. Why Riccioli so termed it, unless in ridicule of Cleomenes, I know not; for fairer shores never angel coasted on a tour of pleasure. A beach of brilliant white sand, girt with wild castellated rocks, apparently of green marble, and varied at chasms, occurring every two or three hundred feet, with grotesque blocks of chalk or gypsum, and feathered and festooned at the summits with the clustering foliage of unknown trees, moved along the bright wall of our apartment until we were speechless with admiration. The water, wherever we obtained a view of it, was nearly as blue as that of the deep ocean, and broke in large white billows upon the strand. The action of very high tides was quite manifest upon the face of the cliffs, for more than a hundred miles; yet, diversified as the scenery was during this and a much greater distance, we perceived no trace of animal existence, notwithstanding we could command at will a perspective of a foreground view of the whole. Mr. Holmes, indeed, pronounced some white objects of a circular form, which he saw at some distance in the interior of a cavern, to be bona fide specimens of large cornu ammonis; but to me they appeared merely large pebbles, which had been chafed and rolled there by the tides. Our chase of animal life was not yet to be rewarded.

Having continued this close inspection nearly two hours, during which we passed over a wide tract of country, chiefly of a rugged, and apparently volcanic character; and having few additional varieties of vegetation, except some species of lichen, which grew every where in great abundance, Dr. Herschel proposed that we should take out all our lenses, give a rapid speed to the panorama, and search for some of the principal valleys known to astronomers, as the most likely method to reward our first night's observation with the discovery of animated beings. The lenses being removed, and the effulgence of our unutterably glorious reflectors left undiminished, we found, in accordance with our calculations, that our field of view comprehended about twenty five miles of the lunar surface, with the distinctness both of outline and detail which could be procured of a terrestrial object of the distance of two and a half miles: an optical phenomenon which you will find demonstrated in Note 5.—This afforded us the best landscape views we had hitherto obtained, and although the accelerated motion was rather too great, we enjoyed them with rapture. Several of these famous valleys which are bounded by lofty hills of so perfectly conical a form as to render them less like works of nature than of art, passed the canvass before we had time to check their flight; but presently a train of scenery met our eye, of features so entirely novel, that Dr. Herschel signalled for the lowest convenient gradation of movement. It was a lofty chain of obelisk shaped, or very slender pyramids, standing in irregular groups, each composed of about thirty or forty spires, every one of which was perfectly square, and as accurately truncated as the finest specimens of Cornish crystal. They were of a faint lilac hue, and very resplendent. I now thought that we had assuredly fallen on productions of art; but Dr. Herschel shrewdly remarked that if the Lunarians could build thirty or forty miles of such monuments as these, we should ere now have discovered others of a less equivocal character. He pronounced them quartz formations, of probably the wine colored amethyst species, and promised us, from these and other proofs which we had obtained of the powerful action of the laws of crystallization in this planet, a rich field of mineralogical study.

On introducing a lens, his conjecture was fully confirmed; they were monstrous amethysts of a diluted claret color, glowing in the intensest light of the sun! They varied in height from sixty to ninety feet, though we saw several of a still more incredible altitude.

They were observed in a succession of valleys divided by longitudinal lines of round breasted hills, covered with verdure and nobly undulated; but, what is most remarkable, the valleys which contained these stupendous crystals were invariably barren, and covered with stones of a ferruginous hue, which were probably iron pyrites. We found that these curiosities were situated in a district elevated about half a mile above the valley of the Mare Fecunditatis, of Mayor and Riccioli; the shores of which soon hove in view. But never was a name more inappropriately bestowed.—From "Dan to Bersheba" all was barren,—the sea-board was entirely composed of chalk and flint, and not a vestige of vegetation could be discovered with our strongest glasses. The whole breadth of the northern extremity of this sea, which was about three hundred miles, having crossed our plane, we entered upon a wild mountainous region abounding with more extensive forests of larger trees than we had before seen—the species of which I have no good analogy to describe.—In general contour they resembled our forest oak; but they were much more superb in foliage, having broad glossy leaves like those of the laurel, and tresses of yellow flowers which hung, in the open glades, from the branches to the ground. These mountains passed, we arrived at a region which filled us with astonishment. It was an oval valley, surrounded, except at a narrow opening towards the south, by hills, red as the purest vermilion, and evidently crystallized; for wherever a precipitous chasm appeared—and these chasms were very frequent, and of immense depth,—the perpendicular sections presented conglomerated masses of polygon crystals evenly fitted to each other, and arranged in deep strata, which grew darker in color as they descended to the foundations of the precipices. Innumerable cascades were bursting forth from the breasts of every one of those cliffs, and some so near their summits, and with such great force, as to form arches many yards in diameter. I never was so vividly reminded of Byron's simile, "the tail of the white horse in the Revelations." At the foot of this boundary of hills was a perfect zone of woods surrounding the whole valley, which was about eighteen or twenty miles wide, at its greatest breadth, and about thirty in length. Small collections of trees of every imaginable kind, were scattered about the whole luxuriant area; and here our magnifiers blessed our panting hopes with specimens of conscious existence. In the shade of the woods on the south eastern side, we beheld continuous herds of brown quadrupeds, having all the external characteristics of the bison, but more diminutive than any species of the bes genus in our natural history. Its tail was like that of our bos grunniens; but in its semicircular horns, the hump on its shoulders, the depth of its dew-lap, and the length of its shaggy hair, it closely resembled the species to which I first compared it. It had, however, one widely distinctive feature, which, we afterwards found common to nearly every lunar quadruped we have discovered; namely, a remarkable fleshy appendage over the eyes, crossing the whole breadth of the forehead and united to the ears. We could most distinctly perceive this hairy veil, which was shaped like the upper front outline of the cap known to the ladies as Mary Queen of Scots cap, lifted and lowered by means of the ears. It immediately occurred to the acute mind of Dr. Herschel, that this was a providential contrivance to protect the eyes of the animal from the great extremes of light and darkness to which all the inhabitants of our side of the moon are periodically subjected.

The next animal perceived would be classed on earth as a monster. It was of a blueish lead color, about the size of a goat, with a head and beard like him, and a single horn, slightly inclined forward, from the perpendicular. The female was destitute of the horn and beard, but had a much longer tail.—It was gregarious, and chiefly abounded on the acclivitous glades of the woods. In elegance of symmetry, it rivalled the antelope, and like him it seemed an agile sprightly creature, running with great speed, and springing from the green turf with all the unaccountable antics of a lamb or

kitten. This beautiful creature afforded us the most exquisite amusement. The mimicry of its movements upon our white painted canvass, was as faithful and luminous as that of animals within a few yards of a camera obscura when seen pictured upon its tympan. Frequently when attempting to put our fingers upon its beard, it would suddenly bound away into oblivion, as if conscious of our earthly impertinence; but then others would appear, whom we could not prevent from nibbling the herbage, say or do what we would to them.

On examining the centre of this delightful valley, we found a large branching river, abounding with lovely islands, and water-birds of numerous kinds.—A species of grey pelican was the most numerous; but a black and white crane with unreasonably long legs and bill, were also very common. We watched their piscivorous experiments a long time, in hopes, of catching sight of a lunar fish; but although we were not favored in this respect, we could easily guess the purpose for which they plunged their long necks so deeply beneath the water. Near the upper extremity of one of these islands, we obtained a glimpse of a strange amphibious creature of a spherical form, which rolled with great velocity across the pebbly beach, and was lost sight of in the strong current which set off from this angle of the island. We were compelled, however, to leave this prolific valley unexplored on account of clouds which were evidently accumulating in the lunar atmosphere, our own being perfectly translucent. But this was itself an interesting discovery, for more distant observers had questioned or denied the existence of any humid atmosphere in this planet.

The moon being now low on her descent, Dr. Herschel inferred that the increasing refrangibility of her rays would prevent any satisfactory protraction of our labors, and our minds being actually fatigued with the excitement of the high enjoyments we had partaken, we mutually agreed to call in the assistants at the lens, and reward their vigilant attention with congratulatory bumpers of the best "East India Particular." It was not, however, without regret that we left the splendid valley of the red mountains, which, in compliment to the arms of our royal patron, we denominated "the Valley of the Unicorn;" and it may be found in Blunt's map, about midway between the Mare Fœcunditatis, and the Mare Nectaris."

The nights of the 11th and 12th being cloudy were unfavorable to observation; but on those of the 13th and 14th further animal discoveries were made of the most exciting interest to every human being. We give them in the graphic language of our accomplished correspondent:—

"The astonishing and beautiful discoveries which we had made during our first night's observation, and the brilliant promise which they gave of the future, rendered every moonlight hour too precious to reconcile us to the deprivation occasioned by these two cloudy evenings; and they were not borne with strictly philosophical patience, notwithstanding our attention was closely occupied in superintending the erection of additional props and braces of the twenty-four feet lens, which we found had somewhat vibrated in a high wind that arose on the morning of the 11th. The night of the 13th [January] was one of pearly purity and loveliness. The moon ascended the firmament in gorgeous splendor, and the stars, retiring around her, left her the unrivalled queen of the hemisphere. This being the last night but one in the present month, during which we should have an opportunity of inspecting her western limb, on account of the libration in longitude which would then immediately ensue, Dr. Herschel informed us that he should direct our researches to the parts No. 2, 11, 26, and 30, in Blunt's map, and which are respectively known in the modern catalogue by the names of Endymion, Cleomedes, Longrenus, and Petavins. To the careful inspection of these, and the regions between them and the extreme western rim, he proposed to devote the whole of this highly favored night. Taking then our twenty-five miles breadth of her surface upon the field view, and reducing it to a slow movement, we soon found the first very singularly shaped object of our inquiry. It was a highly mountainous district, the loftier chains of which form three narrow ovals, two of which approach each other in slender points, and are united by one mass of hills of great length and elevation; thus presenting a figure similar to that of a long skein of thread, the bows of which have been gradually spread open from their connecting knot. The third oval looks also like

a skein, and lies as if carelessly dropped from nature's hand in connection with the other; but that which might fancifully be supposed as having formed the second bow of this second skein, is cut open, and lies in scattered threads of smaller hills which covers a great extent of level territory. The ground plan of these mountains is so remarkable that it has been drawn; and in Blunt's, which is the best, it agrees exactly with my description. Within the grasp, as it were, of the broken bow of hills last mentioned, stands an oval shaped mountain enclosing a valley of immense area, and having, on its western ridge, a volcano in a state of terrible eruption. To the northeast of this, across the broken, or what Mr. Holmes called "the vagabond mountain," are three other detached oblong formations, the largest and last of which is marked F in the catalogue, and fancifully denominated the Mare Mortuum, or more commonly the "Lake of Death." Induced by a curiosity to divine the reason of so sombre a title, rather than by any more philosophical motive, we here first applied our hydro-oxygen magnifiers to the focal image of the great lens. Our 25 miles portion of this great mountain circus, had comprehended the whole of its area, and of course the two conical hills which rise within it about five miles from each other; but although this breadth of view had heretofore generally presented its objects as if seen within a terrestrial distance of two and a half miles, we were, in this instance, unable to discern these eternal hills with any such degree of distinctness. There did not appear to be any mist or smoke around them, as in the case of the volcano which we had left in the southwest, and yet they were comparatively indistinct upon the canvass. On sliding in the gas-light lens, the mystery was immediately solved. They were old craters of extinct volcanoes, from which still issued a heated though transparent exhalation that kept them in an apparently oscillatory or trembling motion, most unfavorable to examination. The craters of both of these hills, as nearly as we could judge under this obstruction, were about 15 fathom deep, devoid of any appearance of fire, and of nearly a yellowish white color throughout. The diameter of each was about nine diameters of our painted circle, or nearly 450 feet; and the width of the rim surrounding them about 1000 feet; yet, notwithstanding their narrow mouths, these two chimneys of the subterranean deep had evidently filled the whole area of the valley in which they stood with the lava and ashes with which it was encumbered, and even added to the height, if not indeed caused the existence of the oval chain of mountains which surrounded it. These mountains, as subsequently measured from the level of some large lakes around them, averaged the height of 2800 feet, and Dr. Herschel conjectured from this and the vast extent of their abutments, which ran for many miles into the country around them, that these volcanoes must have been in full activity for a million of years. Lieut Drummond, however, rather supposed that the whole area of this oval valley was but the exhausted crater of one vast volcano, which in expiring had left only these two imbecile representatives of its power. I believe Dr. Herschel himself afterwards adopted this probable theory, which is indeed confirmed by the universal geology of the planet. There is scarcely a hundred miles of her surface, not even excepting her large seas and lakes, in which circular or oval mountainous ridges may not be easily found; and many, very many of these having numerous inclosed hills in full volcanic operation, which are much lower than the surrounding circles, admit of no doubt that each of these great formations are the remains of one vast mountain which has burnt itself out, and left only these wide foundations of its ancient grandeur. A direct proof of this is afforded of a tremendous volcano now in its prime, which I shall afterwards notice. What gave the name of "The Lake of Death" to the annular mountain I have just described, was, I suppose, the dark appearance of the valley which it encloses, and which to a more distant view than we obtained, certainly exhibits the general aspect of the waters on this planet. The surrounding country is fertile to excess; between this circle and No. 2 (Endymion) which we proposed first to examine, we counted no less than twelve luxuriant forests, divided into open plains, which waded in an ocean of verdure, and were probably prairies like those of North America. In three of these we discovered numerous herds of quadrupeds similar to our friends the bison in the Valley of the Unicorn, but of much larger size; and scarcely

a piece of woodland occurred in our panorama which did not dazzle our vision with flocks of white or red birds upon the wing.

"At length we carefully explored the Endymion. We found each of the three ovals volcanic and sterile within; but without, most rich, throughout the level regions around them, in every imaginable production of a bounteous soil. Dr. Herschel has classified not less than thirty-eight species of forest trees and nearly twice this number of plants, found in this tract alone, which are widely different to those found in more equatorial latitudes. Of animals, he classified nine species of mammalia, and five of oviparia. Among the former is a small kind of reign-deer, the elk, the moose, the horned bear, and the biped beaver. The last resembles the beaver of the earth in every other respect than in its destitution of a tail, and its invariable habit of walking upon only two feet. It carries its young in its arms like a human being, and moves with an easy gliding motion. Its huts are constructed better and higher than those of many tribes of human savages, and from the appearance of smoke in nearly all of them, there is no doubt of its being acquainted with the use of fire.—Still his head and body differ only in the points stated from that of the beaver, and it was never seen except on the borders of lakes and rivers, in which it has been observed to immerse for a period of several seconds.

"Thirty degrees farther south, is No. 11, or Cleomedes, an immense annular mountain, containing three distinct craters, which have been so long extinguished that the whole valley around them, which is eleven miles in extent, is densely crowded with woods nearly to the summits of the hills. Not a rod of vacant land, except the tops of these craters, could be described, and no living creature except a large white bird resembling the stork. At the southern extremity of this valley is a natural archway or cavern, 200 feet high, and 100 wide, through which runs a river that discharges itself over a precipice of grey rocks 80 feet in depth and then forms a branching stream through a beautiful champagne district for many miles. Within twenty miles of this cataract is the largest lake, or rather inland sea, that has been found throughout the seven and a half millions of square miles which this illuminated side of the moon contains. Its width from east to west, is 189 miles, and from north to south, 266 miles. Its shape to the northward is not unlike that of the bay of Bengal, and it is studded with small islands, most of which are volcanic. Two of these, on the eastern side, are now violently eruptive; but our lowest magnifying power was too great to examine them with convenience, on account of the cloud of smoke and ashes which beclouded our field of view; as seen by Lieut. Drummond, through our reflecting telescope of 2000 times, they exhibited great brilliancy. In a bay, on the western side of this sea, is an island 55 miles long, of a crescent form, crowded through its entire sweep with the most superb and wonderful natural beauties, both of vegetation and geology. Its hills are pinnacled with tall quartz crystals, of so rich a yellow and orange hue that we at first supposed them to be pointed flames of fire; and they spring up thus from smooth round brows of hills which are covered as with a velvet mantle. Even in the enchanting little valleys of this winding island, we could often see those splendid natural spires, mounting in the midst of deep green woods, like church steeples in the vale of Westmoreland. We here first noticed the bar palm tree, which differs from that of our tropical latitudes only in the peculiarity of very large crimson flowers, instead of the spadix protruded from the common oak. We, however, perceived no fruit on any specimens we saw; a circumstance which we attempted to account for from the great (theoretical) extremes in the lunar climate. On a curious kind of tree-melon we nevertheless saw fruit in great abundance, and in every stage of inception and maturity. The general color of these woods was a dark green, though not without occasional admixtures of every tint of our forest seasons. The hectic flush of autumn was often seen kindled upon the cheek of earliest spring, and the gay drapery of summer, in some places, surrounded trees leafless as the victims of winter. It seemed as if all the seasons here united hands in a circle of perpetual harmony. Of animals, we saw only an elegant striped quadruped, about three feet high, like a miniature Zebra, which was always in small herds on the green sward of the hills; and two or three kinds of long tailed birds which we judged to be golden and blue pheasants. On the shores,

however, we saw countless multitudes of univalve shell fish, and among them some huge flat ones which all three of my associates declared to be cornu ammonae; and I confess I was here compelled to abandon my skeptical substitution of pebbles.—The cliffs all along these shores were deeply undermined by tides; they were very cavernous, and yellow crystal stalactites larger than a man's thigh were shooting forth on all sides. Indeed every foot of this island appeared to be crystalized; masses of fallen crystals were found on every beach we explored, and beamed from every fractured head land. It was more like a creation of an oriental fancy, than a distant variety of nature brought by the powers of science to ocular demonstration. The striking dissimilitude of this island to every other we had found on these waters, and its near proximity to the main land, led us to suppose that it must some time have been a part of it; more especially as its crescent bay embraced the first of a chain of smaller ones which ran directly thither. This first one was a pure quartz rock, about three miles in circumference, towering in naked majesty from the blue deep without either shore or shelter. But it glowed in the sun almost like a sapphire, as did all the lesser ones of whom it seemed the king. Our theory was speedily confirmed; for all the shore of the main land was battlemented and spired with those unobtainable jewels of nature, and as we brought our field of view to include the utmost rim of the illuminated boundary of the planet, we could still see them blazing in crowded battalions as it were, through a region of hundreds of miles. In fact, we could not conjecture where this gorgeous land of enchantment terminated; for as the rotary motion of the planet bore these mountain summits from our view, we became further remote from the western boundary.

"We were admonished by this to lose no time in seeking the next proposed object of our search, the Langrenus, or No. 26, which is almost within the verge of the libration in longitude, and of which, for this reason, Dr. Herschel, entertained some singular reasons.

"After a short delay in advancing the observatory upon the levers, and in regulating the lens, we found our object and surveyed it. It was a dark narrow lake seventy miles long, bounded on the east, north and west, by red mountains of the same character as those surrounding the valley of the Unicorn, from which it is distant to the south west about 160 miles. This lake, like that valley, opens to the south upon a plain not more than ten miles wide, which is here encircled by a truly magnificent amphitheatre of the loftiest order of lunar hills. For a semi-circle of six miles these hills are risen, from their brow to their base, as perpendicularly as the outer walls of the Colosseum at Rome; but here exhibiting the sublime altitude of at least two thousand feet, in one smooth unbroken surface. How nature disposed of the huge mass which she thus prodigally carried out, I know not; but certain it is that there are no fragments of it left upon the plain, which is a declivity without a single prominence except a billowy tract of woodland that runs in many a wild vagary of breadth and course to the margin of the lake. The tremendous height and expansion of this perpendicular mountain, with its bright crimson front contrasted with the fringe of forest on its brow, and the verdure of the open plain beneath, filled our canvass with a landscape unsurpassed in unique grandeur by any we had beheld. Our 25 miles perspective included this remarkable mountain, the plain, a part of the lake, and the last graduated summits of the range of hills by which the latter is nearly surrounded.—We ardently wish that all the world could view a scene so strangely grand, and our pulse beat high with the hope of one day exhibiting it to our countrymen in some part of our native land.—But we were at length compelled to destroy our picture, as a whole, for the purpose of magnifying its parts for scientific inspection. Our plane was of course immediately covered with the ruby front of this mighty amphitheatre, its tall figures, leading cascades, and rugged caverns. As its almost intermediate sweep was measured off upon canvass, we frequently saw long lines of some yellow metal, hanging from the crevices of the horizontal strata in wide net work, or straight pendant branches. We of course concluded that this was virgin gold, and we had no assay-master to prove the contrary. On searching the plain, over which we had observed the woods roving in all the shapes of clouds in the sky, we were again delighted with

the discovery of animals. The first observed was a quadruped with an amazingly long neck, head like a sheep, bearing two long spiral horns, white as polished ivory, and standing in perpendicular parallel to each other. Its body was like that of a deer, but its fore legs were most disproportionately long, and its tail, which was very bushy and of a show whiteness, curled high over its rump, and hung two or three feet by its side. Its colors were bright bay and white, in brindle patches, clearly defined but of no regular form. It was found only in pairs, in spaces between the woods, and we had no opportunity of witnessing its speed or its habits. But a few minutes only elapsed before three specimens of another animal appeared, so well known to all that we fairly laughed at the recognition of so familiar an acquaintance in so distant a land. They were neither more nor less than three good large sheep, which would not have disgraced the farms of Leicestershire, or the shambles of Leadenhall market. With the utmost scrutiny we could find no mark of distinction between these and those of our native soil; they had not even the appendage over the eyes, which I have described as common to lunar quadrupeds. Presently they appeared in great numbers, and on reducing the lenses, we found them in flocks over a great part of the valley. I need not say how desirous we were of finding shepherds to these flocks, and even a man with blue apron and rolled up sleeves, would have been a welcome sight to us, if not to the sheep; but they fed in peace, lords of their own pastures, without either protector or destroyer in human shape.

"We at length approached the level opening to the lake, where the valley narrows to a mile in width, and displays scenery on both sides, picturesque and romantic beyond the powers of a prose description, imagination borne on the wings of poetry, could alone gather similes to portray the wild sublimity of this landscape, where dark behemoth crags stood over the brows of lofty precipices, as if in ramparts in the sky; and forests seem suspended mid air. On the eastern side there was one soaring crag, crested with trees, which hung over in a curve like three-fourths of a gothic arch, and being of a rich crimson color, its effect was most strange upon minds unaccustomed to the association of such grandeur with such beauty. But whilst gazing upon them in a perspective of about half a mile, we were thrilled with astonishment to perceive four successive flocks of large winged creatures, wholly unlike any kind of birds, descend with a slow even motion from the cliffs on the western side, and alight upon the plain. They were first noticed by Dr. Herschel, who exclaimed, "Now, gentlemen, my theories against your proofs, which you have often found a pretty even bet, we have something worth looking at; I was confident that if ever we found beings in human shape, it would be in this longitude, and that they would be provided by their Creator with some extraordinary powers of locomotion: first exchange for my number D." This lens being soon introduced, gave us a fine half mile distance; and we counted three parties of these creatures, of twelve, nine and fifteen in each, walking erect towards a small wood near the base of the eastern precipices. Certainly they were like human beings for their wings had now disappeared, and their attitude in walking was both erect and dignified. Having observed them at this distance for some minutes we introduced lens H. z. which brought them to the apparent proximity of eighty yards; the highest clear magnitude we possessed until the latter end of March, when we effected an improvement in the gas-burners. About half of the first party had passed beyond our canvass; but of all the others we had a perfectly distinct and deliberate view. They averaged four feet in height, were covered, except on the face, with short and glossy copper-colored hair, and had wings composed of a thin membrane, without hair, lying snugly upon their backs, from the top of the shoulders to the calves of the legs.—The face, which was of a yellowish flesh color, was a slight improvement upon that of the large orang outang, being more open and intelligent in its expression, and having a much greater expansion of forehead. The mouth, however, was very prominent, though somewhat relieved by a thick beard upon the lower jaw, and by lips far more human than those of any species of the simia genus. In general symmetry of body and limbs they were infinitely superior to the orang outang; so much so, that, but for their long wings, Lieutenant Drummond said that they would look as well on a

parade ground as some of the old cockney militia! The hair on the head was a darker color than that of the body, closely curled, but apparently not woolly, and arranged in two curious semi-circles over the temple of the forehead. Their feet could only be seen as they were alternately lifted in walking; but, from what we could see of them in so transient a view, they appeared thin, and very protuberant at the heel.

"Whilst passing across the canvass, and whenever we afterwards saw them, these creatures were evidently engaged in conversation; their gesticulation, more particularly the varied action of their hands and arms, appeared impassioned and emphatic. We hence inferred that they were rational beings, and although not perhaps of so high an order as others which we discovered the next month on the shores of the Bay of Rainbows, they were capable of producing works of art and contrivance. The next view we obtained of them was still more favorable. It was on the borders of a little lake, or expanded stream, which we then for the first time perceived running down the valley to the large lake, and having on its eastern margin a small wood. Some of these creatures had crossed the water and were lying like spread eagles on the skirts of the wood. We could then perceive that their wings possessed great expansion, and were similar in structure to those of the bat, being a semi-transparent membrane, expanded in curvilinear divisions by means of straight radii, united at the back by the dorsal integuments. But what astonished us very much was the circumstance of this membrane being continued from the shoulders to the legs, united all the way down, tho' gradually decreasing in width. The wings seemed completely under the command of volition, for those of the creatures whom we saw bathing in the water, spread them instantly to their full width, waved them as ducks do theirs to shake off the water, and then as instantly closed them again in a compact form. Our further observation of the habits of these creatures, who were of both sexes, led to results so very remarkable, that I prefer they should be first laid before the public in Dr. Herschel's own work, where I have reason to know they are fully and faithfully stated, however incredulously they may be received. * * *

The three families then almost simultaneously spread their wings and were lost in the dark confines of the canvass, before we had time to breathe from our paralyzing astonishment. We scientifically denominated them the Vespertilio-homo, or man-bat; and they are doubtless innocent and happy creatures, notwithstanding some of their amusements would but ill comport with our terrestrial notions of decorum.—The valley itself we call the Ruby Coliseum, in compliment to its stupendous boundary, the six mile sweep of red precipices two thousand feet high. And the night, or rather morning, being far advanced, we postponed our tour to Petavious (No. 20) until another opportunity."

We have of course faithfully observed Dr. Grant's private injunction to omit those highly curious passages in his correspondence, which he wished us to suppress, although we do not clearly perceive the force of the reasons assigned for it. It is true the omitted paragraphs contain facts which would be wholly incredible to readers who do not carefully examine the principles and capacity of the instrument with which these marvellous discoveries have been made; but so will also nearly all of those which he has kindly permitted us to publish; and it was for this reason that we considered the explicit description which we have given of the telescope so important a preliminary. From these, however, & other prohibited passages which will be published by Dr. Herschel, with the certificates of the civil and military authorities of the colony, and of several Episcopal, Wesleyan, and other ministers, who, in the month of March last, were permitted, under the stipulation of temporary secrecy, to visit the observatory and become eye witnesses of the wonders which they were requested to attest, we are confident his forthcoming volumes will be at once the most sublime in science, and the most intense in general interest, that ever issued from the press.

The night of the 14th displayed the moon in her mean libration, or full; but the somewhat humid state of the atmosphere being for several hours less favorable to a minute inspection than to a general survey of her surface, they were chiefly devoted to the latter purpose. But shortly after midnight the last veil of mist was dissipated, and the sky being as lucid as on the former evenings, the attention of the astronomers was arrested by the remarkable

outlines of the spot marked Gycho, No. 18, in Blunt's lunar chart; and in this train they added treasures to human knowledge which angels might well desire to win.

SUMMARY.

LETTERS have been received from an officer on board the Delaware, dated off Malta, 26th June, 1835—officers and crew all well. The Delaware was going immediately to Tripoli.

It is understood that the Delaware will sail for the U. States as soon as the Constitution reaches Port Mahon.

DON THOMAS GENER.—It is with deep feelings of regret we learn that this eminent individual died at Matanzas, about the 16th August. The immediate cause of this deplorable and unexpected event, was the overturning of a carriage—by which he received some mortal hurt.

We know few individuals in any country, whose loss should be more truly looked upon, as one to all lovers of freedom, to all good men. A man of head, of heart, and of hand, Don Thomas Gener lacked but an appropriate sphere, to make himself felt as one fitted to decide the destinies of nations. With the high acquirements and high qualities of a Statesman, he combined much simplicity of character—and all the gentler social virtues. As a philanthropist, a friend, a husband, and a father—his memory will endure, while the grateful hearts, which in all those relations he gladdened, shall continue to beat.

To Cuba—of which glorious island no one better understood than he, the vast resources, and possible futurity—great indeed, is the cause of mourning—at this untimely death.

AN ACT to prohibit the circulation of small Bills, passed March 31, 1835.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall not be lawful for any person or corporation to pay, give, or offer in payment, or in any way circulate or attempt to circulate, as money, at any time after the first day of September next, within this State, any bill, note, or other evidence of debt, purporting to be issued by any body corporate, of a denomination less than two dollars: and it shall not be lawful for any person or corporation to pay, give, or offer in payment, or in any way circulate or attempt to circulate, as aforesaid, at any time after the first day of September, One Thousand Eight Hundred and Thirty Six, any such bill, note or other evidence of debt of a denomination less than Five Dollars, or of a denomination between Five Dollars and Ten Dollars.

§ 2. Any person offending against any of the provisions of the foregoing section, shall forfeit for every offence five times the nominal value of any such bill, note or other evidence of debt, to be recovered with costs of suit in the name and for the use of any person who shall sue for the same, and prosecute such suit to judgment in any court having cognizance thereof.

§ 3. It shall not be lawful for any corporation having banking powers in this State, at any time after thirty days from the passage of this Act, to issue or in any manner put in circulation, any note, bill or other evidence of debt, of any denomination less than Two Dollars; and it shall not be lawful for any such corporation, at any time after the first day of September next, to issue or in any manner put in circulation, any such bills, notes or other evidences of debt of any denomination less than Three Dollars; and it shall not be lawful for any such corporation, at any time after the first day of March, One thousand Eight hundred and Thirty-six, to issue or in any manner put in circulation, any such bills, notes or other evidences of debt, of a denomination less than Five Dollars; nor shall it be lawful for any such corporation at any time hereafter, to issue, or in any manner put in circu-

lation, any such bills, notes or other evidences of debt of a denomination between Five and Ten Dollars.

§ 4. Any such corporation violating the provisions of the foregoing section shall forfeit one hundred dollars for each bill issued or put in circulation contrary thereto, to be recovered in the name and for the use of any person who may sue therefor; the court of chancery may by injunction, restrain such corporation and its officers from exercising any of its corporate rights, privileges or franchises, and from collecting or receiving any debts or demands and from paying out, or in any way transferring or delivering to any person any of the moneys, property, or effects of such corporation, until such court shall further order.

§ 5. Any person who shall purchase or take at a discount, any bill, note or other evidence of debt, purporting to be issued by any banking corporation or body corporate, not chartered by the laws of this State, and the circulation of which is prohibited by this act, shall, in addition to the forfeiture provided by the second section of this act, also forfeit for every such offence, the sum of fifty dollars to be recovered with costs, in the manner provided by said second section; and any incorporated company in this State, that shall, by its officers, agents or servants, take or receive in the course of its business any such bill, note or other evidence of debt, purporting to be issued by any corporation not chartered by the laws of this State, shall, on conviction thereof, forfeit its charter.

§ 6. So much of the act, entitled "An act to prohibit the circulation of bills of banks not chartered by the laws of this State, under the denomination of five dollars," passed April 20, 1830, as is inconsistent with this act, is hereby repealed.

§ 7. The fifth and sixth sections of this act shall take effect on the first day of September next.

While we feel it our duty to notify all, whom this paper may reach, of the actual law on this subject, (which in brief is that *all notes under five dollars, of foreign banks, and all notes under two dollars, of New York banks, are now prohibited,*) we must add the expression of our belief, that this law, like that against small notes from other States, which has for the last five years been on our statute books—will in effect be—a *dead letter*. Neither the public sentiment, nor the public convenience, sanction the law, and against them, no such law can be executed.

PACKET SHIP SHEFFIELD.—The passengers by the Sheffield have presented Captain F. P. Allen a very elegant silver pitcher (made in Marquand's best style), in testimony of their sense of his liberality, gentlemanly attention, and nautical skill, during her late passage from Liverpool to this port.

The editor of the Transcript has discovered, by reference to the town records of Boston, that Geo. R. T. Hewes, "the man of a hundred years, who visited us last July," and was tossed every where as "the last of the tea-party," was born on the 25th of August, 1742—from which it seems that the old gentleman has been adding *seven years* to his age—he being in fact only *ninety-three*.—[Ib.]

MR. J. ORVILLE TAYLOR is on his return from a tour throughout the state, having been lecturing in the different counties on the deficiencies of common schools. We are gratified to learn from him, that he has succeeded in awakening a very lively interest in the behalf of our district schools, and has received from *gentlemen* in every part of the State a hearty co-operation, and the warmest welcome.—[Oneida Whig.]

SENECA FALLS.—The population of Seneca Falls village is 2,525; of which 1,296 are males, and 1,231 females. In 1825 that village contained only 265, and 1610 in 1831. Hydraulic operations and business generally have kept pace with the population.

PERILOUS BALLOON ASCENSION.—We learn from the Lynchburg Virginian, that Mr. Hobart returned to that place on Tuesday last, after a most perilous flight through the upper regions. The balloon was cut from the cord at seven o'clock, and in less than an hour he landed near Walker's church, in Prince Edward county—distant about 38 miles! We, says the paper, regret that Mr. Hobart has not yet been able to prepare a description of his dangerous journey. We must, there-

fore, content ourselves for the present with stating a few of the prominent particulars.

In a very few minutes after the balloon left the earth it was lost to view by passing into a cloud. Mr. Hobart informs us, that, after that time, he lost sight of the earth entirely. At half past seven he took his last observation, when he was upwards of three miles from the earth. About that period he saw two brilliant meteors, one in the north, and the other in the west—the latter seeming to approach him, but disappearing without coming in contact, very much to Mr. H's relief, who feared the ignition of the gas. Shortly after, he encountered a severe gale, the balloon and car being whirled to an immense height, he supposes not less than 26,000 feet from the earth, from the effects produced upon his respiration and sense of hearing—finding it extremely difficult to breathe, and being entirely unable to hear. He attempted to operate on the safety-valve, but from his inability to hear, could not ascertain whether the gas escaped or not. In this situation he every moment feared the balloon would burst, and that some of his husband vessels would be ruptured. He soon found, from the elevation of the lower part of the balloon, that his apprehensions were in part realized. He began to descend with great velocity, and fortunately landed on a favorable spot, his fall being broken by a pine sappling, on which he alighted. He was hurled from the car, however, with considerable force, and was severely jarred by the fall, breaking his valuable barometer, and damaging some of his other instruments. Had he descended in the woods, by which he was nearly surrounded, he thinks his death would have been inevitable; and he evidently had a very narrow escape. On examining the balloon, it was found to have sustained a rent, near the top, of about twenty inches in length, and several parts in which it had previously broken and patched had all been re-opened. It is now completely ruined.

MICHIGAN.—An extra meeting of the Legislative Council, convened by the proclamation of the Governor, commenced at Detroit, on the 18th of August. The Governor sent to them a long message, recapitulating the whole history of the border controversy, and finally submitting for their decision, the compromise recommended by the Commissioners of the U. S., Messrs. Rush and Howard.

LATER FROM ENGLAND.—By the ship *Trenton*, at Boston, London papers to 25th July are received, one day later than before. They announce the close of the Irish church question, in the House of Commons, and the loss of the amendment, or rather division of the question, proposed by Sir Robert Peel, and so ably enforced in the speech we published last week—by a majority of 37. The vote was for the motion of Sir R. Peel 232, against 319.

Lord Stanley spoke in favor of the amendment, and Mr. Ward, Mr. Sheil, Mr. O'Connell, Lord Morpeth, and Lord John Russell against it. Lord John Russell stated in reply to a question put to him, that he should on the part of the Ministers, bring in a bill on the subject of tithes in England, at the next session.

It was asserted, on the authority of letters from Germany, that the Northern governments were preparing to acknowledge Don Carlos as King of Spain, and that Count Alarida, the agent of the latter at Vienna, had almost daily intercourse with Prince Metternich to settle the terms. It was supposed that the defeat of Don Carlos in his attempt to get possession of Bilbao, would operate unfavorably for his interests abroad.

LATER FROM FRANCE.—The packet ship *Natchez*, Captain White, arrived last night from Havre, bringing papers of that port and Paris to the 24th, inclusive.

The Toulon Journals of the 17th inst. state that the Cholera had been evidently on the decline there for several days, but they had received accounts of its having increased at Grasse and Frejus, and had also broken out on board the hulks at Nice, in consequence of which, the convicts had been sent to Villefranche. At Toulon, from being abandoned by their colleagues, three of the Municipal Counsellors have died from fatigue.

From the French papers, we learn that the want of money is severely felt in the Carlist army.—The last supplies of cattle by the French purveyors have not been paid for, and the troops are still

in want of provisions. The inhabitants of Navarre are again under apprehensions of seeing their country traversed by the armies. The large cattle which constitutes their wealth have almost wholly disappeared.

General Mina arrived at Toulon from Montpellier on the 17th ult., his wound being completely healed.

Letters from Vienna and Berlin announce in positive terms, the approaching acknowledgment of Don Carlos by the Northern Powers. This acknowledgment will, it said, counterbalance the quasi-intervention of France and England.

Letters from Algiers of the 19th ult., confirm the intelligence from that place and Oran, respecting the serious check experienced by the French. A more detailed account is given of the encounter but presents nothing further of consequence.

[From the Courier and Enquirer.]

TEXAS.

VELASCO.—Mouth of the Brazos River, August 3d, 1835.

The Mexican Government appears determined to extend the benefits of the political change about being made in the government of the Republic, to the Colony of Texas, or in other words, to establish here a despotic Military Government. But the occupation of the principal ports, and the stations of the Colony by the Mexican troops, presents great difficulties. The troops are all concentrated at San Antonio De Bexar, not a soldier having yet appeared at San Felipe, Brazoria, or Galveston Bay. The settlers are not opposed to the establishment of Custom Houses, but they appear determined to resist Military Government, especially in the department of Nacogdoches—situated on the frontier of the United States, where an efficient militia was formed, more than sufficient to resist any attack on that side, which, however, is not in the least apprehended, owing to the great distance from San Antonio de Bexar. The communications between Nacogdoches and the U. States, were perfectly free, and the arrivals from the western States were more considerable than last year. In some departments of the interior of the Colony, the militia is under organization, whilst in others the people remain quiet, watching the movements of the Mexican troops. Should these invade San Felipe and Brazoria, the whole country will soon be in arms; a provisional government will then be established at Nacogdoches, and the independence of the Colony, or its union with the United States at once declared.

A Mexican Government Schooner has been cruising for some days past on the coast, and is at present at the mouth of the river Brazos.

Senor Zavala arrived here a few days back, and was well received by the settlers.

Colonel Austin is daily expected from New Orleans, but being now considered a supporter of the administration of Santa Anna, he has lost his former popularity in the Colony. For my part I think this accusation against the persecuted Colonel, unfounded, and I confidently hope it will turn out so.

The Colony continues healthy, and the crops very good.

MEXICO.—We have received, via New Orleans, Mexican papers to the 28th July. The general Congress of the Union met again at the City of Mexico, on the 19th of the same month, with the customary ceremonies, on which occasion the Vice President Barragan, in a speech to the Representatives, exhorted them to take into consideration the present state of affairs, to ascertain closely the wishes of the people as regards the reforms in the constitution, and the establishment of a system of government calculated to put an end to the evils of civil war, and to secure permanent order and tranquillity to the country. The Count of Tagle, President of the House of Representatives, replied to the Vice President in a long speech, in which we find the usual professions of patriotism, and personal pledges by the House, to promote the liberty, peace, and welfare of the Mexicans, &c. No motion of importance had yet been made in either House.

The country remained quiet. The ship Montezuma was to leave Vera Cruz the 1st instant.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-14

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Railroad between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skillful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting. MONCURE ROBINSON, C. E. Philadelphia, Sept. 2, 1835. 22 Saw1019

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New-York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-14

NOTICE TO CONTRACTORS

Sealed Proposals will be received at the Hudson and Berkshire Railroad Company's Office, in the city of Hudson, until the 5th day of September next, for excavating and embanking 14 miles of their Road from Arnold's shop, near Groat's, at Chatham Four Corners, to the state line, and also for constructing 8 Bridges, from 60 to 70 feet each, between the abutments. Plans of the masonry and superstructure of the bridges will be exhibited at the Railroad Office. Contractors will be required to furnish all the materials for bridges; and the masonry to be completed by the 1st of December next. The road to be graded for a double track, 24 feet wide. A part of the road will be heavy rock and gravel excavation. Profiles of this part of the route will be exhibited at the Railroad Office, in Hudson, and also at the Office of the Engineer, at Chatham Four Corners. The road will be divided into sections of one half and one mile each in length, and prepared for examination by the 10th of August.

Proposals will also be received for furnishing 500,000 feet, B. M., of White Oak Rails, 6 by 7 inches square, and 16 feet long. Also, 15,000 Oak or Chestnut Ties, 6 by 7 inches square, 8 feet long, or, if round, not less than 8 inches in diameter, at small end. Also, 500,000 feet of Chestnut, Pine, or Hemlock Sills, 4 by 10 inches, 12, 16, or 20 feet long.

The whole to be subject to the inspection of the Engineer, and to be delivered on the line of the road, by the 15th of April, 1836.

The remaining 18 miles of the route will be put under contract as soon as the line can be prepared.

Persons applying for contracts will be expected, unless personally known to the Engineer, to present with their proposals recommendations as to ability to perform their contracts.

Any information on the subject afforded at the Engineer's Office, Chatham Four Corners.

JAMES MELLEEN, President.

GEORGE RICH, Chief Engineer.

Hudson, Aug. 1, 1835. 31-5t

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined Iron. For sale by his Agents,

WITHERELL, AMES & CO.

3 Liberty street, New-York.

BACKUS, AMES & CO.

8 State street, Albany.

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson; New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention. Paterson, Aug. 19, 1835. 34-1y

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 204 Elizabeth street, near Bleecker street,

New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. 396 ft

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.12-1y

RAILWAY IRON.

95 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 200 do. 1 1/2 do. do. 14 to 16 feet, counter sunk
40 do. 1 1/2 do. do. do. holes, ends cut at an angle
800 do. 2 do. do. do. of 45 degrees, with splicing plates and nails to suit.
800 do. 2 1/2 do. do. do. soon expected.

260 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 23, and 26 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 22, 20, 18, 16, and 14 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. G. BALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. 271meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. 331 64

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repair, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a revolving telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend, JAMES F. STABLE, Supt of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833. Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

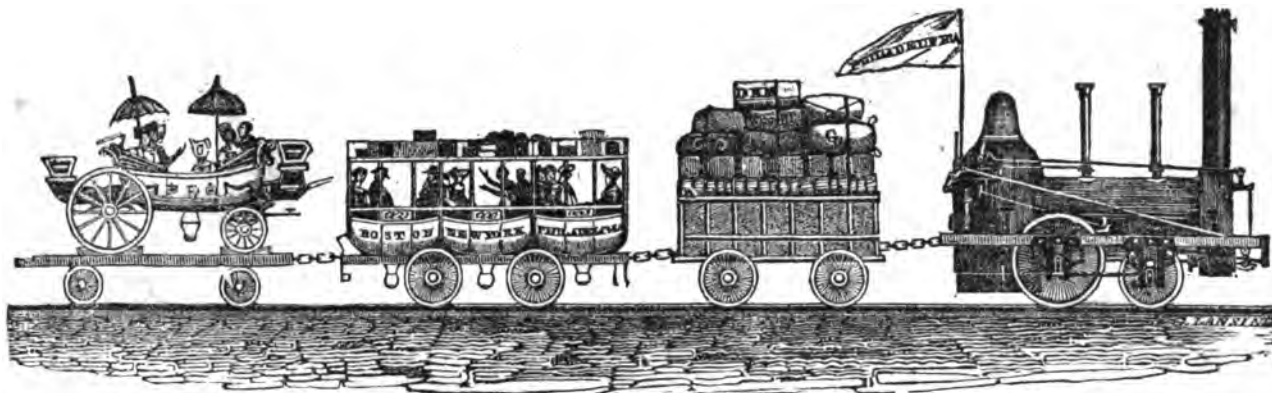
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germant. and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, SEPTEMBER 12, 1835.

[VOLUME IV.—No. 36.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, SEPTEMBER 12, 1835.

NEW-YORK AND ERIE RAILROAD.—We hail with heart-felt satisfaction the approaching commencement of this noble work. It will be seen by the following notice, that the Company are prepared to put under contract FORTY MILES of the road; and we are assured by the Engineer that as much more will be ready for contract this fall. Thus it will be seen that the Company turn neither to the right nor to the left, but with a degree of firmness characteristic of the gentlemen who have embarked in the enterprise, they go *a-head*; and the result of their independence, firmness and perseverance, will be, to overcome sectional and local opposition, and to convince all, who have sense and honesty enough to be convinced of any thing, that their aim is to promote the *general*, and their country's, prosperity.

NEW-YORK AND ERIE RAILROAD.

TO CONTRACTORS.—Proposals will be received at the Office of this Company, No. 12 Wallstreet, in the City of New York, until the 5th of November next, for the grading of forty miles of the Railroad, along the Delaware River, and extending from the mouth of the Calhoun Creek (about sixty miles west of Newburgh) to the village of Deposit, in the County of Delaware. This portion of the work is now staked out in convenient sections, generally averaging one mile in length. Plans and profiles of the line, and printed forms of the contracts, (in which stipulations will be inserted prohibiting the use of ardent spirits) will be ready for exhibition on, and after, the 20th of September instant, at the Office of the Division Engineer of the Eastern Division of the New York and Erie Railroad, in the village of Deposit. The Company reserve the privilege of accepting only such proposals as they may deem for their advantage.

JAMES G. KING, President.

New York, Sept. 8th, 1835.

We give in this number an account, with engravings, of Daglish's Prize Rail—and it is to be hoped that some of our numerous Railroad Companies will test its value.

We owe an apology to our punctual correspondent at Avoylle Ferry for the apparent delay of his report for June, but it was received only a few days previous to that for July. We hope, therefore, that he will not discontinue his much esteemed favors—and it would be highly gratifying if he would give a brief description of the country in which he resides, and also of the adjoining territory of Texas, especially in the vicinity of *Nacogdoches*.

We have more than once been desired, by our readers, to ask P. G. V. for this information, which we now take the liberty of doing.

ELIZABETHTOWN AND SOMERVILLE, N. J., RAILROAD.—We have been favored with a Report of the Committee of the Board, in relation to the above named railroad, and its continuation to Belvidere; where it is to cross the Delaware and unite with the *Susquehanna and Delaware* Railroad, to Pittston, on the *Susquehanna*; and from thence to the New-York line, to connect probably with the New-York and Erie Railroad, either at Binghamton, or Tioga Point, or both,—as may be hereafter deemed expedient.

From the following abstract of the Report, it appears that the route is altogether feasible and highly eligible—that it passes through a section of country in New-Jersey rich, not only in agricultural productions, but also in minerals and manufacturing privileges—that it will open a direct and easy communication both with the *anthracite* and *bituminous* coal regions of Pennsylvania, and at the same time divert to this city much of the trade which now descends the *Susquehanna* to Baltimore, and the Delaware, to Philadelphia.

Our attention has been before attracted

to this route, and we have frequently referred to it, as one of great importance to the city of New-York—and the more we reflect upon it, the more important it appears to us. We shall give the Report entire in our next.

The route proposed is from Elizabethtown in New Jersey to Somerville, thence to Clinton, thence to Phillipsburg, opposite Easton, thence to Baltimore, thence crossing the Delaware to the Water Gap, thence to Pittston on the *Susquehanna*, and thence by such routes as will be deemed most advantageous to join the N. York and Erie Railroad.

Acts of incorporation exist for these respective routes granted by Pennsylvania and New Jersey.

From Elizabethtown to Somerville, the curves for a railroad are few and of large radii—the maximum slope only 5 feet in a mile—distance 23 miles—short branches may be made from this to Rahway, Bridgetown, New Brunswick and Perth Amboy.

The route from Somerville to Clinton, 21 miles, of easy grade, 7 feet slope per mile.

From Clinton to Belvidere, 73 miles, easy descent by water courses.

But the most important part of this report is that which touches ourselves at New York. It is affirmed that at Pittston, a choice is presented to unite with the New York and Erie Railroad at Binghamton, by the Legget's Gap Rail Road, or at Shepherd's corner, near Tioga point, by the *Susquehanna* Rail Road, for both of which Pennsylvania has granted liberal charters. The distance then to Portland on Lake Erie, by the New York and Erie Rail Route is, it is said, 216 miles; making by this route only 438 miles from New York, or seventy miles nearer than by any other practical route. If the route from Pittston by the *Susquehanna* Rail Road to the New York line is adopted—it passes within nine miles of the bituminous coal regions of Bradford and Tioga counties, and the course of the Lycoming, which runs to the W. branch of the *Susquehanna* and the Towanda, which empties into the N. branch and interlock at their summit, opening an easy route with the Elmira and Williamsport Rail Road. Thus the bituminous coal of Bradford, and Tioga counties, and the anthracite of the valley of Lackawannock, reach New York and the Northern and Eastern portions of New Jersey—one hundred miles nearer by this than by any other route. It is estimated that 200,000 tons of bread stuffs, lumber, &c. annually descend the *Susquehanna*, from within 20 miles of the N. York line. Two millions of merchandise are annually consumed by the counties in that neighborhood. The forests abound in curled maple and other choice timber. The land is rich—the water power abundant. The trade of the tributaries of the *Susquehanna* will thus be thrown, also by a short route, upon Philadelphia. The Delaware Water Gap protects the whole route from all competition, giving it thus a natural monopoly.

Fig. 1.

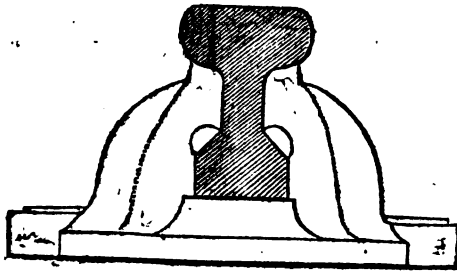


Fig. 4.

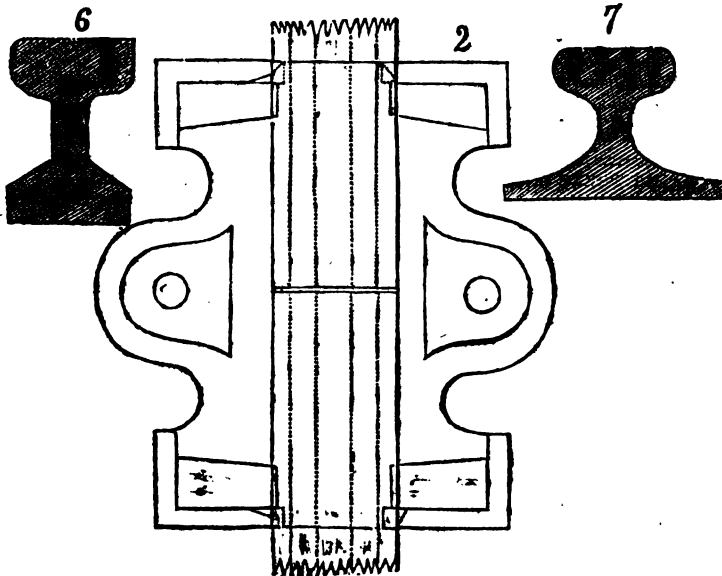
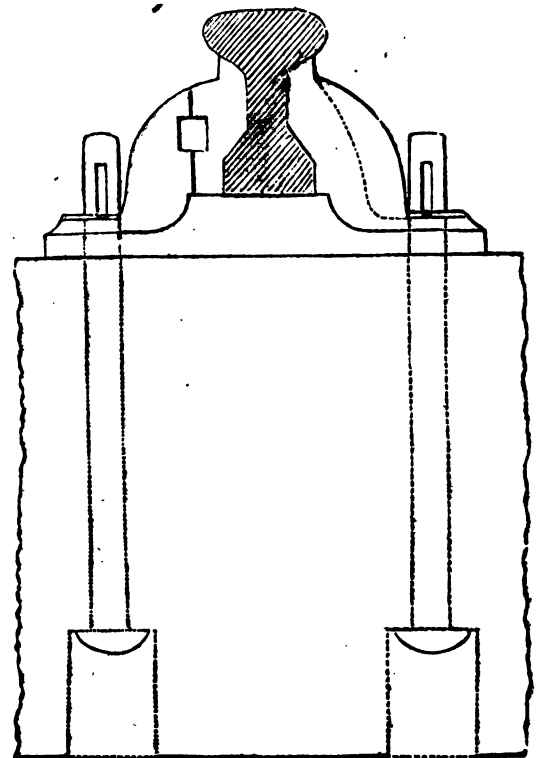


Fig. 3.

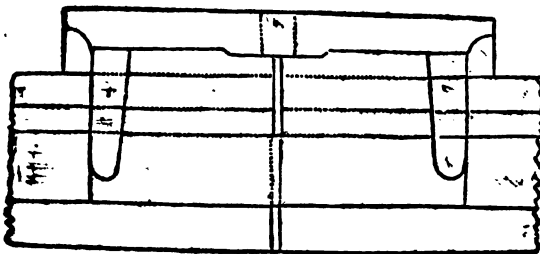
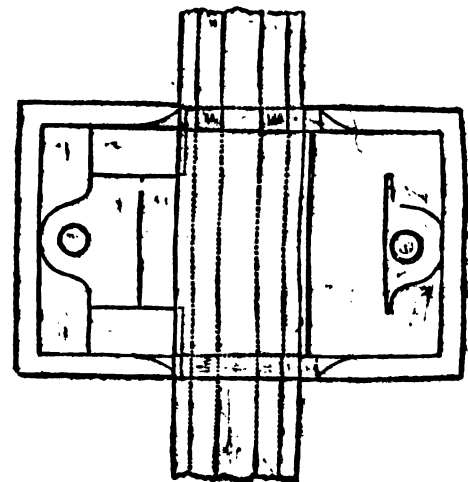


Fig. 5.



[From the London Mechanics' Magazine.]

DAGLISH'S PRIZE RAILS AND PEDESTALS.

Dear Sir,—I herewith send you drawings of my parallel rail and joint and intermediate pedestals, with the mode of fastening them to the stone blocks or sleepers, and also of my method of keying the rails into their respective pedestal; for all which I obtained the premium lately offered by the London and Birmingham Railway Directors, with the exception of the mode of fastening the pedestals to the stone blocks, which the Committee of Reference are said to have thought inferior to the lewis-pin of Mr. Swinburn, to whom the Directors accordingly awarded a third of the premium. I have also added sketches of certain modifications of my rail and pedestals, which it might be advisable to adopt under particular circumstances, and in some peculiar localities.

Fig. 1 (No. 8 of the Competition) is an end-section of the parallel rail and joint-pedestal (the pedestal where two ends of different lengths of rail meet;) showing also the mode of keying the rail by cotter

bolts, (No. 3 of the Competition.) Fig. 2 is a plan of the above; and fig. 3 a side-section. The weight 50 lbs. per yard. The stone blocks are from 10 to 12 inches thick, and contain from 4 to 5 cubic feet; the cotter bolts are $\frac{3}{4}$ inch round.

I have tried this form of rail against ten other forms of rail of the like weight per yard or thereabouts, not only by actually running heavy locomotive engines over them, but by means of the steelyard and lever, and have always found that it will carry more weight than any other with the least deflection. The simplicity of its construction, too, is greatly in favor of its being soundly made.

Fig. 4 is an end-section of the same kind of rail, with the intermediate pedestals; and fig. 5, a plan of the same.

The joint-pedestal is made of nearly twice the bearing of the intermediate ones, in order that the ends may be the more effectually secured.

The Secretaries of the London and Birmingham Railway state, in their letter to me announcing the award of the premium

in my favor, (with the exception aforesaid,) that the Committee of Reference did not consider that any one of the patterns or plans sent in fulfilled the conditions required by their advertisement, (that is to say, I presume, combined in one all the advantages sought for,) but that my form of rail and chair, (or pedestal,) and mode of fixing the rail to the chair, (according to the chair pattern, No. 3, and model, No. 8,) were the best as regards the two first conditions of the advertisement; while the method of fixing the chair to the stone block, shown in model No. 5, (Mr. Swinburn's,) was the best as regards the third condition; and that the Directors had, therefore, come to the unanimous resolution, that they should not be justified in giving the premium for any one individual pattern or plan, but that 70*l.* of it should be awarded to me, and 35*l.* to Mr. Swinburn.

On comparing, however, the statements in this letter with those in the pamphlet lately published by Mr. Barlow (one of the Committee of Reference,) containing an account of the experiments made by him

at Woolwich, and his Report thereon to the London and Birmingham Railway Directors, I must confess that I am quite at a loss to reconcile the two. For it appears from the latter, that Mr. Barlow not only made his experiments with my form of rail, which he pronounces to be by far the best, but recommends the mode which I proposed of fixing the pedestal to the stone block, and not Mr. Swinburn's.

Indeed, to all who are practically conversant with railways, it must seem as inexplicable as surprising, that the lewis-pin method should have been thought worthy of favorable mention at all, far less of being honored with a premium. Were such a mode of fastening adopted, (as it, most assuredly, never will,) it would not be long before the concussions from the passage of heavy locomotive engines, at great velocities, would infallibly split the stone to the depth of the lewis.

The mode of fastening practised by me, and approved of by Mr. Barlow, (though, strange to say, not treated with like favor by the Committee of Judges, of whom Mr. Barlow was one,) consists, as will be partly seen from inspection of the figures, in inserting plain cotter bolts through the stone, and countersinking the hole up from the bottom for the space of an inch and a half or two inches, so as to permit the point of the bolt to drop below the base of the pedestal. I first tried screw-bolts, but was obliged to abandon them in consequence of the nuts getting, through corrosion, so fast to the bolts as to twist the bolt-ends off before they would unscrew. Fifteen years' experience has now satisfied me that the plain cotter bolt is the only one that will answer.

Mr. Barlow speaks of this method of fastening as if it were the suggestion of Mr. Vignoles. But how he should have fallen into such a mistake, I cannot comprehend; for it was not only fully shown in the models I sent in to the London and Birmingham Railway Directors, but the advantages of it were particularly dwelt upon in the letter which accompanied them. To place this beyond all doubt, I will here repeat those passages of my letter which relate to this point:

"The pedestal for the joint I would particularly recommend to be fastened to the sleeper with cotter bolts; I would also prefer fastening all the intermediate ones in like manner, though they would answer to be well nailed in the usual way, but much better with cotter bolts, as you then derive the greatest effect from the parallel rail, by keeping every pedestal firmly down. If only nailed, this may prevent the intermediate pedestals becoming fulcrums, in which case the fibres of the upper surface of the rail are not called into tension in the same ratio with those on the under side of the rail, immediately between the pedestals, while the locomotive or any other heavy carriages are passing along the line."

Again:

"I prefer the mode of fastening the pedestals with cotter bolts as by far the most effectual for general use; if even they have to be fastened with smaller bolts, (say $\frac{1}{2}$ inch diameter,) more especially when they can be thus secured at as cheap a rate as if fastened by nails. The holes for the small bolts can be drilled through the stone sleepers for less than the large holes necessary to receive the wooden plugs; and the small bolt and cotter will only cost a trifle more than the nail and wood plugs, as both the bolts and cotters can be made by a machine for that purpose."

Mr. Vignoles, though he certainly did not

suggest the use of the cotter bolt, has done me the honor to cause it to be adopted in the construction of the Dublin and Kingstown Railway, instead of the nails or spikes commonly used.

Mr. Barlow makes some very forcible observations, (which, in noticing his pamphlet, you have judiciously transferred to your pages,) on the importance of exact fitting and fastening; but to show you that all practical men have not been so indifferent to these matters as Mr. Barlow imagines, and indeed somewhat broadly insinuates, I will, with your leave, make another short extract from my letter to the London and Birmingham Railway Directors, which has an immediate bearing upon this part of the subject:

"I am quite sure a velocity of from 50 to 60 miles per hour may be obtained upon a well-constructed railway, with greater safety than one of 20 miles, upon any of the present lines yet in operation; not only from their having too tight a rail and ill-constructed pedestal, but from the mode of fixing them, especially at the joints, which is the great cause of so much deflection and sudden action, both vertically and horizontally—so that it is not in the power of man to make a locomotive engine to stand the action they are subject to long together.

"I have frequently stated to Companies, that every public railway ought to be laid down as accurate and as firm as it is possible for hands to do them; and, when that is done, to put a steam engine upon them to plane the surface, the same as we do our slide-rails."

I must also use the freedom to observe that, correct as Mr. Barlow's views are, of the importance of executing all railways in the best possible style of workmanship, he shows, in nearly all that regards the details, great want of practical knowledge. Speaking of keying the rails to the pedestals, he says, that "if the rails and chairs must not be permanently fixed to each other by direct means, it ought not to be attempted by indirect means, viz. by cotter keys or wedges, for either these will hold the rail to the chair, or they will not; if they do hold fast, they produce all the mischief which permanent fixing would occasion; and if they draw, then they do no good, although they may still do mischief." Now, if the Professor ever had an opportunity of carefully watching for a summer's day the passing of heavy steam carriages and long trains of other heavy carriages over a railway, he would never have ventured such a statement. He would have witnessed, that it is scarcely in the power of man to fasten the rails permanently to the pedestals. Aware of the impracticability of doing so, I do not allow the D key proposed by me, (see fig. 1.) when used to key the rail to the joint-pedestal, to be driven with more than a single-hand hammer; and I also stop it at its place when driven, the key being here merely intended to act as a staidment to the rail. For before a locomotive engine or heavy train has passed twice over the rails, the whole of the keys give or yield of necessity in such a manner as to allow the rails to expand or contract more than double what they really do, or are subject to, from the differences of temperature to which they are exposed. With respect, however, to the intermediate pedestals of the five-yard rails, the more soundly they are keyed to the rail the better, so as not to injure the pedestal by over-driving the key, as there is more latitude in the holes through the base of the pedestals where the bolts pass, than would compensate for treble the expansion and contrac-

tion the rails are subject to. Besides, each of the holes drilled through the stone blocks upon which the pedestals rest is drilled $\frac{1}{16}$ th of an inch larger than the diameter of the bolts, and the pedestals can never be so hard cottered down to the surface of the stone but what they will give a little. All difficulties on this head I got completely over several years back, in both wrought and cast-iron railways, which have been laid under my direction. I could refer Mr. Barlow to several miles of railway which have been worked for years, and remain at present perfectly firm, without the least distortion, either vertically or horizontally.

Again: notwithstanding Mr. Barlow has actually proved by experiment that the parallel rail is superior to the parabolic, or fish-bellied rail, and has taken some pains to show the neutral axis, which has little or nothing to do with the best form of rail; yet he has forgotten to point out one of the most essential advantages which the parallel rail has over the parabolic rail, as I have frequently proved by the steelyard lever. I have found that by holding the ends of the rails firmly down, at the joint-pedestal especially, the parallel rail of fifty per yard will carry upwards of a ton more, with the same deflection, than they will do if the ends are allowed to rise, which they will of course do if the end-pedestals are merely nailed down in the bad and ineffectual manner hitherto usual, namely, by common rails or spikes. When the rails are kept firmly down by proper means, the intermediate pedestals become so many fulcrums, and the tension of the fibres of the upper parts of the rail is called into play, as will be readily understood from inspection of the following diagram, in which AA represent the points of tension, and BB the points of deflection.



I perceive further from Mr. Barlow's experiments, that he considers the best rail for strength ought to be from $4\frac{1}{2}$ to $4\frac{3}{4}$ inches deep, from the upper to the lower surface. I am quite confident, however, that it will be found that the best form of wrought iron rail ought not to exceed $3\frac{3}{4}$ inches deep, or 4 inches at most; for by making the rail higher, not only will the pedestal be much weakened, but there will be no possibility of holding the pedestals firm on their base, by cotter bolts or any thing else, more particularly at the shunts and curvatures of the line of railway, and even the stone blocks will be continually shaken. It is well known in practice, that the lower any rail and pedestal can be kept, the less is the destruction in them, and the less the action on the foundation upon which the stone blocks are placed. It is also equally well known, that a sufficient wrought iron rail can be made of the depth I have stated, (namely $3\frac{3}{4}$ or 4 inches,) to resist the action of a locomotive of 12 to 14 tons weight, at a speed of 40 or 50 miles per hour, (or even more if necessary,) if it is properly laid and adjusted.

I find that the different railway companies are now going to have their rails manufactured to weigh as much as 60 lbs. per single yard. The additional 10 lbs. per yard ought, in my humble judgment, to be employed partly to strengthen the lower edge, and make it to rest more firmly on its basis, and partly to increase the width of the upper surface; both in the manner shown in fig. 6, which is a sectional view of what I consider the best form of a rail of this weight.

My object in these modifications is to increase the adhesion of the locomotive engines, as well as to give a little more bearing on the peripheries of their wheels, in order to make them last longer.

I understand the Directors of the Birmingham and Liverpool Railway (the Grand Junction,) have recently given an order for one or two thousand tons of parallel rails, the upper and lower edges of which are both alike; and that they have been induced to give this form of rail a trial by certain persons in their employment, who lay claim to it as an *invention of their own*, and put it off (naturally enough) as superior to all others. Now, the fact is, that twelvemonths ago, I gave one of their engineers a set of drawings, of rails and pedestals, of a variety of forms, and *this was one of them*. And, in my letter to the Directors of the London and Birmingham Railway, before quoted from, I also expressly made mention of this form of rail, as one that *might* be employed, but pointed out, at the same time, certain objections to its use, which restrained me from proposing it for adoption. My words were these:

"I have hesitated with myself, whether or not to make a pattern with the upper and lower edges exactly alike, so as to be able to use either side, in case the former should prove a little unsound in any part, which has hitherto been frequently the case, especially at the ends, as I am fully aware that the more metallic material that can be brought to the lower side adds considerable strength to the rails; but as you seem disposed not to exceed 50 lbs. per single yard, a little would be lost in the depth and height of the rail. Allow me to assure you, that no public railway company will ever regret having sufficient strength in the rails at the beginning, and that they ought not, by any means, to confine themselves to a pound or two in the yard, in order to make the work as complete and substantial as possible at the commencement. But, as it is, after mature consideration, and taking every thing into question, I prefer the models I have furnished, (Nos. 8 and 3,) as the keys will be more effectual."

Fig. 8 is a section of the form of rail that I recommended, and would still recommend, for adoption, where it is desired to construct it, so that it may be inverted if necessary. It is what I call a "fancy rail," but ought to weigh at least 55 lbs. per yard.

Where a railway is intended for locomotive engines of only from eight to ten tons weight, a rail of the form represented in fig. 9, and weighing only 45 lbs. per yard, will be found to answer sufficiently well.

For America, where they have great difficulty in obtaining stone blocks, and are in the custom of fixing their rails on wooden sleepers of lengths varying from 30 to 50 feet, secured by cross sleepers, the best form of rail is that shown in fig. 7. I have been informed by American engineers that they can get plenty of a hard durable timber, very suitable for the purpose, for little more than the expense of cutting it down in the forests, and sending it to the saw mills to be cut into scantlings fit for immediate use; and that a railway bed of this description will last for nearly twenty years. Sometimes they lay their rails on cross sleepers only, dispensing with the side pieces. Several orders for rails of the form above referred to are now executing under my inspection for railway companies in America.

But to return to our own country: Mr. Barlow, I observe, says, "For the intermediate chairs, I think a slight modification of Mr. Stephenson's would best answer the purpose, that is, I would support the rail in

Fig. 8.

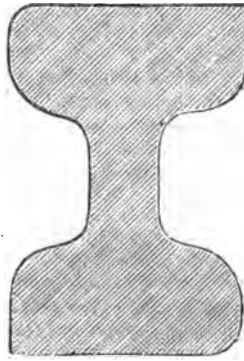


Fig. 9.



the chair simply by the ends of two plain-ended pins, so as to give it the requisite steadiness with as little friction as possible. Of course I would have these pins pointing horizontally, or upwards, instead of downwards, as they do in the chair in the question." The chair here alluded to is, I presume, that for which Mr. Stephenson, junior, some time ago took out a *patent*, instead of submitting it, as might have been expected, to the test of the open competition, which his employers, the London and Birmingham Railway Directors, thought best for the interests of the public. As I have not myself seen any drawing or description of this chair, I am not prepared to offer any decided opinion upon it; but if its excellence consists (as Mr. B.'s language seems to indicate,) in supporting the rail "simply by the ends of two plain-ended pins," it must be one of the most inefficient of all the contrivances ever designed for the purpose. Mr. B. might as well make use of two of his fingers, as two such "plain-ended pins;" for after a locomotive engine had passed once or twice over them, they would be (not crushed, perhaps,) but rendered of no manner of use whatever.

Mr. Barlow says in a note to the passage last quoted, "It may be worth consideration, whether if this mode of fixing were adopted, it would not be practicable and advantageous to introduce pieces of felt, or other substance, within the seat of the chair, which would greatly subdue the jars that take place between metal and metal."

A crowning instance this, of the little practical acquaintance Mr. Barlow has with the subject about which he has written so learnedly. I have said that he might as well make use of two of his fingers as two of Mr. Stephenson, Jun.'s pins (if Mr. Stephenson's they be); and so I now take leave to tell him that as far as any benefit is to be derived from the insertion of felt within the chair, he might as well insert a piece of his thumb-skin.

I will only, Mr. Editor, trespass further on your valuable space, to make another brief extract from my letter to the London and Birmingham Railway Directors, which

contains a suggestion for the further security of the rails, that seems to me not undeserving of general attention:

"I should also advise, that each joint-pedestal should be coupled with the opposite one by an extended round bar of three-fourths or seven-eighths diameter, with a washer welded on each end, so as to drop on the ends of the copper bolts in order to keep the railway in true gauge. This I have found of great service even on common railways."

Trusting to the interest and importance of the subject for a justification of the length to which this letter has extended,

I remain, dear Sir, yours, respectfully,

ROBERT DAGLISH.

Orrell Cottage, near Wigan, May 26, 1835.

[From the London Repository of Patent Inventions, &c.]

EXPERIMENTS ON THE PRESERVATION OF SHEET-IRON FROM RUST, IN INDIA. BY JAMES PRINSEP, Esq.—The proposed extensive employment of iron steamboats, for the navigation of the Ganges, rendered it a desideratum to ascertain what varnish or composition would best preserve the exterior surface of such vessels from the rapid corrosion to which iron is so peculiarly subject in a hot climate. A series of experiments was undertaken with this view by myself, at the requisition of government; and it may perhaps be useful to record the principal results in a journal of science.

Two sets of six wrought-iron plates, each measuring 3 feet by 2 feet, were fixed to two iron triangles, the plates being prevented by studs from coming into contact with each other. The same varnishes were applied to both sets, one being intended for entire submersion under water, the other to be only half immersed, in order to [that it might] feel the united influence of air and water.

The following were the coatings applied:

1. Common coal-tar laid on hot, and the plate heated.
2. *Thetsee* varnish of Ava, one coat. This took a very considerable time (two months) to dry, kept first in a cool room, and afterwards in a room heated by furnaces.*
3. Native *Dhuna*, applied to the iron hot, in a thick uneven coat.
4. Best white-lead paint, three coats; allowed to dry and harden for nearly three months.
5. Coachmakers' varnish, two coats; dried rapidly.
6. Spirit varnish, several coats; warmed.
7. White wax, melted on the surface.
8. White wash, of pure lime water.
9. The surface of the iron plate cleaned and guarded with an edging of zinc, soldered on.
10. The natural surface of the rolled iron sheets, covered with its usual hardened grey oxide.

Many of the foregoing were employed from curiosity only, especially No. 6, the

* Major Burney states, that three or four days are sufficient for the varnish to dry when laid on wood (Journal, vol. i. p. 172). I had not a damp vault in which to expose the plate as recommended by that officer, and that may partly account for the delay in drying; but all varnish and paint takes longer to dry on metal than on wood, from its non-absorbent nature.

spirit varnish, which had, on many occasions, proved quite ineffectual in preserving the surface of polished iron and steel from rust in the atmosphere of Calcutta.

The two frames were suspended as above described, one under water, the other half immersed, from one of the unused dredging boats, near the Chitpur lock gates, in the circular canal, where they were left undisturbed for three months, during a period of the year when the water of the canal was only slightly salt.

They were then taken up for examination, and presented the following appearances.

- | Plates under water. | Plates half above water. |
|--|---|
| 1. Tar—Perfectly preserved and free from rust. | 1. Tar—A few dots of rust between wind and water. |
| 2. Thetsee—Perfectly uninjured in appearance. | 2. Thetsee—A line of rust at the level of the water. |
| 3. Dhune—White and pulverulent; soft and easily rubbed off while wet: rust here and there. | 3. Dhune—Large cracks from the contraction of the part exposed to the sun, whitened where thick, black where thin; plate preserved above water. |
| 4. Paint—Almost wholly disappeared, and blotches of rust on the surface. | 4. Paint—Paint uninjured above water mark, and plate preserved, but below water entirely removed. |
| 5. Copal varnish—Whitened, pulverulent, and soft; but not much oxidized. | 5. Copal varnish—In air less whitened, spots of rust breaking out every where. |
| 6. Spirit varnish—Whitened and very rusty. | 6. Spirit varnish—Very much corroded. |
| 7. Wax—No trace of wax left, and very rusty. | 7. Wax—This plate was all under water. |
| 8. Lime—Flaky, peeled off, and very much corroded. | 8. Lime—In air remains on and acts pretty well. |
| 9. Zinc—The clean iron excessively corroded and bad: the zinc also oxidized. | 9. Zinc—Much more rusty in the air than under water, where a kind of crust was formed. |
| 10. None—The natural surface was a little whitened, and pretty well preserved. | 10. None—Rusty on the edges, or where it had been scraped; elsewhere little injured. |

The superior preservative power of coal-tar to all the substances tried, with the exception perhaps of the thetsee, was evident; the Burmese varnish labored under the disadvantage of being a single coat, otherwise it would, doubtless, from its hardness, its firm adherence, and its inalterability by water, prove fully equal as a lacquer to the coal-tar: the latter has, on the other hand, the advantage of drying and hardening as soon as laid on.

The change effected on the resinous varnishes is produced by an actual chemical combination with the water; the soft pulverulent matter is analogous to the white powder obtained by the addition of water to an alcoholic, or to an acid solution of resin.

The failure of the zinc guard, which was expected to act as an electro-positive protector to the iron, may, I think, be attributed to its being adulterated with lead, which being negative with respect to iron, would cause, as was actually the case, a more rapid oxidation of the latter metal: (the impurity of the zinc was afterwards fully proved.)

The wax and the white paint had entirely disappeared from the surface of the metal under water, before the plates were taken up; it is impossible, therefore, to say in what way their removal was effected.

The bituminous (coal-tar) coating was finally adopted, and it has been successfully applied to the iron steamer, the Lord William Bentinck, lately launched under Captain Johnston's superintendence.—[Journal of the Asiatic Society of Bengal.]

CHEMICAL EXAMINATION OF THE PETROLEUM OF RANGOON.—By ROBT. CHRISTISON, M. D., F. R. S. E., Professor of Materia Medica in the University of Edinburgh, &c.—At the close of the preceding session, the Council of the Society did me the honor of entrusting me with the chemical examination of several articles sent not long ago to the Society by Mr. Swinton, Secretary to the Government at Calcutta. The articles in question are, 1, Specimens of the *black varnish* used in different parts of Hindostan and the Burmese territories, with specimens of the juices of which these varnishes are said to be compounded. 2, Specimens of *naphtha* from Persia, and of *petroleum* from Rangoon. 3, Specimens of *wood-oil*, a variety of fluid turpentine. 4, Specimens of crude *caoutchouc*, and of solutions of it in wood-oil.

The only one of these articles which has hitherto yielded results of such interest as to induce me to lay them before the Society, is the petroleum of Rangoon, which appears to contain a compound inflammable principle hitherto unknown.

The petroleum of Rangoon, termed by Mr. Swinton earth-oil, and more generally in the East, ground-oil, is probably the same with what may be procured in various parts of our eastern dominions, by merely digging a few feet into the soil. In the vicinity of Rangoon it may be obtained in immense quantity for the mere trouble of digging it. It is used in Hindostan as pitch for all manner of wood-work; and is likewise a favorite external remedy for rheumatism, being employed for that purpose in the way of friction.

I am not aware that either this, or any of the European petroleum, has been subjected to careful analysis; and I should suppose no such analysis has been made, because no chemist, even with a careless examination, could have failed to observe that it contains a peculiar principle, the discovery of which would have given the analysis publicity.

The petroleum of Rangoon, at ordinary temperatures in this country, is a soft solid, of the consistence of lard. Its specific gravity, at the temperature of 60° Fahr., is 880, water being 1000. At the temperature of 86°, it is of the consistence of thin paste, and at 90° it melts completely, and forms a sluggish liquid, which acquires more fluidity as the temperature rises. Hence in the East, during the hot season, when it is dug for, it must be in the fluid state, and consequently entitled to its vulgar name of ground-oil. It has a powerful naphthous odor, different from that of most other petroleum.

It is impossible to analyze this petroleum by means of the ordinary chemical solvents. Most of these solvents, such as

the acids and alkalies, have little or no action on it, while alcohol, which acts feebly, and ether and the volatile oils, which act energetically, dissolve all its principles indiscriminately. The only practicable method of analysis, therefore, is the process by distillation.

When six ounces of petroleum were distilled, there was first procured, at a low heat, an ounce of nearly colorless naphtha; then another ounce of straw-yellow naphtha; then, at a higher heat, about another ounce, much more yellow, yet still fluid at 60° Fahr.; next, a considerable quantity of a yellowish liquid, which concreted at 60° into a loose mass, composed of numerous crystalline needles and plates, in a yellow naphthous fluid; and, as the distillation went on, this matter became more and more solid, but even towards the end was not firmer in consistence than lard. The residual matter in the retort, when the heat had been raised to full redness, was a spongy charcoal.

The naphtha, when rectified by a second distillation over a lamp, and then by a third distillation from the vapor-bath, is limpid and colorless, like sulphuric ether, and its density as 779. From the trials I have made, I consider that the Rangoon petroleum, when distilled on a large scale, will yield nearly a third of its volume of this colorless naphtha.

I need scarcely observe, that in eastern countries, where the fresh juice of the caoutchouc tree cannot be procured, the naphtha from the Rangoon petroleum may prove a useful article. Like other kinds of naphtha it freely dissolves, or rather softens, caoutchouc; which, after the evaporation of the solvent, is recovered with its original properties. When it is to be used for this purpose, however, it must be carefully separated by distillation from the crystalline matter I am presently to describe, which rises as the distillation advances, and gives the naphtha a yellow color. For if any material proportion of this impurity be present, the caoutchouc solution dries very slowly, and long retains a greasy surface.

The yellowish, concrete, crystalline matter, like the petroleum itself, is not acted on by the caustic alkalies, or by the strong acids. Alcohol dissolves it very sparingly; ether and the essential oils, freely and entirely. None of these solvents, therefore, is of any use for separating the crystalline matter from the mass. But I have succeeded in procuring it in a state of purity by the following process:

The mass being cooled down to about 40° Fahr. it was spread out on the filtering paper, and then subjected to strong pressure between many folds of common blotting paper. In this manner, an oily-like matter was taken up by the paper, and a pale yellowish white crystalline substance was left, which was subsequently deprived of its remaining color by repeated solution in boiling ether and recrystallization. Ether dissolved it largely, forming a pale yellow solution, which, on being cooled by immersing the vessel in very cold water, became a soft mass of interwoven crystals. This mass was then

taken out, spread quickly on filtering paper, and immediately subjected to strong pressure between folds of blotting paper. The yellow coloring matter, which all remained in solution in the ether after it cooled, was thus, in a great measure, imbibed by the paper; and the crystalline matter was procured in a state of purity by repeating this process twice.

On first procuring this crystalline substance, I considered it as the same with the naphthaline procured not long ago from coal-tar by Mr. Kidd, as related in his paper in the Philosophical Transactions for 1821. This opinion I was led to form from the appearance of the crystals, the nature of the substance which yields them, and the process of distillation by which they were procured.

On a careful examination, however, I find that the crystalline principle of petroleum differs materially from that of coal-tar, as well as from every other known body; and I shall therefore beg leave to denominate it *Petroline*, according to the analogy suggested by the name of Mr. Kidd's crystalline principle.

As procured by the process described above, petroline forms foliaceous masses of small crystals of snowy whiteness, and bright pearly lustre. It is somewhat unctuous, and has a naphthous odor, which becomes very faint on exposure for some time to the air, and is removed altogether by boiling in alcohol. It fuses at 135° into a transparent, limpid, colorless fluid; but softens ten degrees lower. From a state of fusion it concretes on cooling into a translucent brittle mass, like wax, the density of which is 909 at 60° Fahr. At a temperature intermediate between the boiling point of water and a low red heat, the fluid boils, and distillation takes place. The greater part of the petroline condenses in the form of a fluid, which becomes, on cooling, a translucent waxy mass, with its original properties. But, owing to the elevated temperature required for its distillation, a part is decomposed, a little charcoal is left behind, and a small quantity of inflammable gas passes over with the undecomposed sublimate. When heated in the open air, it catches fire, and burns with a dense white flame and much black smoke.

Petroline is insoluble in water, cold or boiling. Boiling alcohol takes up a small quantity, not more than a 450th of its weight, and, on cooling, deposits the greater part in minute shining crystals. Boiling ether, its proper solvent, easily takes up a fifth of its weight, which, on cooling, is in a great measure separated in a congeries of micaceous crystals, so abundant as apparently to convert the ether into a solid mass. Oil of turpentine also dissolves it in large quantity, and so does naphtha.

Caustic potass and caustic ammonia in solution have no visible effect on this substance. When boiled with it, it simply fuses, rises to the surface, and is there found, on cooling, with its usual properties. Concentrated muriatic, nitric, and sulphuric acids, are equally without action, even when aided by the heat neces-

sary to boil each. It simply melts and rises to the surface, and, except that it becomes slightly yellow with nitric, and slightly brown with sulphuric acid, no change of property is perceptible. It has no action with acetic or oxalic acid.

With iodine, aided by a gentle heat, it quickly unites, forming a violet-colored fluid, which, on cooling, becomes a dirty greenish-brown solid, very soluble, like each of its elements, in sulphuric ether.

I have not made any inquiry into the other chemical relations of petroline, my object at present being merely to establish its claims to be considered a new principle, distinct from any other hitherto known. In its properties it resembles naphthaline more than any other substance; but, at the same time, it differs from that body in very many respects. Naphthaline volatilizes at common atmospheric temperatures; does not fuse under 180° Fahr.; and, when heated a little above 400°, boils and sublimes in fine micaceous crystals. It is heavier than water. It forms a rose-colored solution with acetic or oxalic acid; and with sulphuric acid it unites to form a peculiar acid, termed the sulpho-naphthalic, which, like other acids, neutralizes bases, and forms salts with them. A single glance will satisfy every one how completely this account of the properties of naphthaline differs from the description given above of the properties of petroline.

It remains for me to determine its elementary composition. This I have not hitherto found leisure to accomplish; but I am engaged in the requisite experiments at the present moment, and will soon make them known to the society. The experiments hitherto made merely enable me to say, that it contains a very large proportion of carbon.

Appendix, December, 1834.—A few months after the preceding paper was read before the Royal Society, the author observed in Buchner's Repertorium, an account of the discovery in 1830, by Dr. Reichenbach, of a crystalline principle in tar, to which that chemist gave the name of paraffine.* As the properties of paraffine seemed from that account to be obviously identical with those of the petroline of the Rangoon petroleum, and as Dr. Reichenbach had ascertained its properties and composition fully, any farther investigation of the crystalline matter of petroleum appeared unnecessary. The original paper is now published, partly because allusions have been made to it in chemical works, and partly to serve as an introduction to the ulterior inquiry of Dr. Gregory on the same subject.

The author, soon after laying this paper before the Royal Society, examined by the same process the petroleum of St. Catherine's, near Edinburgh, of Rochdale, in Derbyshire, and of the island of Trinidad; but was unable to detect a similar crystalline principle in any of them.—[Transactions of the Royal Society of Edinburgh, Vol. xii., Part i., p. 118-123.]

* A notice of Dr. Reichenbach's researches on Paraffine will be found in the Repertory, third series, vol. xv., p. 34, in the number for January, 1833.

ON THE FUSION AND APPEARANCE OF REFINED AND UNREFINED COPPER. By DAVID MUMMET, Esq.—The following are "a few extracts from experiments made some years ago, with a view to ascertain what effect would be produced upon the strength and malleability of copper, by retaining, to a certain extent, the alloy (chiefly tin) which is found in rough copper, and which it is the purpose of the copper refinery to discharge. In the first place, I obtained a quantity of shotted rough copper, made from the furnace in which the copper, though alloyed with other matters, first appears in its metallic form. These shots were light and flaky, hard when struck, but at the same time partially ductile. A quantity of pure shotted copper, made from the refinery, and having the form of flattened spheroids, and much denser than the other, was procured at the same time for the purpose of these experiments.

Exp. No. 1. A quantity of rough copper was fused in a black-lead crucible with nearly an equal bulk of charcoal, and poured into an open iron mould. The bar or ingot thus made was three-fourths of an inch thick, and when cold and broken, was found to have crystallized in converging striæ perpendicular to the upper and lower surfaces, and declining towards the outer edges of the bar. The grain was of a pale color inclining to gray, indicating the presence of tin.

Exp. No. 2. Three bars procured in this way were melted together in a black-lead crucible, without charcoal, and poured into a mould just at the moment when the melted copper put on a creamy appearance. When cold, the surface of the ingot thus obtained was less coppery-metallic than the surface of the ingot in the first experiment, where charcoal was used; from which it may be inferred that, owing to the absence of charcoal, a certain degree of refinement had taken place. The fracture possessed more of the red grain of good copper; the striæ were less distinct and less crystalline; and the surface, instead of being convex, as in the first experiment, was concave.

Exp. No. 3. Some of the pure shotted copper was fused in a black-lead crucible with an equal bulk of charcoal, and the resulting ingot presented a more clean and perfect mass of copper than the ingots obtained in Experiments No. 1 and No. 2. The fracture presented a series of brilliant striæ arranged from surface to surface, breaking off easily in the direction of the perpendicular fibre, a structure which seems wholly incompatible with extension or malleability.

Exp. No. 4. Some of the same pure copper melted similarly, but not poured into the mould until it had nearly lost its fluidity, formed an ingot less striated or crystallized than any of the former, with more of that minute deep orange-colored grain which is peculiar to pure and malleable copper. From the results of this experiment, and of No. 2, it would seem that when copper is poured into the mould

at as low a temperature as is consistent with perfect fluidity, the fracture is less crystallized, and the color approximates to that ruby grain which indicates the malleable state of copper.

Four bars, one from each of the foregoing experiments, were imbedded in burnt lime, shut up from the access of air, and exposed in crucibles to the same temperature. The pure copper bars (Nos. 3 and 4) were on the surface considerably oxidized, but those made from the rough copper (Nos. 1 and 2) were entirely free from oxide; and from this it may be inferred that the alloy (principally tin) which still remained in the copper, prevented waste or oxidation. The bar from Experiment No. 1 was not cut, but that from Experiment No. 2 retained about the same quantity of grained striae as before the cementation; though, compared with a fracture of the same copper that had not been cemented, the grain was redder, the color more brilliant, and the metal more ductile. The bar from Experiment No. 3 was covered with a thin coating of crystallized oxide exceedingly soft; the striae were more enlarged and adhesive, so that the copper, in cutting, tore out in flakes, which separately were soft and ductile. The bar from No. 4, when examined and compared with an uncemented one, was more open in the grain, redder, and more brilliant; but the quantity of depth of grain was nowise altered, although the metal cut softer, and was covered with a thin crust of shining oxide. From these details it may be presumed that cementation opens the grain, renders the bar less dense, but does not change the peculiar form of the arrangement. In each case, the copper after cementation was softer, a change which seems favorable to rolling cold. The impure or rough copper appears to be alloyed with another metal (no doubt tin,) which prevents that oxidation which pure copper in the same circumstances would undergo.

Besides the above, several bars were made from the rough copper by a slower fusion, and with a longer exposure to the charcoal, and it was observable, that the longer the exposure, and the slower the fusion, the more yellow and refined was the copper in the bar.

Some of the bars produced in the course of these experiments were attempted to be rolled; but the success was various. Of those made from the pure copper, some rolled better and others worse than any made from the rough copper; one or two bars of the latter were equally malleable with the former; but none rolled well either hot or cold. In those bars in which the striated arrangement was most perfect, the capacity for rolling was least, and those in which the minute granular fracture prevailed, generally rolled the best. It certainly does appear that this tendency to crystallize, so destructive to malleability, is peculiar to English copper made from the crucible. There are occasions, no doubt, when the proper temperature being hit upon, the bar would roll; but these occasions are so

rare and uncertain, that English copper made in this manner could not be relied upon in the manipulations connected with manufactures. There is no question that the arts in this country suffer from the peculiarity of English copper. For, in consequence of it the malleabilization of that metal is necessarily confined to the original process of refining practised on the great scale by the copper smelters. It is very different with Swedish and Russian copper, which I have seen melted in considerable quantities in large crucibles, cast into cakes or thick sheets, and afterwards rolled into boiler-plate and thin sheet-copper. This subject requires and deserves a scrupulous examination, with a view to discover the cause of the uniform tendency of English copper to crystallize; and that cause may, perhaps, be found in the process employed in this country for the smelting of copper ores, a process which, however economical and well calculated to overcome quantity, has never yet produced pure copper.—[London and Edinburgh Philosophical Magazine, May, 1835.]

[From the Journal of the Franklin Institute.]

Abstract of the Specification of a Patent for a mode of manufacturing Wrought Nails, Tacks, or Spikes, by first preparing the material, rod, or pieces, from which they are to be made, in such a manner as greatly to facilitate the process of making them, and then operating upon the pieces so prepared by means of a machine particularly adapted to that purpose. Granted to WILLIAM C. GRIMES, York, York county, Pennsylvania, December 17th, 1834.

The metal is first to be rolled or slit into rods, but not of the exact size and form of the body of the nail to be made, but they are to be broader one way, and thinner the other, the rods being usually about twice as broad as they are thick; the width and thickness of the rod, or piece, however, being such that, when it is staved, swaged, or compressed upon its sides, or edges, enough to bring it into a square form, it shall then be of the requisite thickness for the body of the nail, tack, or spike. The rod is to be cut off into the proper lengths for the nails, tacks, or spikes; they are to be cut square off at one end, the other being cut very obliquely across the rod, thus giving the requisite taper for forming the point to the nail, &c., which taper will be greater, or less, according to the obliquity of the cut across the rod. The nails, tacks, or spikes, so prepared, may be finished by various methods, as by forging, swaging, or compression; and the machinery to operate upon either of these principles, to effect the same end, is susceptible of an almost endless variety of modifications.

The machines that I have adopted for the purpose are made to operate upon the principles of swaging and compression, and are constructed as follows. The prepared piece is let or dropped into the upper end of an angular trough, or gutter, which stands inclined from a

vertical line about thirty degrees, (more or less.) The trough consists of two flat sides, joined at right angles, the angular point being downwards, so that, if the trough was placed in a horizontal position, its sides would rise at an angle of forty-five degrees from the horizon; the piece that forms this trough, or gutter, is the ridge, or rather one corner, of a triangular frame. Swages, or hammers, strike or act upon different sides of the nail as it descends along this trough, or gutter; these swages are placed in pairs, each pair striking upon the nail within the trough alternately, and consequently upon its different sides; their helves, at their outward ends, are jointed to the two lower angles of the frame, and in such position that they operate at right angles with each other.

The piece for the nail, &c., when dropped into the gutter, slides down to a moveable piece, or stop, that rises through the bottom of the trough, which arrests it for a moment, or until both swages have operated, when this stop recedes, and the piece instantly slides down until it is arrested by a similar stop, and is again struck by two other swages, and so on through any required number; three pair will, I apprehend, be sufficient in all cases. The last pair of swages, which are at the lower end of the trough, or gutter, fall upon, and grip the nail, while a heavy hammer, from below, strikes upon and heads the same. The heading hammer, swages, and stops, all receive their motion from cams fixed upon a revolving shaft, running up through the triangular frame. Two or more nails may be passing down the angular trough at the same time, as the stops, after allowing a nail to pass, immediately resume their position. The swages, hammer, &c., after being raised by the cams, are forced back upon the nail by suitable springs.

I intend sometimes to form or finish the nails by pressure, which is effected in the following, or in a similar, manner. The machine, when intended to finish the nail by pressure, is to be made, generally, like the preceding machine, but the triangular frame will be much shorter, as there will be the lower pair of swages only, the inclined trough, or gutter, having a single stop. The action upon the nail, &c., is to be very similar to that before described, being alternate, and upon different sides, but it is to remain in the same place till finished. After a few reciprocating or alternating motions of the jaws, one or both of them close or press upon the nail, and hold it whilst there is a head pressed upon it. In forming some nails, the alternating motion of the jaws may be unnecessary, as they may close upon the nail at once, and form it sufficiently by this single pressure.

There should be two pairs of shears for cutting off the rod, whether it is cut hot or cold; the cutting edges of these stand at right angles, or nearly so, but both pairs may be fixed upon short arms, standing out from a strong vibrating, or

semi-revolving, shaft; one pair to cut the rod off obliquely; and the other pair to cut it square. The two troughs, spouts, or gutters, into which the nails fall from the respective shears, may both lead to the same point, and terminate in one groove, or gutter, before it reaches the machine below.

I intend sometimes to cut the pieces for the nail from plates, instead of from rods. The plate should be of sound material, and rolled much broader than other nail plates. These plates are to be cut off transversely into pieces about two-thirds the length of two nails; from the sides or edges of these plates, the pieces for the nails are to be cut. The plate is to be held and turned over at each cut, in the manner followed in making cut nails, the length of nail, however, being only about two-thirds of the width of the plate; the shears being bent into such form as to run off to the edge of the plate; the piece thus cut off is brought to an acute point, being tapered less than half its length; the taper, or points, of the nails overlapping each other in the plate. This plate should be at a red heat when the nails are cut from it, if they are to pass directly into the machine; or they may be cut off cold, and afterwards heated and fed to the machine, as before specified.

What I claim as new, and as my invention, in the before described mode of preparing the pieces, or material, for wrought nails, and in the machine for finishing them, and for which I ask letters patent, is—1st, The cutting the rod obliquely, in the way described, to form in part, or wholly, the taper of the nail, tack, or spike, whereby mere pressure, or swaging, will suffice to finish the nail, &c.: the rods being broader one way, and thinner the other, than the body of the intended nail.

2d, I claim the manner of preparing the pieces for wrought nails, tacks, &c., to be finished in my machine, by cutting them out of plates of metal, as herein before shown. I do not claim the cutting with the grain of the metal generally, that having been previously done, but confine myself to the cutting into the form, and for the purpose, described. I claim the forming or finishing nails, tacks, or spikes, or other metallic articles, by swaging in, or as they descend an inclined trough, or gutter, after the manner, or upon the principle, herein before specified.

3d, I claim the finishing of nails, or similar articles, after being prepared as herein before shown, by alternate or simultaneous pressure, after the manner, or upon the principle, before specified.

WILLIAM C. GRIMES.

To the Editors of the *Mercantile & Advocate*.

Gentlemen: In your paper of Thursday, I observe you give "Indiana" credit for the following contemplated works:

1st. A steam-boat canal to unite the waters of the Lake with the Illinois River.

2d. A canal from Beardstown to the Sangamon River.

3d. A Railroad from Chicago to Galena, &c.

The above, and I believe all the improvements

you mentioned, are in Illinois exclusively, and with the exception perhaps of a small portion of the Chicago and Vincennes Railroad, are in contemplation. The Chicago and Illinois River Canal will probably be commenced in the spring, and would have been this spring had the Legislature given the Governor sufficient power to pledge the credit of the State for a loan to commence with. Your obedient servant, Illinois.

NEW YORK AND ERIE RAILROAD.—The people of the West took with earnest interest at the progress of this work,—not that it is of any consequence to us whether New York or Pennsylvania, which are engaged in honorable rivalry, shall secure our trade,—for the West will avail itself of the best accommodations afforded to it,—but that this Railroad will better serve our interests than any other work projected by either of these States. New York is the best and proper market for the West to go to. We would rather be conducted to that great central mart than any other. The New York Herald states that merchants from Tennessee, Kentucky, Ohio, and other regions, who have been in the habit of buying their goods in Philadelphia, are now purchasing them in New York, and remarks: "The whole commerce of the nation is fast concentrating here. This is the great mart of commerce—and the coming season will prove it." The indications of fall trade are said to be beyond any hitherto known, and the papers speak with exultation of the influx of trade from the West. But the spring trade: let us be accommodated here. This region will soon find it more profitable to get their spring goods through other channels, than to be retarded some five weeks in the opening of their trade, by the obstructions in Buffalo harbor, which last season was not cleared until the 15th of May. We believe it to be the unanimous opinion of merchants here, that their interests are intimately connected with the completion of the New York and Erie Railroad, which would place their spring business at least one month in advance of what it now is.—[Chicago American of 29th Aug.]

We are glad to see by the number of wooden blocks piled up in the rear of the Old Bridewell, that the experiment of paving a part of Broadway with wood, on the Russian plan, is in a fair way of soon being tried. Should the attempt prove successful, it will bring about a complete revolution in the mode of paving streets, and will form an improvement of vast importance. [We understand that the part of Broadway selected for the experiment, is in front of the two squares next above Murray street. Each of the small blocks of wood is of hexagonal shape; the whole are to be fitted together and driven up tightly, by a long strip of timber near the gutter at the sides; and the interstices between the blocks to be well payed with tar of pitch.—[Gazette.]

CANAL TOLLS.—There has been received for tolls on the New-York canals from the 15th to the 31st August, the sum of \$93,544 72. Add to this sum the tolls for the first two weeks, \$67,792 81, and it makes the total receipt for the month of August, \$161,337 53. This exceeds the collections for Aug. 1834, by the sum of \$24,649 70.

There has been received for tolls on all the State canals from the opening of navigation to the close \$863,228. This exceeds the collections up to the same time in 1834, by the sum of about \$154,000.—[Argus.]

A statistical account of the steam-engines in existence in France, taken under the direction of the Administration des Mines, has been completed up to the end of 1833, when there were 947 steam-engines, presenting together a force of 14,746 horse power—a single horse power being estimated at 75 kilogrammes, or 165 lbs. avoirdupois, raised to the height of a metre, or nearly four feet to a second.—Of these engines, 759 were made in France, 144 abroad, and 44 whose manufacture has not been ascertained. This account shows that in all the years from 1827 to 1833 inclusive, the last year was that within which the greatest number of engines has been erected. These amounted to 130, of which five only were of foreign manufacture. It also shows that of the 903 engines whose manufacture has been ascertained, 334 were of low-pressure, and 569 of high-pressure. These 903 engines form the total, of those which have been constructed within

the last twenty years, and it is only during the last four or five years that the immense advantages of the high-pressure engines have been fully acknowledged; and, consequently, the greater number of the 569 high-pressure engines have been formed during this last period; so that the present proportion is not as 334 to 569, but as 1 to 3 or 4. However this may be, it is proved that there are now in use in France a great many more high-pressure than low-pressure engines. On the 1st January, 1834, there were in France 95 steam-vessels, besides those in the service of Government. The engines they employ are 118 in number, of which 82 are on the low-pressure, and 36 on the high-pressure principle. But it is remarked that these vessels have been built a long time, and therefore when the low-pressure principle was most in favor. Of these 118 engines which present a force of 3,480 horse power, 34 have been ascertained to be of French construction, 59 foreign, and the remaining 35 are unknown. At present the engines constructed in France in proportion to those made abroad is not as 34 to 59, but as 125 to 6. Therefore the engines on board the steam-vessels which are of foreign manufacture are of an old date, and of a period when high-pressure engines were but little used.

LIVERPOOL, WEDNESDAY.—THREE WAGONS DESTROYED BY FIRE ON THE RAILWAY.—One of the engines of the Liverpool and Manchester Railway left the latter place this morning at five o'clock, with three wagons attached, containing about 90 packages of goods, principally intended for shopkeepers in this town and Glasgow; on approaching the Whiston inclined plane, about half a mile from Liverpool, the wagons were discovered to be on fire, and before any effectual assistance could be given, the whole were enveloped in flames, and all the goods destroyed, amounting, it is supposed, in value to 2,000l. It has not yet been ascertained correctly how the accident originated, but it is supposed to be from friction, owing to the great speed at which the train was travelling. The Railway Company intend paying the respective owners of the goods the full amount of their losses.

EXPEDITION TO THE EUPHRATES.—Some time, we fear, must elapse before the necessary preliminaries are arranged for the progress of this expedition. A letter from Constantinople states, that the Grand Seigneur had intimated to the Pasha of Egypt, by a Tartar, despatched on the 24th of June, that he could not prescribe the course to be pursued, until a reply was received from the government of England to certain propositions submitted to it.

MECHANICS IN SAILING.—The "Biblioteca Italiana," gives a detailed description of "the application of a windmill to the motion of vessels at sea, invented by Signor Giuseppe Brusceletti, engineer." The vessel has two paddle-wheels like a steamboat, and the mechanism of the windmill is so contrived, that if there is any wind at all, from whatever it may blow, the vessel is propelled by the action of the sails, and may be steered in whatever direction is desired.

LUCIFER MATCHES would seem, according to the annexed paragraph, to be suspected at Bremen, as well as at Amboy, as of dangerous character.

HAMBURG, July 21.—The magistrates of Bremen have issued a very rigorous prohibition of the newly invented lucifer matches, on account of the danger of fire which they may occasion by spontaneous combustion.—[Hamburg Paper.]

AGRICULTURE, &c.

[From Hovey's Gardener's Magazine.]

Notices of some of the Gardens and Nurseries in the Neighborhood of New-York and Philadelphia; taken from Memoranda made in the Month of March last.

[Continued from page 553.]

LINNEAN BOTANIC GARDEN AND NURSERY, LONG ISLAND: WILLIAM PRINCE & SONS, Proprietors.—This extensively known establishment, though the last named in our remarks, will not by any means be considered the least in its character. It is one of the oldest nurseries

in the country, and also one of the most extensive, if not the very largest. It was established by the father of one of the present proprietors, and has become a family inheritance. When we take into consideration all that has been said in regard to this place, either by the proprietors themselves, or by the persons who have frequently visited it; among whom have been some very intelligent and able gardeners, who have visited this country, we feel ourselves almost incompetent to speak of the establishment, for fear that in our impartiality we might not be thought to do justice, by the proprietors, or be said to give too much praise by others. Much has been written in relation to it in *Loudon's Magazine*; and for a time, several communications appeared under various signatures, in regard to its extent and the variety of plants it contained.

We stated, when we commenced our remarks, that we should confine them chiefly to the appearance of plants in the green-houses, hot-houses, &c. We shall not at this time say any thing as regards the extent of this nursery, the variety of hardy plants it contains, or of its immense number of correspondents, agents, &c. We hope at another opportunity to do this, and to do it with justice and candor; we passed an hour or two in walking through it in the fall of 1831, but it is, we have understood, much improved since then; we know that the Messrs. Prince are too liberal not to give every indulgence for our statements. Mr. W. R. Prince informed us, the past spring, that as soon as circumstances would permit, he intended visiting England, and the Continent, partly with a view of becoming more acquainted with horticulture, and for the purpose of noticing the extent and variety of plants contained in their gardens and nurseries. He kindly promised to contribute to our pages, and our readers will, we have no doubt, be gratified with his remarks. The Messrs. Prince have lately added to their business as nurserymen, that of the seedsman, and are dealing largely in seeds.

The extent of glass, including the conservatory, green-houses, hot-house, frames, &c., we should judge to be upwards of four hundred feet in length. One of the houses, in which are kept the orange and lemon trees, is built in the old style, with large upright front sashes, and a dark roof. The collection of oranges and lemons is very large, and includes many more distinct varieties than any other we have ever observed; in their catalogue they enumerate upwards of seventy kinds; they are well grown, and many of them beautiful shaped plants. We saw an immense number of seedlings intended for stocks, to bud, or inarch upon. Messrs. Prince have been at great expense to procure from the Italian nurseries, which excel in this grand fruit, nearly all that are worthy of cultivation. Here we also noticed a fine stock of the different varieties of the magnolia, of which there is a large number of kinds, including the *M. Soulangeana*. Hundreds of plants of the *Gardenia florida* and *G. radicans*; of the

different species and varieties of myrtles, a good stock.

It cannot be expected that in an extensive establishment like this, there would be many flowers in bloom. In the green-house, however, which adjoins the orangery, we saw one of the finest specimens of *Acacia verticillata*, profusely covered with its showy blossoms; *Metrosideros lanceolata*, and some species of *Banksia*, of which there were many plants, were also in flower; that much sought-after plant, the *Epacris grandiflora*, with its exquisite tubulous, rosy white blossoms, was in full bloom. Here was a fine collection of geraniums and a good variety of *Ericas*, though small plants. In the hot-house, which adjoins the green-house, and completes one range, we noticed several beautiful ferns. A good stock of that magnificent bulb, the *Crinum amabile*; some *Kämpferias*, *dracenas*, &c., young plants of the banana (*Musa sapientum*), several species of the cacti. In the Camellia house, not more than five or six plants were in flower; among them, however, was the *C. althæflora*, with several blossoms expanded; it is a brilliant kind, raised by the Messrs. Chandler, about the same time of the corallina, with which it is nearly equal in beauty; the others were the common varieties. The stock of camellias is probably the largest in the country, and includes the most rare. The reason why more camellias were not in flower, was from the cause that the shutters on the glass were not taken off for several days together, and the house kept as cool as possible, without endangering frost.

From the Camellia house, we entered another green-house filled with a variety of plants: myrtles, eugenias, azaleas, and a good stock of other kinds, which we do not recollect the names of. A few camellias which were placed here were in bloom, among which was the *C. Woodsii*, *maliflora*, and others; several species of *brunia* were prettily in flower. We were particularly struck by observing the very large number of some kinds of plants which the Messrs. Prince have in their collection, and we could enumerate many varieties; but they would not perhaps interest our readers, as most of them may be found in their catalogue.

In the frames, of which there were several, we found a good stock of Chinese roses, seedling magnolias, rhododendrons, and other plants. There was also a number of hardy shrubs and plants, which were laid in for executing orders to the south during winter, when they could not be taken from the open ground. When we visited this place a year before, we think the green-house plants, generally, looked in rather better health than they did the past spring; the gardener was at the former time repotting the whole of the camellias, and many other plants which had suffered from the want of it. Mr. Prince, Jr., informed us, upon our mentioning to him this fact, that their former gardener was very intelligent and well acquainted with his profession, but that he had left them; and

they had not yet procured another, as they expected one from England. We wonder at the good order which already exists, when we consider the multiplicity of avocations which must ensue, from the nursery and seed business combined.

We have thus completed our remarks, which have extended to a greater length than we at first anticipated, and perhaps farther than has been interesting to all our readers. Some would, probably, have rather read practical communications on the management and growth of plants, or the treatment of some objects of more utility; while others have been gratified in reading the advancement made in Horticulture and Floriculture by their neighbors. The object of a periodical Magazine is not to detail practices already well known, and laid down in works devoted to the subject of which it treats; but rather to give information of all new discoveries, and to record every improvement which may be found useful and advantageous to the scientific or practical gardener. These at first, however trifling they may often seem, when fully proved by repeated experiments, and correct observation, result in the foundation of some methods much more valuable, and of more immediate utility, than those previously adopted. The knowledge of gardening, like every other art, can only be advanced to any degree by calling in the assistance, and bringing to bear upon it those others, which enlighten, and throw some information upon its various branches. We therefore think, that those persons who suppose that mere practical papers are all that should fill the pages of a Magazine, take altogether a narrow and quite unconfined view of the subject; and that they have not yet made that progress in Horticulture, that enables them to see that its thorough knowledge, and proper application, is only to be obtained by acquiring some information of those sciences, without which it would be a tedious and uninteresting study, rather than one of the most pleasing and agreeable.

These observations are not made on the supposition that any such objections have, or will be heard; but to show how far we think a Magazine should extend its character. As regards the visiting of gardens and nurseries, we cannot here omit to urge upon every amateur, or lover of Horticulture, and more particularly every practical gardener, the importance resulting from such a course; not only should those in the vicinity of their situation be often inspected, but a tour should be made every few years to all those within the middle and northern sections of our country. To be confined to one spot, and to know nothing, but what may be learned from reading of what is done at other places, deprives one of all ambition, or of any desire to excel in his profession. An amateur gardener may imagine that he excels in the cultivation of a certain class of plants, and makes no effort to attain a greater degree of perfection; but when

he sees that another equals, his ambition is touched, and he is stimulated to greater exertion. It is from seeing and comparing, that we know our faults and learn how to improve and correct them.

NEW-YORK AMERICAN.

SEPTEMBER 5—11, 1835.

LITERARY NOTICES.

LEGACY FOR YOUNG LADIES, AND EVENINGS AT HOME, &c., &c., by the late Mrs. BARBAULD. 1 vol. N. Y. HENDERSON GREEN.—This is a republication of an old volume—old at least in this day of rapid succession of novelties. The pieces of which it is composed were found among Mrs. Barbauld's papers, and were given to the world under the sanction of Miss Lucy Aikin. The following is quite a pleasant paper, and inculcates a good lesson for being agreeable in society.

PIC-NIC.—Pray, mamma, what is the meaning of pic-nic? I have heard lately once or twice of a pic-nic supper, and I cannot think what it means; I looked for the word in Johnson's Dictionary, and could not find it.

I should wonder if you had; the word was not coined in Johnson's time; and if it had been, I believe he would have disdained to insert it among the legitimate words of the language. I cannot tell you the derivation of the phrase; I believe pic-nic is originally a cant word, and was first applied to a supper or other meal in which the entertainment is not provided by any person, but each of the guests furnishes his dish. In a pic-nic supper one supplies the fowl, another the fish, another the wine and fruit, &c.; and they all sit down together and enjoy it.

A very sociable way of making an entertainment.

Yea, and I would have you observe, that the principle of it may be extended to many other things. No one has a right to be entertained gratis in society; he must expend, if he wishes to enjoy. Conversation, particularly, is a pic-nic feast, where every one is to contribute something, according to his genius and ability. Different talents and acquirements compose the different dishes of the entertainment, and the greater variety the better; but every one must bring something, for society will not tolerate any one long who lives wholly at the expense of his neighbors. Did you not observe how agreeably we were entertained at Lady Isabella's party last night?

Yes; one of the young ladies sung, and another exhibited her drawings; and a gentleman told some very good stories.

True: another lady who is much in the fashionable world gave us a great deal of anecdote; Dr. R., who is just returned from the continent, gave us an interesting account of the state of Germany; and in another part of the room a cluster was gathered round an Edinburgh student and a young Oxonian, who were holding a lively debate on the power of galvanism. But Lady Isabella herself was the charm of the party.

I think she talked very little; and I do not recollect any thing she said which was particularly striking.

That is true. But it was owing to her address and attention to her company that others talked and were heard by turns; that the modest were encouraged and drawn out, and those inclined to be noisy restrained and kept in order. She blended and harmonized the talents of each; brought those together who were likely to be agreeable to each other, and gave us no more of herself than was necessary to set off others. I noticed particularly her good offices to an accomplished but very bashful lady and a reserved man of science, who wished much to be known to one another, but who would never have been so without her introduction. As soon as she had fairly engaged them in an interesting conversation, she left them, regardless of her own entertainment, and seated herself by poor Mr. —, purely because he was sitting in a corner and no one attended to him. You know that in chemical preparations two substances often require a third, to enable them to mix and unite together. Lady Isabella possesses this amalgamating power:—this is what she brings to the pic-nic. I should add, that two or three times I observed she

dexterously changed topics, and suppressed stories which were likely to bear hard on the profession or connexions of some of the company. In short, the party which was so agreeable under her harmonizing influence, would have had quite a different aspect without her. These merits, however, might easily escape a young observer. But I dare say you did not fail to notice Sir Henry B.—'s lady, who was declaiming with so much enthusiasm, in the midst of a circle of gentlemen which she had drawn around her, upon the *beau ideal*.

No indeed, mamma; I never heard so much fire and feeling:—and what a flow of elegant language! I do not wonder her eloquence was so much admired.

She has a great deal of eloquence and taste: she has travelled, and is acquainted with the best works of art. I am not sure, however, whether the gentlemen were admiring most her declamation or the fine turn of her hands and arms. She has a different attitude for every sentiment. Some observations which she made upon the beauty of statues seemed to me to go to the very verge of what a modest female will allow herself to say upon such subjects,—but she has travelled. She was sensible that she could not fail to gain by the conversation while beauty of form was the subject of it.

Pray what did —, the great poet, bring to the pic-nic, for I think he hardly opened his mouth?

He brought his fame. Many would be gratified with merely seeing him who had entertained them in their closets; and he who had so entertained them had a right to be himself entertained in that way which he had no talent for joining in. Let every one, I repeat, bring to the entertainment something of the best he possesses, and the pic-nic table will seldom fail to afford a plentiful banquet.

THE BEAUTIES OF WASHINGTON IRVING. 1 vol. 18 mo. Phil. CAREY, LEA & BLANCHARD.—What sad havoc does a bookseller's title make, sometimes with the modesty of an author. Here, from the stern necessity of complying with the requisitions of the law of copyright, on the one side—and of acquiescing, on the other, in the bookseller's fancy, we have our diffident countryman, actually taking out in his own name, a copyright for his own 'beauties.' This should have been otherwise ordered. Bating that, the little volume before us furnishes charming extracts from the various pages of Irving's works, principally his earlier ones, and may be said, in truth, to present many beauties. We make room only for one, which is a little Shandean.

THE WALTZ.—As many of the retired matrons of this city, unskilled in "gestic lore," are doubtless ignorant of the movements and figures of this modest exhibition, I will endeavor to give some account of it in order that they may learn what odd capers their daughters sometimes cut when from under their guardian wings. On a signal being given by the music, the gentleman seizes the lady round her waist; the lady, scornful to be out-done in courtesy, very politely takes the gentleman round the neck, with one arm resting against his shoulder to prevent encroachments. Away then they go, about, and about, and about—"About what, sir?"—"About the room, madam, to be sure. The whole economy of this dance consists in turning round and round the room in a certain measured step, and it is truly astonishing that this continued revolution does not set all their heads swimming like a top; but I have been positively assured that it only occasions a gentle sensation which is marvellously agreeable. In the course of this circumnavigation, the dancers, in order to give the charm of variety are continually changing their relative situations,—now the gentleman, meaning no harm in the world, I assure you, madam, carelessly flings his arm about the lady's neck, with an air of celestial impudence; and anon, the lady, meaning as little harm as the gentleman, takes him round the waist with most ingenious modest languishment, to the great delight of numerous spectators and amateurs, who generally form a ring, as the mob do about a pair of amazons pulling caps, or a couple of fighting mastiffs. After continuing this divine interchange of hands, arms, et cetera, for half an hour or so, the lady begins to tire, and "with eyes upraised," in most bewitching languor, petitions her partner for a little more support. This is always given without hesi-

tration. The lady leans gently on his shoulder; their arms entwine in a thousand seducing, mischievous curves—don't be alarmed, madam—closer and closer they approach each other, and in conclusion, the parties being overcome with ecstatic fatigue, the lady seems almost sinking into the gentleman's arms, and then—"Well, sir! what then!—Lord! madam, how should I know.

THE HISTORY OF THE CONDITION OF WOMEN IN VARIOUS AGES AND NATIONS, by Mrs. D. C. CHILD, 2 vols.: Boston, J. ALLEN & Co. Mrs. Child has earned an enviable reputation by former publications, especially "The Mother's Book."—In that now before us, she essays a task which well becomes a woman's hand, to trace the history of her own sex, at different times, and among different nations. This will be read, we are bound to presume with interest, by the ladies, for what it says of their own sex, and by the gentlemen, for what it says of the other. The range taken by Mrs. Child is very extensive, both as to time and to countries. Looking to what was said of American women, we find the following among other statements.

As a general rule, education among the wealthy classes is much more neglected in the slave states than in other portions of the Union. This is owing partly to the want of schools and partly to the indolence induced by slavery. It is a common thing, even for the wives and daughters of distinguished men, to be as deficient in correct spelling, as they are in a knowledge of household duties. But many are sent to the free states for education; and not a few are admirable exceptions to the above remarks. The southern ladies in general are delicately formed, with pale complexions, a languid gracefulness of manner, and a certain aristocratic bearing, acquired only by the early habit of commanding those who are deemed immeasurably inferior.

The woman of the United States have no direct influence in politics; and here, as in England, it is deemed rather unfeminine to take an earnest interest in public affairs. But perhaps there is no country in the world, where women, as wives, sisters, and daughters, have more influence, or more freedom.—Some travellers have compassionated the condition of American women, because they spend so small a portion of their time in amusements; but this remark applies equally to men; and it could not well be otherwise in a country where so much is to be done, and where estates are so equally divided that few become very wealthy. It is true that Americans do not treat their women with the grateful gallantry of Frenchmen, or the chivalric deference of Spaniards; but in place of these external refinements, women have their respect, esteem, and undoubting confidence.

The class who are exempt from personal exertion, or at least from personal superintendence of their domestic avocations, is comparatively very small. Labor in open fields and streets is rarely performed by women, unless it be by foreign peasantry lately arrived in the country. The buxom daughters of the Dutch farmers do indeed continue the old custom of raking hay, and the girls in Westchester, Connecticut, may often be seen at early dawn weeding the immense beds of onions, for which that town is celebrated. A large proportion of schools throughout the country are kept by women, and it is not uncommon for them to keep shops for the sale of English and French goods, toys, confectionary, &c. Mantua-making and millinery are, of course, their peculiar province; and many are employed to tend looms in factories, to set types in printing offices, and fold sheets for the bookbinders. By far the largest portion of these do not work for support, but to gain additional luxuries, which their parents cannot afford to furnish. Nothing surprises a foreigner more than the near approach to equality in the dress of different classes. The rich and fashionable are in most respects like those of Europe; and humble imitators have need of great diligence to copy their frequent changes. In the article of jewels, the most wealthy cannot indeed cope with their European models; for the diamonds of a foreign duchess often surpass in value the whole fortune, real and personal, of a rich American.

The habit of tight lacing, in order to form a slender waist, has been copied, like other European fashions. This practice, combined with the habit

of taking very little exercise in the open air, has an unfavorable effect upon freshness of complexion and beauty of figure. Excursions on horseback have lately become a very favorite amusement with American ladies.

In a country where the price of labor is so high, it is no uncommon thing to see domestics dressed as well as their employers. But though silk gowns and laces have taken the place of coarse calicos, the situation of domestics is by no means improved. They are less contented in their situation, and less conscientious in the discharge of their duties, than they were in more patriarchal times. Many attribute this difficulty to our democratic institutions; but I believe it originates in a want of republican principle, and not in the excess of it. If people would consider their domestics as sisters of the great human family, differing from them only in having, for the time being, a different use to perform in society—if they would have a tender regard to their health, a reasonable regard to their convenience, a friendly interest in their characters and plans—in a word, if they would perpetually acknowledge a reciprocity of duties—we should soon cease to hear complaints of the indifference and carelessness of domestics. While they are regarded as pieces of machinery, to whom nothing is due but the payment of wages, they cannot be expected to feel a deep interest for those who manifest so little interest in them.

American ladies are accused of being more prudish than foreigners. I hope the charge will always remain a true one; but there may be an excess even of a good thing; and when a sense of decorum led them to be squeamish about seeing Greenough's beautiful cherubs, because the marble innocents had no drapery about them, I acknowledge it reminded me of Sir Charles Grandison's remark: "Wotest thou not, my dear, how much delicacy there is in thy delicacy?"

The tendency of modern times has continually been toward external refinement. The language used by queen Elizabeth and the queen of Navarre would not now be tolerated in any part of the world; yet the marriage of a divorced wife aroused more virtuous indignation in the court of Elizabeth, than a dozen such incidents would now occasion, in any European court. Many phrases and subjects of conversation which appear perfectly proper to an English or French woman, are not so considered by an American.

THE AMERICAN MONTHLY MAGAZINE, for September. Edited by C. F. HOFFMAN, and H. W. HERBERT. New York, GEO. DEARBORN.—A very good number—though to that, we are becoming so accustomed, in speaking of this periodical, that it ceases to sound like praise.

The Enquiry concerning the guilt of *Catharine Howard*, one of the fairest of the many wives sacrificed to the lust and ambition of Henry VIII., is curious—and the vindication at this late day of her innocence, in the face of all the historians of that period, is, to say the least, adventurous. The effort of the writer, a lady, is, to make out that she was the victim of a Protestant conspiracy, in which *Cranmer* was a chief instrument. This will, with difficulty, obtain credit now, however ingeniously it may be argued—and as to proof, there is and can be none. We extract the substance of this vindication.

During this year, (1541) the King went to York to hold an interview with his nephew, the King of Scotland; and it was whilst in that city, and influenced by his Catholic advisers, that he issued out a proclamation that all who had been aggrieved for want of justice should come to him and his council for redress. "His aim," says Rapin, "was to throw all past miscarriages on Cromwell, and put his subjects, particularly the northern people, (amongst whom there had been numerous insurrections,) in hopes of better times." *Cranmer* and the rest of the Reformers had not accompanied the King to York; they had remained in disgrace in London, or at a distance from the Court; therefore these, the only popular acts of Henry after his divorce from *Catharine of Aragon*, cannot by any possibility be attributed to them.

But, thus banished from court and driven from the councils of the King, what were the feelings of the Reformers? They saw their opponents triumphing in their disgrace: they must not only

give up all hopes of carrying on the work of spoliation and plunder, but they stood a chance of being called upon to refund what they had already appropriated to themselves; or they must contrive some means to destroy the influence of the Catholics with the King, and to kindle his wrath against all of that persuasion who possessed credit and power. It would not do to intrigue against any person comparatively indifferent to Henry, for should they even be successful whilst *Catharine* possessed the King's affections, other Catholic ministers would without doubt succeed those in present favor. They knew well Henry's jealous and irritable temper; they knew his fastidiousness with regard to female honor and delicacy: on these they relied for the fortunate issue of their plot. Had *Catharine* lived now, the press, with its three hundred newspapers might have saved her. Since his marriage, the King had daily blessed God for the happiness he had enjoyed with his Queen; and during his journey to York, to express his extreme satisfaction, his esteem and tenderness for her, he enjoined the Bishop of Lincoln, his confessor, to draw up a particular thanksgiving. Fond, however, as Henry is always acknowledged to have been of this wife, some part of the happiness he enjoyed it is reasonable to attribute to his having escaped from the councils of the Reformers, and to his being surrounded by those whose object was to promote the happiness of the people, from which that of the sovereign is inseparable.

It was during the visit to York that the Protestant plot against the life of the Queen was planned; and on the return of the court to London it was put in execution, and a bungling affair it was, affording but small credit to the genius for intrigue of its originators. John Lassels, a brother to a discarded servant to the old Duchess of Norfolk, and who, it is reasonable to suppose, was a Catholic, by his being in the service of the highest Catholic family in the kingdom, came to *Cranmer*, a Protestant and persecutor of Catholics, and told him in confidence what he had heard his sister say respecting the lewdness of the Queen previous to her marriage! Who would now credit such hearsay evidence?—We are not, however told why, if this man (*Lassels*) thought his secret such a mighty important affair, he had not communicated it previous to the marriage instead of about a twelvemonth after; or why he did not select some honorable Catholic nobleman to confide it to, instead of *Cranmer*, whom, if a Catholic, he must have looked upon as little better than the arch-fiend himself. But such a one would have been rather cautious how he gave credence to the slander of discarded menials.

Cranmer took upon himself the amiable office of undeceiving the King with respect to the virtue of the Queen, and was near paying with his life the penalty his baseness merited; for Henry disbelieved every word of the statement made to him. Proofs must now be had, for the conspirators stood in a perilous situation. Witnesses were sought where alone they were to be purchased—amongst disgraced menials and the lowest refuse of society. Bribery and corruption were set to work, and it is not improbable that the wealth of which the Catholic Church had been despoiled, was now employed to bring the head of a beautiful and innocent Catholic Queen to the block. Henry, we are told, burst into tears when he was told of the Queen's misconduct. But his jealousy and violent passions made him fall into the plot of the Protestants; their aim was now attained, and all the rest was easy.

Cranmer, his great supporter, the Duke of Suffolk, the Bishop of Winchester, and *Writheley* Earl of Southampton, who had shared so much of the plunder of the church, who had gained possession of the property and revenues of the Abbey of Winchester, and of the manors of *Micheldever* and *Stratton*, once the private property of the immortal *Alfred*, were the persons appointed to examine the Queen. What justice had she to expect at such hands? When first accused, we are told she denied all guilt; but on her second examination she is said to have confessed, though neither the bill of attainder passed against her, nor the journals of Parliament state what she confessed. She was condemned by a secret tribunal, in direct violation of the laws of the country, and the members of which were the bitter enemies of her religion and of her family, instead of being tried, according to law and justice, before the peers of the realm. She was found guilty upon such evidence as would not be received in a court of justice in the present day, without a single advocate to plead her cause and demand for her justice—not even two such doughty

ty heroes "as kept together in their chivalry,"* on a late similar occasion.

The venerable Dutchess of Norfolk was condemned to be beheaded for not informing the King of her grand-daughter's incontinence before marriage; but this act was so odious to the nation, that it was thought prudent not to put it into execution, and the Dutchess only suffered a long imprisonment. But the scaffold was deluged with blood, amongst which streamed some of the noblest in England. The name of *Catharine Howard* has been linked with infamy, and to the success of this Protestant plot may be attributed all the penal statutes and cruel persecutions that the Catholics endured in England and Ireland for near three hundred years.

THE AUTO-BIOGRAPHY OF WASHINGTON WILKING is from a skilful pen, as the annexed portion will prove, the whole scene is life-like.

It was soon after the lamentable affair of General Hull had been bruited abroad through the country, awakening everywhere mingled feelings of grief, dismay and indignation, that the students of our college, were one Sunday collected in the village church, whose white spire shot above the elms that surrounded it, within a few yards of the institution. The discourse of the preacher was suggested by the then alarming condition of the country, and the fervid puritan dwelt upon the duties which became each citizen of the republic at such a crisis, with an emphatic sternness which would have put some thoughts of iron into the most fainting bosom. He commenced, I well remember, by deploring the original declaration of hostilities, which he averred was based upon grounds that at the least were questionable. But he insisted that, however good men might have wished to keep off so calamitous an event, yet, as it could only overtake them at last by the consent of Providence, it was their duty not to shrink from its decrees under any extremity; that it was the will of Heaven that we should pass through another trial like that our fathers had endured, and it mattered not whose act had precipitated the moment of that trial; that our duty to God and our country alike required that we should now fling all thoughts but of them behind us; that we should go forth as one man to meet the invaders of our soil, and leave the rest to Him whose blessings descend alike in the sunshine and the storm, at the unsullied altar and upon the blood-stained battlefield!

The clear note of a bugle rang through the village as the patriot clergyman here paused to add the final blessing of the service. The tramp of armed men was heard in the threshold of the church, and the summer breeze that floated through the open porch unfurled the proud standard of our country as, with uncovered heads, a band of regulars formed in silence before the door. The lips of the preacher had not yet begun to move in prayer, as with uplifted hands he bent forward towards the glorious emblem of our Union, before the young and the old, the sturdy yeoman and the strapping student, the bright village maiden and her hoary sire rose, as by one impulse, to their feet; and not an eye in that assembly but glistened, not a heart but vibrated while their pastor poured forth his thrilling appeal to Heaven for a blessing on that banner wherever its folds may wave.

The congregation was dismissed. The recruiting party—for such it proved to be—filed slowly away from the church door, and winding down a green lane hard by, soon disappeared behind the copses by which it was skirted. The rustic equipages of the farmers who lived remote from the meeting were drawn from the low shed beside it, and as each received its freight in decorous silence they trundled off at measured intervals through the main street of the village. The young men of the congregation appeared to linger about the church, as grouped here and there beneath the cloistered boughs of the ancient elms, they were engaged in low and earnest discussion. At last these also disappeared, and though the light laugh of some giddy maiden might reach the ear, as her white dress fluttered for a moment above the stile, while taking her way homeward across the fields, yet the calm of a New England Sabbath soon settled over the place, and left the landscape to the repose of summer noontide.

Five days afterward, and what a different scene

* In one of Lord Denman's speeches, alluding to the trial of Queen Caroline, he said, he and Lord Brougham "had kept together in their chivalry."

was there presented! A company of raw volunteers was forming upon the green esplanade in front of the meeting-house, preparatory to their taking up their line of march to join the Northern army, whose active campaign had just opened—There were but sixty of us altogether; and though among them were several students from other parts of the Union, yet the majority were the flower of the youth of the adjacent country.

BEAUTIES OF WASHINGTON IRVING.—The selection bearing the foregoing title was not made by Mr. I. It originally appeared in England, and was the piratical act of some English bookseller. A copy was stereotyped by some American publisher, and was about to be put to press in this country when he was informed that he would be liable to, prosecution for infringing the copy rights of the works selected from Mr. I. purchased the plates to destroy them. He was afterwards induced to permit his regular publishers, Messrs. Carey, Lea & Blanchard, to issue an edition for their own benefit. The copy right was taken out and advertised by Mr. I's agent, without his knowledge.

This explanation, derived from an authentic source, is due to Mr. I., that he may not stand chargeable with the indelicacy of selecting and pointing out any portions of his writings, as "beauties," and is the more proper at our hands, because of the remarks we made on this little volume on Saturday.

EUROPEAN INTELLIGENCE.

LATEST FROM EUROPE.—The packet ship Columbus, of 1st August, from Liverpool, brings our London papers up to that date.

The explosion in Paris, of a new sort of infernal machine, calculated apparently to sweep the whole Orleans dynasty at one blow from the earth, is the chief item of intelligence. This attempt, of which the particulars will be found among our extracts, was made on the anniversary of one of the glorious three days, and caused, as will be seen, the instant death of old Mortier, Duc de Treviso, and several other officers in the staff of the King. None of the Royal family, however, though all the male part of it were in the cortege, sustained any injury.

The act would seem to have been one of individual vengeance, and was contrived certainly with very deadly purpose and skill.

The remarkable preservation of all the Royal family will serve to confirm their power, as being, as it will be represented with more than ordinary proofs to be, under the immediate protection of Heaven.

Of other news we find little of interest.

[From Galignani's Messenger, Paris, July 29.]
ATTEMPT UPON THE KING'S LIFE BY AN INFER-NAL MACHINE.

"It is with the deepest concern that we lay before our readers the details of the above horrible event, that took place yesterday, (July 28th.) After having passed along the Boulevard to the furthest point at which the national guards and the troops were drawn up, his Majesty, accompanied by the Duke of Orleans, the Duke de Nemours, the Prince of Joinville, and a numerous and brilliant staff, was returning along the same line to the Place Vendome, where the troops were to file off before him. At 12 o'clock, at the moment when he had reached the Boulevard du Temple, a little before the Theatre des Fumambules, a tremendous explosion resembling regular platoon firing was heard. At first it was supposed to be a discharge of fire works, but the falling and cries of the victims soon revealed the reality, and excessive confusion ensued—an Infernal Machine had just poured forth a shower of balls upon the cortege that surrounded the King! Marshal Mortier, Duke de Turin, fell and expired without a word. Several other officers, and some of the National Guards were also killed, and a considerable number wounded. The falling of some horses, among which was that of Marshal Mortier, and the capering of others, added to the tumult—which it would be diffi-

cult to describe. During this scene, the King, whose arm had been grazed by a bullet, and whose horse had received a wound in the neck, maintained the calmness for which he is distinguished, and displayed his wonderful courage by riding up in the direction of the house from which the explosion came.

After the first emotion had passed, the cortege continued its route amid shouts of joy for the preservation of the King's life, and threats of vengeance against the assassins. The bodies of the slain, and the persons who are wounded, were immediately carried to the Cafe Sine opposite, where medical assistance was afforded to such as were still alive. Smoke was seen to issue from the third story of the house No. 50, on the Boulevard du Temple, of which the ground and first floor were occupied by a wine dealer, named Parault. Each story consisted of one chamber, which is lighted by a single window in front. The house was immediately surrounded, and all the persons found in it arrested; the room in which the machine had been constructed is very small, being six feet and a half by seven feet.

The machine was made with great skill, of wood, with iron braces, and extremely solid. Two up-rights supported two cross bars of wood, placed parallel to the window, and in these were placed 20 gun barrels. The front cross bar placed at about a foot from the window was rather lower than that behind, so that the balls might reach the body of a man on horseback in the middle of the Boulevard. The charge was so heavy, that five out of the twenty-five barrels had burst, notwithstanding they were very substantial and new. The assassin was immediately taken into custody. About three months ago he hired the rooms of the second and third stories of M. Dallemagne, the proprietor.—He gave his name Girard, a mechanic, and appeared to be about 24 years of age. His room has a window in front and another behind, and he had taken the precaution to fasten a rope to the latter, to assist him in making his escape. By the bursting of some of the barrels at the moment of the explosion, the assassin was wounded in the forehead, the neck, and the lip. Notwithstanding his wounds, he rushed out at the window. Some police officers having ran into the inner court, and seeing Girard slipping down the rope, one of them exclaimed, "Ah wretch, we have you." Girard, who was at the moment at the height of a wall, threw himself over it into an adjoining yard, and there was apprehended.

The Minister of the Interior, the Prefect of the Police, and several magistrates went to the house, and in the assassin's chamber they found the remains of the infernal machine still smoking—a straw bed, and a fire lighted. A delay of half a second perhaps in the explosion saved the life of the King. The cortege advanced in the following order:—The King, the Prince de Joinville, the Duke of Orleans, the Duke de Nemours, Marshal Lobau and Marshal Mortier. All those in the cortege who were wounded were nearly all on the same line as Marshal Mortier. The news of the attempt was rapidly propagated through the capital, and produced a powerful sensation. General de Rumigny, Aid-de-Camp to the King, set off full gallop to inform the Queen that his majesty and the Prince had escaped the danger, fearing that she might have been seriously alarmed if she had heard of the event from any one that had not witnessed it. In passing along the lines he mentioned to several officers what had occurred, and soon there was not a soldier that remained ignorant of it. As the troops of the line did not extend to the Boulevard du Temple, they were ordered to shift in that direction, that they might be ready to act in case of attempt at disturbance.

At the moment of filing off before the King, the national guards shouted *Vive le Roi!* which was answered by the troops of the line. The guards of the 8th legion, which had lost some of its officers and men, added cries of *A bas les assassins!* The King returned to the Tuilleries about 5 o'clock, evidently deeply affected by the scene he had witnessed. During the whole of the afternoon and evening, crowds flocked out of curiosity to the melancholy spot, in consequence of which a strong detachment of Municipal Guards was stationed there to keep the peace. The following are the persons whose lives have been ascertained to have been sacrificed: Marshal the Duke Treviso struck in the heart by a ball; General de Lachasse de Terigny, struck on the forehead by a ball; Captain Villate, aide-de-camp to Marshal Maison; Lieut. Colonel

Rieuses, of the 8th Legion, struck by three balls; Messrs. Prudhomme, Richard, Leger, and Bennet-ter, Grenadiers of the 8th Legion; a Colonel in the army, two citizens, a woman and a child, whose names we were unable to learn.

Galignani's Messenger of the 30th says—The number of victims is much more considerable than was at first believed. Several persons wounded were immediately taken to their own homes, and therefore were not included in the list before published. The number of killed and wounded is said to be 34, including sixteen who died immediately, or subsequently perished from their wounds. Among them was M. Labronate, aged 70 a member of the Legion of Honor, one of the oldest receivers of taxes of Paris. His wounds are very serious, but hopes are entertained that his life may be saved.—Out of eight persons carried to the Hospital of St. Louis, four have undergone amputation.

At the moment the explosion took place, the king had inclined slightly on one side to receive a petition. The Duke de Broglie received a bullet through the collar of his coat.

In Paris, on the 28th, a grand dinner was given at the Tuilleries, at which all the ambassadors and foreign ministers were present. At dinner and throughout the evening, the King displayed the utmost calmness. He frequently expressed in affecting terms his regret at the death of Marshal Mortier and the other victims of the day.

The Moniteur also contains a royal proclamation and ordonnance to the following effect:—"The fetes for the celebration of the anniversary of July, 1830, shall not be continued. A solemn funeral service shall be performed in honor of the victims of the attempt of this day.

The Government has decided that one funeral procession shall be formed of all the victims of Tuesday, instead of taking place separately. The Chamber of Peers had determined to go into mourning for five days from that of the funerals.

Girard, the assassin, as stated in the Paris Messenger, was employed as a dealer in second-hand articles of all kinds, and more particularly engaged in cleaning and repairing fire-arms, and is a very able and skilful workman. He was known among his companions to entertain legitimist opinions, and it was even believed that he received a pension from the Dutchess of Angouleme. He is 29 years of age. Notwithstanding the serious nature of his wounds, he is expected to recover, and is now able to converse. Being questioned as to his motives for committing such a crime, and urged to declare whether he had any accomplice, he fully admitted his guilt, and said he knew his fate was inevitable; but as to his motives, he confines himself to saying that he disliked the king, and further declared, that were he even put to the torture he could not name his accomplice, for in fact and in truth, he had none. Nevertheless, a woman who resides behind the house, has deposed, that an instant after the explosion, she saw two men, both wounded, making their escape. In the room of Girard, two white hats of different sizes were found, which would indicate that at least two parties were cognizant to the construction of the murderous engine. Upwards of one hundred arrests, it is stated, have been made.

The news of the attempt to assassinate the King of France had reached England by Telegraph, and caused considerable sensation.

MARSHAL MORTIER, DUKE DE TREVISO.—Marshal Mortier, Duke de Treviso, whose death is reported to have occurred on Tuesday by the bursting of a machine infernale, directed against the life of King Louis Philippe, was born in 1768, consequently he was in his 68th year. He was the son of a merchant, who represented the *tiers-état* of Cambresis at the States-General, in 1789. The Marshal was originally brought up in his father's profession, and quitted his station as clerk in a mercantile counting-house at Dunkirk in 1791 to serve in the first battalion of Volunteers of the Department of the north, in which he was at once received with the rank of Captain. Having distinguished himself on various occasions, he was made an Adjutant-General in 1793. His first command as a general officer was at the attack of the fortress of St. Pierre. In 1796 he had the command of the advanced guard of the Army of the Sambre-et-Meuse, then under the orders of General Lefevre. On the 31st of May of the same year, he attacked the Austrians, defeated them, and drove them beyond the Archer. During the whole of the war which was closed by the treaty of

Campo-Formio, we find General Mortier actively engaged, and invariably successful in every enterprise with which he was intrusted by his superiors in command. In the campaign of 1799 he had again the command of the advance guard. His services in that station were, in a great measure, conducive to the success of the French arms, and to the high opinion that Napoleon conceived of his military talents. It was General Mortier whom Napoleon sent, in 1803, at the head of his first expedition to Hanover. The whole of the military operations were, on the part of the French army, directed by General Mortier, and the result was the memorable Convention of Suhlingen, by which the Electorate of Hanover was placed in the hands of the French. On his return to Paris he was appointed to the command of the artillery of the Guard, and in 1804 he was raised, with other officers of superior merit, to the rank of a Marshal, and decorated with the Grand Cross of the newly instituted order of the Legion of Honor. In the campaigns of 1805 and 1806, General Mortier was at the head of one of the divisions of the grand army, commanded in chief by Napoleon in person.—The greatest feat of arms ever achieved by any French troops fell during this war to the lot of a corps of 4,000, commanded by Marshal Mortier.—Having fallen in with the whole of the Russian army, led by Kutusoff, and forced to accept battle or lay down his arms, Mortier fought with a valor and superiority of tactics which allowed sufficient time for considerable reinforcements to come to his aid. This affair gave great celebrity to Mortier's name throughout the French army and in France. His fellow-citizens at Cambrai wished to raise a public monument in that city in memory of his action with Kutusoff, but Mortier positively refused to allow it. It was Marshal Mortier who captured Hamburg at the close of 1806. On that occasion he displayed a rancorous hostility against every thing that was English, which greatly surprised all who had any knowledge of his early life. In his younger days he had lived a good deal in Scotland, and the counting-house in Dunkirk where he received his commercial education, was that of an English merchant. His intimacy and intercourse with the natives of this country, of which he spoke the language fluently, had been such, that few would believe it was in pursuance of orders issued from himself that the whole of the British residents in Hamburg were thrown into prison, and every particle of their property confiscated. In 1808, he was raised to the imperial Dukedom of Treviso, receiving at the same time a "dotation," attached to the title, of 100,000 francs (4000*l.*) per annum, payable out of Crown domains of Hanover. It is hardly necessary to say that he lost this income at the peace of 1814. Soon after the opening of the Spanish war he was sent to Spain, where he co-operated with several successive Commanders in Chief, and fought the battle of Ocana, which he and his countrymen have claimed as having been won by the corps under his immediate command. Subsequently he accompanied Napoleon to Russia, and it was to him that the hazardous undertaking of blowing up the Kremlin at Moscow was intrusted. He took an active part in the whole of this and the subsequent campaigns under Napoleon, up to the peace. During the earlier part of the reign of Louis XVIII., Marshal Mortier spent his time in Paris, apparently little desirous of figuring in the military or political world. In 1816, however, he was appointed Commandant of the 15th military division, the seat of which is Rouen, and soon after he was elected by his native department of the north Member of the Chamber of Deputies, in which he sat till 1819, when he was raised to the Peerage. In 1834, on the resignation by Marshal Soult of the Presidency of the Council and Ministry of War, the whole Ministry being then disjointed, and much against the wish of the King, on the eve of dissolution, Marshal Mortier was solicited by the King to accept the offices which Marshal Soult had given up, he being the only individual at that moment with whom, and under whose presidency, the other members of the Soult Administration were willing to remain in office.—The Marshal yielded with extreme reluctance to the wishes of the King. He knew that politics were not his element, and soon after, at the Ministerial council table, as well as on the Ministerial benches in the two Legislative Chambers, he felt that he was not in his proper place. The remarks and jokes of the press about his silence in the Chambers, and his inactivity as a Minister, however good naturedly expressed, at length drove the Duke

de Treviso to the positive resolution of withdrawing forever from the Ministerial career. One morning in the early part of February, therefore, he waited on the King, placed his act of resignation in the royal hands, and gave his Majesty to understand that his resolution to withdraw was not to be changed. Mortier is among the few of Napoleon's Generals whose reputation for integrity and private worth has remained unquestioned through life.—Though not very popular, owing to a natural stiffness in his manners, not more habitual among, than agreeable to, the French, he was always spoken of with respect, and to the last day of his existence he has enjoyed the undivided esteem of his countrymen.—[Times.]

A disastrous explosion occurred at Greenock on the 24th July, on board the Steamboat Earl Grey—the boiler of which burst, while lying at the wharf, and killed five, and injured more or less twenty-five persons.

CURIOUS MANUSCRIPT.—In a list of ancient literary manuscripts, and remarkable manuscripts, recently announced for sale by the Messrs. Southey, of London, is one with the following title:

"A Letter from the Earl of Bath to Lord Norreys, dated April 16, 1681—being 'A proposal for the sale of the Province of New Jersey, a country almost as large as England, belonging to the late George Carteret, for the small sum of between 5000 and 6000 pounds.'"

Thus it appears that one hundred and fifty-four years ago, the whole State of New Jersey was offered for sale for the sum of about twenty-five thousand dollars.—[Gazette.]

THE GRAND DUKE CONSTANTINE AND HIS WIFE.—"Three or four times a week I received commands to attend his levee, and not unfrequently to breakfast—a meal which he commonly took at about 11 o'clock in the day. On these occasions he seemed to take considerable pleasure in all I could tell him of England and its modes and customs—its army, its capital, and its domestic and commercial resources. If on some of these subjects I confessed my ignorance, he would eye me with a doubting and suspicious glance, urge me again and again on the same point, as if he thought I was unwilling to explain, or expressly reserved that of which I confess I was utterly ignorant; or he would dash up in a towering passion, break into some intemperate expressions, and declare that I ought to be ashamed of myself not to be acquainted with statistics, which even foreigners knew well. In these sudden and unforeseen excesses of passion, he was with difficulty pacified—a task upon which I never dared venture—I could only look on and listen in silence; but if his elegant and amiable Princess was present, as was not unfrequently the case, her graceful tenderness and endearments calmed down the storm: she petted him like a froward child, and with a doubting pause or a half-muttered growl his good humor returned. This charming and accomplished creature was his wife, by one of those left-handed marriages so common and well understood among the German Princes, and it was always a matter of surprise to me by what strange freak of destiny a being so mild and gentle in manners, so graceful, so tender and amiable in all the acts and movements of her life, could have been linked to such a monster: and what seems stranger still, she loved him, and thence, perhaps, the secret of her influence. I have seen him often playing with her long ringlets, or fondling in his great paw the prettiest and whitest hand in the world, or kissing his hand to her at a window with an air that actually approached to tenderness. She, indeed, was the only person who possessed any real influence over his mind, and her gentle ways could soothe the wild beast in his angriest moods: she would follow him as he stamped about the room: she expostulated, she wheedled, she caressed, she would try with a tear in her eye to make him laugh; and it would seem that, almost in spite of himself, the smile she sought so anxiously came at her bidding: he would look into her eyes, kiss her little hand, and seat himself again without another allusion to the cause of the explosion. He seemed almost to encourage her interference, and he played with her as a child would with a doll; but she was a plaything with which he never quarrelled. He seemed proud, too, of her mental acquirements, and he delighted in the display of her accomplishments.—Indeed, I at one time attributed it as a principal

cause why I was so often an invited guest at the Belvidere, that it afforded her the opportunity of speaking English—an accomplishment in which she excelled: she possessed considerable fluency, and that least possible smack of foreign accent which could not be otherwise than pleasing on the lips of a pretty woman. Constantine took great pleasure in setting us talking in that language—he rubbed his hands, and listened with evident gratification as she prattled away in a tongue which he did not understand, and continued repeatedly to express his pleasure and satisfaction. His tenderness for this mild and gentle being was at least a redeeming point in his character, and his attachment was repaid on her part by the most devoted and entire affection. Poor thing! his death broke the slight cord which attached her to life; whether it was that her whole soul, her existence, was wrapped up in him who had raised her from comparative obscurity almost to a throne, or whether it was that she missed the being who, however harsh to others, was always, after his fashion, kind to her—whom she had been long accustomed to cajole, to fondle, to guide, to moderate—the link was severed—her gentle heart broke under the shock, and, after hardly two months of a painful widowhood, she sunk into the grave which had received her husband.—[Monthly Magazine.]

A young officer of the French navy, who was a long time stationed at Senegal, tamed a young hyena, which became attached to him in a degree very unusual for this ferocious animal. On his return to Brest, the Maritime Prefect induced him to send his favorite as a present to the Garden of Plants. After a lapse of time the officer came to Paris, and naturally went to visit the menagerie. In the mean time, the animal had resumed all its native ferocity, and became violent the moment any of the spectators even looked steadfastly at it. At the first sight, however, of his former master, the hyena recognised him, showed the utmost satisfaction, mildly moving his head and wagging his tail, as if inviting the officer to caress him. The officer, to the terror of the spectators, approached the animal, stroked his back, and even put his hand into the creature's mouth, but still greater was their astonishment when they saw the beast return his caresses by gently licking his hands.

The *Diario di Roma* mentions the publication at Rome of a small pamphlet entitled, *The Pharaohs in the times of Abraham, Joseph and Moses, as known by the Scriptures and the Monuments of the Egyptians*. It fixes, by accurate calculations, the commencement of the kingdom of Egypt—the Pharaoh by whom Sarah was taken from Abraham, when he came into that country—which of them brought up Joseph, the son of Jacob, and made him viceroy—which of them it was whose daughter saved Moses—and, finally, the Pharaoh who was drowned in the Red Sea.

"Mr. Thomas Gill, son of Mr. Gill, of the French Horn Inn, Sarum, was married on the 28th June, at Salisbury, by the Rev. Dr. Hawes, to a Miss Angell, late of Newfoundland, by which marriage he will shortly come into possession of a number of estates and money, amounting in value to 1,000,000*l.*, left by a Mr. Angell, who died some 60 years since. The Chrois estate, near Lambeth, forms part of the landed property, and to possess which he must bear the name and arms of the Angell family. He is at present the mail-cart man on the line of road from Warminster to Sarum."—[Devizes Gazette.]

The *Académie des Inscriptions et Belles Lettres* has elected M. de Hammer, author of the *History of the Ottoman Empire*, and many other works, one of its foreign Associates, in the room of the late Baron William de Humboldt.

In making a new sluice to the citadel of Calais, an ancient vessel, forty-five feet in length, twelve in breadth, and eight in depth, was discovered in the ground; strongly built, though its measurement does not exceed eighty tons, and has evidently never been covered with a deck. Coins were found in it with the date of 1219; and, as it lay twelve feet below the foundations of the inner wall of the fortifications erected by the Count de Boulogne, it is to be presumed that the vessel was not discovered at that period. It cannot be ascertained whether it was ever at sea, but there is reason to believe it was erected before Calais was made a regular port, and when the sea ran far up the present land.—[Paris paper.]

A new tulip, reared by M. Patrix, a gardener at Ghent, and which the Society of Florists of the town has named the "Citadel of Antwerp," has been purchased by Mr. Vanderninck, a horticulturist of Amsterdam, who was formerly a captain in the Dutch navy, at the price of 16,000 francs.—[Paris paper.]

[From Kirby's *Bridge-water Treatise*.]

DULNESS OF A VEGETABLE WORLD.—Unpeopled by animals, the verdant earth in all its primitive and untarnished beauty, though inlaid with flowers, exhibiting in endless variety every mixture and shade of color that can gladden the sight—though fanned by gales breathing Sabean odors to gratify the scent—though tempting the appetite by delicious fruits of every flavor—still would be a scene without the breath of life. No motion would be seen but of the passing clouds, of the fluctuating waters, and the waving boughs; no voice heard but of the elements.

Was a single pair placed in this paradise, though at first it would seem that there was gratification for every sense, and joy would possess the heart, and admiration fill the soul with pleasure,—yet after the novelty of the spectacle had ceased, and the effect of its first impression was obliterated, a void would soon be felt, something more would seem wanting to animate the otherwise lovely scene; a longing would arise in the mind for some beings, varying in form and magnitude, furnished with organs that would enable them to traverse and enliven the lower regions of the atmosphere, others that might course over the earth's surface, and others that could win their easy way through its waters, so that all by their numbers and the variety of their motions, might exhibit a striking and interesting contrast to the fixed and unconscious vitality of the vegetable kingdom.

ADVANTAGES OF MIGRATIONS OF ANIMALS.—If we give this subject of the migration of animals due consideration, and reflect what would be the consequence if no animals ever changed their quarters, we shall find abundant reason for thankfulness to the Almighty Father of the Universe, for the care he has taken of his whole family, and of his creature man in particular, consulting not only his sustentation and the gratification of his palate by multiplying and varying his food, but also that of his other senses, by the beauty, motions, and music of the animals that are his summer or winter visitors: did the nightingale forsake our groves, the swallow our houses and gardens, the cod-fish, mackerel, salmon, and herring our seas, and all the other animals that occasionally visit us, their several haunts, how vast would be the abstraction from the pleasure and comfort of our lives!

By means of these migrations, the profits and enjoyments derivable from the animal creation are also more equally divided, at one season visiting the South, and enlivening their winter, and at another adding to the vernal and summer delights of the inhabitants of the less genial regions of the North, and making up to him for the privations of winter. Had the Creator so willed, all these animals might have been organized so as not to require a warmer or a colder climate for the breeding or rearing of their young; but his will was, that some of his best gifts should thus oscillate, as it were, between two points, that the benefit they conferred might be more widely distributed, and not become the sole property of the inhabitants of one climate;—thus the swallow gladdens the sight both of the Briton and the African; and the herring visits the coasts, and the salmon the rivers, of every region of the globe. What can more strongly mark the design, and the intention of an all-powerful, all-wise, and beneficent Being, than that such a variety of animals should be so organized and circumstanced as to be directed annually, by some pressing want, to seek distant climates, and, after a certain period, to return again to their former quarters; and that this instinct should be productive of so much good to mankind, and, at the same time be necessary, under its present circumstances, for the preservation or propagation of the species of these several animals?

THE POETRY OF LIFE.—We hear a great deal of the philosophy of life—the poetry of life is equally real, and far more generally diffused. It is that spirit which mingles itself with all our hopes affections, sorrows, and even death, and beautifies them all. It mingles itself with the ambition of aspirants in every honorable track—with the emotions of the lover, with the ardor of the hero, till it

covers the battle field pit from his eyes, and shows him only the halo of glory—with the patriotism of the righteous statesman—with all our social attachments and intercourse, and spreads the roses of heaven on the beaten path of our daily life. No human speculation, no human pursuit, no human feeling, which is not utterly selfish and base, but draws fire and force from this spirit—and is borne by its elating influence towards its legitimate end. It is impossible to point out any nation that has become great, or even successful for a time, without it. Of the ancient nations we need not speak—in all, of which we know anything but the barest facts, poetry, and the intense desire of glory, which cannot exist totally distinct from poetical feeling, were found. From some of them what have we not received! The very Saracens, when, under Mahomet, they suddenly overflowed Asia, Africa, and part of Europe, were set on fire by the poetic charms of his new paradise:—the Tuetons, that extinguished the last sparks of the Roman empire, and laid the foundations of the present European kingdoms, were not led hither merely for food—it was Valhalla, and the poetic legends of their Scalds, that armed and animated them. We cannot take a way poetry from life, without reducing it to the level of animal stupidity. In our days, stupendous events have passed on the face of the civilized world, and equally extraordinary has been the development of poetic power. A host of great names will be left to posterity, and with them a host of new impulses that will fill futurity with increase of light and happiness; and as Christianity becomes better understood, as our natures become better understood, as the spirit of love begins to predominate over the spirit of selfishness, the true poetry of life, and its power, shall be more and more acknowledged. Men will feel that in aspiring after true honor—in desiring to become benefactors of men—to spread knowledge and intellectual beauty, they are but giving exercise to the divine spirit of poetry which is sent down from heaven to warm and embellish every human heart, though often unseen and unacknowledged; and they will work in the spirit of love and in its enjoyment.—[A Day Dream at Tintagel, by W. Howitt.]

What is there in a name?—The London Literary Gazette, in a complimentary notice of *Outre-Mer*, by Professor Longfellow, of Dartmouth College in New Hampshire, ascribes the work to Mr. Longbody!

SUMMARY.

We learn from the Arkansas Gazette, that the rumored attack on Major Mason's command by the Camanche and Pawnee Indians was erroneous. The report originated with a party of Osages. The chiefs of the supposed hostile band have since visited Major Mason's camp and convinced him that they had no hostile resolutions towards his detachment.

The same paper states that it was sickly at Fort Gibson at the period of the last dates from that post. Governor Stokes one of the Commissioners to treat with the Indians, was not able to sit up, but he intended to set out, or attempt it, on the 5th of August, for the place of rendezvous, (Major Mason's camp,) 160 miles distant from the post of Gibson. A large detachment of infantry, was to accompany Governor Stokes to the treaty ground.

An extra Official Gazette was published at Quebec on Tuesday, containing a Proclamation of His Excellency the Right Hon. the Earl of Gosford, announcing his appointment as Captain General and Governor-in-Chief in and over the Provinces of Upper and Lower Canada respectively; and commanding His Majesty's Officers and Ministers in Lower Canada to continue in the due execution of their respective offices; and the Commission of His Majesty, appointing the Right Hon. the Earl of Gosford, the Right Hon. Sir Charles Edward Groy, and Sir George Gipps, Commissioners for the investigation of all grievances affecting His Majesty's subjects in the Province of Lower Canada, in what relates to the Government of the Province.—[Montreal Gaz.]

A right whale was captured in the beginning of

last month, on Watt's Shoal, (off the mouth of the Potomac,) by Captain Jonah Porter, residing near the spot, who, after getting him fast aground, pierced him with iron run-roads, instead of a harpoon. The Norfolk Herald says "the monster was 58 feet in length, and yielded, notwithstanding Capt. Parker's limited knowledge of the process of procuring it, eighteen barrels of oil, 14 of which were sent to Fredericksburg and sold."

SOUTH FERRY.—We understand that the lease for this ferry has been executed. Our City Council and the Company have taken the most prompt and efficient measures to put the ferry in complete operation very soon. The grading of Atlantic st. to Parmentier's Garden has been completed, and the paving will be completed this fall.

The guns of the battery aimed at the King of the French which did not go off as intended, were the first five, pointing towards the head of the column. By this remarkable circumstance the life of the King was preserved. After the affray the King and the Duke of Orleans were both found to have wounds upon them, but they were supposed to have been made in the confusion which ensued upon the discharge.—[Journal of Commerce.]

APPOINTMENT BY THE PRESIDENT.—Robert J. Hackley, to be Register of the Land Office for the district of lands subject to sale at Tallahassee, in the Territory of Florida, vice George W. Ward, deceased.—[Globe.]

[From the *Globe* of Wednesday.]

The following arrangements, we are informed have been entered into voluntarily by the Deposit Banks, as far as named, for the redemption of their notes in New York or Philadelphia, and the receipt of each other's notes, viz:

BANK OF BURLINGTON, Burlington, Vermont.—This Bank redeems its notes of all denominations of five dollars and upwards, *unlimitedly*, at the Merchants' Bank in the city of New York. It also receives on deposit the notes of such Banks, as are at par, either in New York, Philadelphia, or Boston.

MECHANICS' AND FARMERS' BANK, Albany.—This Bank redeems all its notes of the denominations of fifty dollars and upwards, *unlimitedly*, at the Merchants' Bank in the City of New York.—It also receives the notes of all Banks which are at par in New York or Philadelphia.

BANK OF AMERICA, New York.—This Bank will receive the notes of all the Deposit Banks situated north and east of that city, of the denominations of fifty dollars and upwards, on deposit, from Deposit Banks, which they may have received from the Receivers of sales of the Public Lands.

MECHANICS' BANK, New York.—This Bank will receive the notes of the two Deposit Banks in Boston, (the Commonwealth and Merchants') they having arranged with this Bank to redeem the same, of all denominations of five dollars and upwards.

GIRARD BANK, Philadelphia.—This Bank will receive from all the Deposit Banks, the notes of any and all the Deposit Banks north and east of Philadelphia, which they may receive from the Public Land Receivers, of the denominations of fifty dollars and upwards.

UNION BANK OF MARYLAND, Baltimore.—This Bank redeems its notes *unlimitedly*, in New York, at the Merchants' Bank; and in Philadelphia, at the Philadelphia Bank; and it receives on deposit and in payment of all dues, the notes of all good Banks which are redeemed in those cities.

BANK OF THE METROPOLIS, Washington.—This Bank redeems its notes, *unlimitedly*, in Philadelphia, at the Girard Bank; and in New York, at the Bank of America, Mechanics' Bank and the Manhattan Company. It receives on deposit the notes of all such Banks as are at par in either of those cities.

BANK OF VIRGINIA, Richmond.—This Bank redeems its notes, *unlimitedly*, in Philadelphia, at the Girard Bank, and the Farmers' and Mechanics' Bank; and in New York, at the Mechanics' Bank and Manhattan Company. It receives the notes of all Banks, above the denomination of ten dollars, which redeem their notes in either of the above cities.

BANK OF AUGUSTA, Augusta.—This Bank redeems, at the Bank of America, in New York, such of its notes as may be received by the Receivers, of proceeds of sales of Public Lands.

UNION BANK OF LOUISIANA, New Orleans.—This Bank will redeem, at the Merchants' Bank in New York, all its notes which may be received by Deposit Banks, in payments on account of the Government. It will receive on deposit, from the Receivers of Public Lands, the notes of all such Deposit Banks as cause them to be redeemed in New York or Philadelphia.

COMMERCIAL BANK OF NEW ORLEANS, New Orleans.—This Bank will redeem, at the Bank of America, in New York, such of its notes as may be received by deposit Banks for all payments made on account of Government. It will receive on deposit from the Receivers of Public Lands, the notes of all such Deposit Banks as redeem the same in New York or Philadelphia.

PLANTERS' BANK, Natchez.—This Bank, has in no instance since it became a selected Bank, refused to receive from a Public Receiver, a note of any one of the Deposit Banks. It will continue to receive on deposit, from the Public Receivers, the notes of each and all the Deposit Banks, without regard to their location.

UNION BANK, Nashville.—This Bank issues but few notes which are not made payable upon their face, either at Philadelphia or New Orleans. It will receive in payment of all due to the Government, the notes of all Deposit and other Banks, which redeem the same, either New York or Philadelphia.

COMMERCIAL BANK, Cincinnati.—This Bank will redeem at the Girard Bank, in Philadelphia, all its notes of the denomination of fifty dollars and upwards, which may be received by any Deposit Bank, to be placed to the credit of the United States. It will receive on deposit, from Public Receivers, the notes of all such deposit and other good Banks, at Cincinnati, and its agency, at St. Louis, as redeem the same in New York or Philadelphia.

CLINTON BANK, Columbus.—This bank will redeem, at the Phenix Bank, in New York, all its notes of the denominations of fifty dollars and upwards, as may be received by any Deposit Bank from the Public Receivers. It will receive on deposit, from the Public Receivers, the notes of all such Deposit and other good Banks as redeem the same either in New York or Philadelphia.

STATE BANK OF INDIANA, Indianapolis. This Bank will redeem, at the City Bank in New York, any of its notes of the denomination of fifty dollars and upwards, which may be received by any Deposit Bank, from the Public Receivers. It will receive on deposit, from the Public Receivers, the notes of all such Deposit and other good Banks which redeem the same either in New York or Philadelphia.

STATE BANK OF INDIANA, Richmond Branch.—This Bank will redeem, at the Bank of North America, in Philadelphia, and the Merchants' Bank in New York, all such notes of the denominations of fifty dollars and upwards, as may be received by any Deposit Bank from the Public Receivers. It will receive from the Public Receivers the notes of all such Deposit Banks as redeem the same either in New York or Philadelphia.

BANK OF MICHIGAN, Detroit.—This Bank will redeem, in the City of New York, through their agents, Messrs. John Ward & Co., all such of its notes of the denominations of \$50 and upwards, as may be received by any Deposit Bank from the Public Receivers. It will receive from the Public Receivers the notes of all such Deposit and other good Banks as redeem the same either in New York or Philadelphia.

FARMERS' AND MECHANICS' BANK, Detroit.—This Bank will redeem, at the Bank of America, in New York, all such of its notes of the denominations of fifty dollars and upwards, as may be received by any Deposit Bank from the Public Receivers. It will receive from the Public Receivers the notes of all good Banks north of the Potomac and Ohio rivers, and of such southern Banks as redeem the same either in New York or Philadelphia, of the denominations of twenty dollars and upwards.

MERCHANTS' AND MANUFACTURERS' BANK, Philadelphia.—This Bank will redeem, *unlimitedly*, such of its notes as may be received by any Deposit Bank, from the Public Receivers, at the Commercial Bank in Philadelphia. It will receive on deposit, on public account, the notes of all such of Deposit and other good Banks as redeem the same in New York or Philadelphia, of the denominations of twenty dollars and upwards.

[From the Chicago American of August 22.]

THE INDIANS.—Our town is now crowded with Indians, who have come to receive the last payment stipulated in the Treaty of 1833. They present a singularly interesting appearance, and to eastern emigrants more especially, are objects of great curiosity. They display, in their dress and manners, the wild fancy, uncultivated taste, and native simplicity of the Indian character. Their faces and bodies are painted with grotesque figures of divers colors; gaudy trappings of silver hang upon their breasts or girt their arms; beads and other jewels hang from their ears, or noses, or load their necks; quills and feathers, and heads of birds, are woven into their hair; scarlet bands, richly interwoven with beads, from which hang bells and tassels, girt their legs. They traverse the streets on their ponies, caparisoned with scarlet cloth, with feathers and bells, or on foot with spears and daggers, pipes and tomahawks, &c. &c., entertaining the citizens with songs and dances. We suppose this is the last general visit we shall receive from them. The exploring party sent out by the Government, accompanied by a deputation of Indians, to visit the new country which was given them in exchange for the lands in this region, and to which they will probably be removed in the coming fall, have not yet returned, but will soon be here. The removal of the miserable remnants of these once powerful tribes, is not only the most advantageous to the people of the United States, but also to the Indians themselves, who are now weakened in power, diminished in number, enfeebled in constitution, and depraved in morals, by their proximity to the white people. Those tribes now west of the Lakes, were the fierce nations which inhabited the peninsula of Michigan. The warlike deeds and shrewd stratagems of Pontiac, the great Ottawa chief, are a part of the history of this country. His assassination by the Illinois Indians, was the cause of the introduction of the Ottawas & Pottawatomies into this region, who pursued the murderers of Pontiac almost to utter extermination. The destruction of a great number of them upon "Starved Rock" at Utica, is an account well known to all. The Illinois Indians were pursued until they took refuge upon the top of this Rock, which is 150 feet high, standing on the banks of the Illinois river, and were besieged by their fierce pursuers, until they were *starved to death*, and for many years after, their uncoffined bones whitened the summit of the rock. But these powerful tribes are following the Illinois, the Peorias, the Kickapoos, the Kaskaskias, &c. who now scarcely retain their identity as separate tribes. A removal beyond the Mississippi is doubtless the true policy for them.—They will not be reclaimed from the Indian customs so long as there are hunting grounds unobdured.—The march of civilization and improvement towards the West, brings blasting and mildew upon them. They do not acquire the knowledge of the white men but adopt their vices without imitating their virtues. While we triumph in our own prosperity, and look with warm hopes to the future, we have the melancholy example before our eyes of the increased degradation and destruction of a mighty people. We know that *our success is their fall*.—And however ardently we may desire their improvement, we find that the Indian character has in the main thwarted all efforts for its elevation.—They possess a propensity for savage life which will not harmonize with the existence of civil institutions; and though many efforts have been made to Christianize them, by teaching them the truth of Christianity, yet these labors cannot be said to be generally successful. And judging from the history of the last three hundred years, we may suppose they will continue to retire before the progress of enlightened improvement, to the last thicket, and when worsted there—will find their grave.

LIBEL.—Ira C. Paine, of Painesville, Ohio, has recovered a verdict of \$52.50 against Eber S. Howe, publisher of the Painesville Telegraph, for printing "his name in *small italics*" as Secretary of a political meeting, in connection with remarks reflecting upon his character.—[Buffalo Adv.]

The question which of late has been often asked us, we can now answer, viz: the large new building now being put upon Ellis' Island, is a magazine, in which the powder required for our naval operations will be stored. It is a spacious depot, and its location is so remote from a dense population, that if it should ever explode, few, if any lives would be lost.—[Gazette.]

Mr. Clayton, the Western aeronaut, narrowly escaped a sudden and violent end, during a balloon ascension which he made on the 21st August at Lexington, Ky. He had risen to an elevation of about two miles, when the perilous occurrence alluded to took place. We copy his own account of it.

At 23 minutes after 5, when at an altitude of two miles, I discovered that the gas had completely filled the balloon, and that the neck had become entangled between the cords by which I was suspended, preventing the surplus gas from escaping, and confining the valve cord so that I could not open the valve.

I immediately busied myself in liberating the valve cord, and while in the act of doing this, the neck and cord were snatched with violence from me; the upper portion of the balloon burst with a tremendous noise, and I and the whole fabric fell two or three hundred feet, with the velocity of a stone. The rapid descent was then a little checked; and now the most critical moment of my life was at hand—a moment that required calmness, presence of mind and activity, for an awful scene presented itself. The lower part of the balloon, by the violent resistance of the atmosphere, in descending, had been pressed against the surface of the net-work, and formed into a parachute, of about twenty-five feet in diameter; but through the centre of this imperfect parachute I could behold the naked valve, the small meshes of the net, and a great portion of the silk on each side, which formed the resisting surface; hung in ribbons, dashing from side to side, and producing a noise like that of shattered sails of a ship in a tempest. This hurricane noise was not produced by the rapid descent alone, but by the violent oscillatory and rotary motion of the parachute. At one moment I was almost in a horizontal line with the parachute, and then I was dashed through the air to a level on the opposite side; thus describing an arc of nearly a semi-circle, the radius of which was about fifty feet; and at the same time I and my car were whirling with sickening velocity.—While in this situation I succeeded in dashing overboard all my bags of ballast, which weighed about 80 lbs.

In four minutes I descended about a mile, and reached a region of dense clouds. At this time I untied the upper end of my cable and held it in my hands, threw over my anchor and allowed it to swing at the full length of the rope (150 feet); it was thrown at every vibration far above the level of my car.

On passing beneath the cloud, I saw the town of Athens a little to the south west of me.—In five minutes more I reached the ground with a pretty severe shock sustaining no injury worth mentioning. The whole balloon or parachute, was instantly flat on the ground, a mass of ribbands. At few dark faces (negroes) appeared at a short distance from me, with outstretched hands—screaming—frightened to death at the huge machine that came whirling over their heads, and still more frightened when they saw me spring out of it.

GENERAL LAND OFFICE.—On Tuesday Ethan Allen Brown, of Ohio, was duly installed as Commissioner of the General Land Office, vice Elijah Hayward, resigned, who, we understand, returns to the West.—[Nat. Int.]

A STRANGE STORY—AND AS TRUE AS STRANGE. We were told the following singular story by a planter of high respectability, on Friday last.—Early in the season he purchased work horses for his plantation, and now, at noon, they feed in the open air. The poultry, as is customary, assembled where the horses are fed. A few days ago, hens with their broods of chickens approached the troughs where the horses were eating, when it was observed that one of the horses left his food, and by moving his head near the ground, collected the young chickens in a huddle, and grabbed a mouthful of the brood, which he actually ate. Nor did he stop at that, but before relief could be afforded, he got a second mouthful which he also ate. The gentleman added that his slaves have lost many of their chickens, and the horse is accused of having eaten them. This must be a Kentucky horse—for the Kentuckians are said to have half horse and half alligator, and the one we speak of appears to have much of the latter animal in his composition, with a little touch of the snapping turtle.—[Louisville Jour.]

METEOROLOGICAL TABLE,

For the months of June and July, 1835—kept at
Avoylle Ferry, Red River, Lou., (Lat. 31° 10' N.,
Long. 91° 59' W. nearly,) by P. G. VOORHIES.—
[Communicated for the American Railroad Journal.]

JUNE.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	Remarks.
1	71	84	71	calm	clear	{ light showers in the morning—wind S.W.
2	70	82	72	w	cloudy	{ light showers morning and ev'g—had roasting ears for dinner
3	70	83	79	calm	clear	cloudy m'g—clear at noon
4	72	86	82	..	..
5	72	87	76	..	..
6	70	88	82	SE	..	Red river on a stand
7	75	88	84	..	..
8	72	77	84	s	..	
9	70	84	74	E. light	..	{ rain in the evening—Red river falling
10	73	81	73	calm	..	heavy rain in the even'g
11	72	78	86	sw	cloudy	clear at noon
12	71	86	74	calm	clear	
13	74	81	77	..	cloudy	rain in the evening
14	73	79	75	..	..	.. morning and noon
15	72	77	76	..	..	clear in the evening
16	71	84	78	..	..	rain in m'g—clear at noon
17	74	85	82	..	clear	
18	73	88	82	..	..
19	73	88	86	..	..
20	75	87	85	..	..
21	74	86	78	..	..
22	72	81	78	..	cloudy	clear at noon
23	73	87	77	..	clear	rain in the evening
24	72	85	79	..	cloudy	light showers at noon
25	75	82	82	..	..	{ rain and thunder at noon—clear evening
26	74	84	80	..	..	light showers at noon
27	77	85	76	..	..	.. .. .. —clear
28	79	86	83	..	clear	.. evening
29	72	88	84	sw	..	thunder at noon
30	79	88	82	calm	..	rain and thunder in ev'g

Red river rose this month, 1 foot 4 inches—and is below high water mark, 6 feet 6 inches.

JULY.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	Remarks.
1	68	72	71	sw	cloudy	{ rain in the morning, & clear in the evening
2	62	78	70	calm	clear	
3	61	77	74	..	..
4	40	80	76	..	cloudy	
5	71	77	73	..	..	drizzly rain all day.
6	68	80	76	..	clear	Martin birds left here
7	67	82	75	SE	cloudy	thunder and rain in ev'g
8	70	84	77	calm	clear	
9	74	84	73	..	cloudy	{ very heavy rain in afternoon, and thunder
10	73	80	73	sw	..	very heavy rain in ev'g
11	73	80	76	calm	..	Red river on a stand
12	73	84	75	SE	clear	{ thunder at m at noon, & little rain—wind S.E.
13	73	84	81	calm	..	{ foggy morn'g—thunder at noon and evening
14	74	88	76	..	cloudy	thunder in the morning, rain noon and ev'g
15	71	79	76	..	..	clear in the evening—Red river rising
16	71	83	79	..	clear	
17	72	85	82	..	cloudy	
18	73	82	72	..	..	rain in ev'g and all night
19	70	72	70	..	..	all day
20	71	75	74	{ N. E. }	{ .. }	{ rain all day, and showers at night
21	72	73	72	E	..	
22	72	78	73	calm	..	{ rain severe in forenoon, evening clear
23	70	81	79	..	clear	thunder in forenoon, & cloudy in evening
24	74	85	82	..	..	{ foggy morning—clear balance of the day
25	74	86	83	..	..
26	80	89	82	..	..	thunder, wind S.W. in ev'g
27	74	87	84	..	..	rain in ev'g, & thunder
28	78	86	84	..	..
29	76	89	86	..	..
30	76	89	78	..	..	rain and thunder in ev'g
31	75	84	82	..	cloudy	{ foggy morning—showers at noon

Red river rose this month, 6 inches—below high water mark, 6 feet.

PARTNER WANTED:

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-17

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Rail Road Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Rail Road between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skillful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting. MONCURE ROBINSON, C. E. Philadelphia, Sept. 2, 1835. 23 SawtO19

AMES' CELEBRATED SHOVELS,

SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.

2 Liberty street, New-York.

BACKUS, AMES & CO.

8 State street, Albany.

24-yif

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.

Paterson, Aug. 19, 1835.

34-ly

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J36 if

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 2 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 225 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. 1/23am

H. BURDEN.

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.12-ly

RAILWAY IRON.

25 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 300 do. 1 1/2 do. do. 14 to 15 feet, counter sunk 40 do. 1 1/2 do. do. holes, ends cut at an angle 800 do. 2 do. do. of 45 degrees, with splicing plates and nails to suit 800 do. 2 1/2 do. do.

soon expected. 250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mcowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

J21 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1833.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

German town, February, 1833.

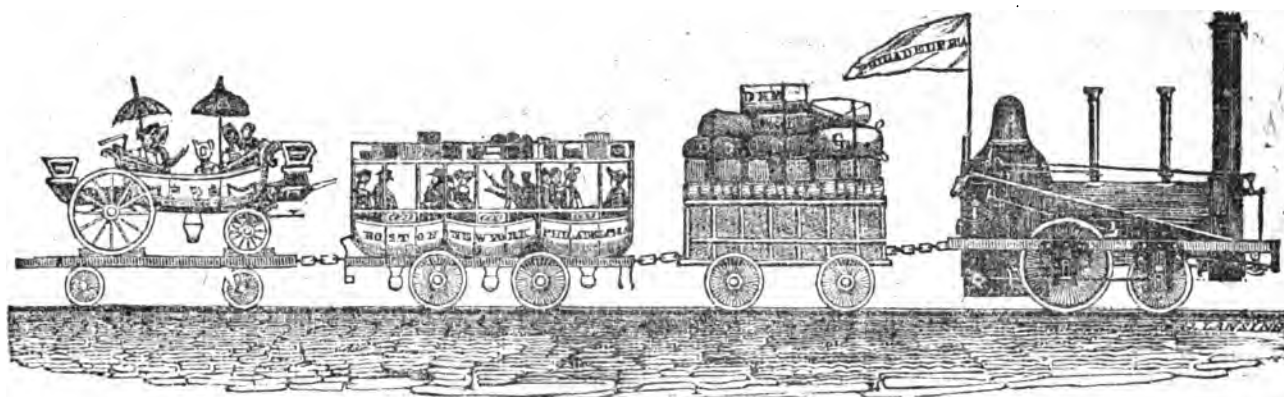
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

German. and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT NO. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, SEPTEMBER 19, 1835.

[VOLUME IV.—No. 37.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, SEPTEMBER 19, 1835.

CONCORD, N. H., AND HARTFORD, VT., RAILROAD.—By a notice in the Burlington Free Press, we find that the people are moving in relation to a Railroad between these two towns. A meeting was held at Lebanon, N. H., on the 19th of August, at which measures were adopted to have the route surveyed. Another meeting is to be held on the first of October next. It will not be many years before there will be a Railroad from Boston to Burlington, and the distance will be performed between the two places in *one day*—by daylight.

RAILROAD MEETING.—At a meeting of several gentlemen, residents of the towns of Hartford, Vt., Lebanon, Hanover, Plainfield, Springfield, Enfield, Danbury, Grant-ham, and Sutton, N. H., holden at the Lafayette Hotel in Lebanon, August 19th, 1835, for the purpose of adopting such measures as might be thought expedient to cause the various routes to be surveyed from Connecticut river, in Lebanon, to Concord, with the view to ascertain the nearest, best, and most practicable route for a Railroad between the two last mentioned places: Col. Amos A. Brewster, of Hanover, was called to the Chair, and Lewis Lyman, Esq., of Hartford, Vt., was chosen Secretary. Col. A. A. Brewster, Hon. E. Blaisdell, C. Benton, H. R. Stevens, and Thomas Clark, Esquires, were chosen a

Central and Corresponding Committee.—Committees were also appointed to raise funds and procure the necessary survey of the route.

Resolved, That the Secretary of the meeting request all gentlemen friendly to the construction of a Railroad from Concord, by Lebanon and White river, to Burlington, Vt., to make the necessary arrangements to effect the object as soon as may be, and to request them to co-operate with this meeting at their next and future meetings.

Voted, That the proceedings of this meeting be signed by the Chairman and countersigned by the Secretary, and published.

Voted, That this meeting adjourn, to meet again at the Lafayette Hotel in Lebanon, on the first day of October next, at 10 o'clock, A. M.

INCREASE OF BUSINESS.—The following brief statement shows conclusively the immense increase of business in the West. Indeed, we of the East cannot duly appreciate the importance of that fertile region without a visit to it, and a visit is almost sure to make the visitor a resident.

The following is the amount of tolls collected on the Ohio and Miami Canals for the month of July 1834 and 1835.

OHIO CANAL.		July 1834.	July 1835.
Cleveland,	\$3,386	78 0	\$9,460 00 0
Akron,	482	14 5	539 26 5
Massillon,	1,223	24 0	2,101 07 0
Dover,	718	02 0	1,046 41 5
Roseoe,	710	73 7	2,131 07 5
Newark,	1,276	95 9	3,996 85 1
Columbus,	22	65 0	334 70 0
Circleville,	153	15 2	1,609 65 1
Chillicothe,	217	06 3	4,265 29 1
Portsmouth,	926	47 0	2,375 00 4
		\$9,117 32 6	\$24,889 42 2
MIAMI CANAL.			
Dayton,	\$1,253	70 0	\$916 14 0
Middletown,	580	24 0	399 19 0
Hamilton,	170	59 0	126 80 0
Cincinnati,	1,416	06 0	2,449 57 0
		\$3,426 67 0	\$3,891 70 0
		9,117 32 6	24,889 42 2
		\$12,542 99 6	\$28,781 12 2
			12,543 99 0
			\$16,537 12 6

Increases in favor of July 1835,

THE MAZEPPA CAR.—Our city has long and justly been celebrated for the perfection to which its mechanics have arrived in the construction of Mail Coaches,—the premium having been awarded to Messrs. Slaymaker & Co. at the exhibition in Philadelphia some years since—and bids fair to acquire equal celebrity in the manufacture of Railroad Cars. As an evidence of this we need only refer to the car alluded to at the commencement of this article—built at the shop of Mr. John Baker—which for beauty of material and strength and durability of workmanship is fully equal, if not superior, to any vehicle of the kind that has ever come under our observation. The ends of the car are ornamented with beautifully executed paintings from Byron's "Mazeppa," and the sides with drawings representing the Seasons, upon which much more care and attention appears to have been bestowed than is usually allotted to carriages of this description. The wheels of the car are constructed upon a plan entirely different from Baldwin's patent—the kind most generally in use upon the Philadelphia and Columbia railway—and if we may judge from appearances, we should think it impossible for them to yield under any thing like reasonable pressure. There is also a very material alteration in the construction of the shoulder of the axle and the box for its reception, which to us seems to be decidedly for the better, and which, if we are not greatly mistaken, will go far towards preventing a repetition of the numerous accidents which have occurred along the line, owing to the impossibility of giving to this important part of the running gears a sufficiency of strength to resist the pressure caused by the friction of the wheels in turning the short curves. There are also some other improvements in the construction of the car, to which it is not necessary to refer, as they no doubt suggested themselves to all who witnessed it.

We understand that Mr. Baker has forwarded his car to Philadelphia with the view of disposing of it, and while we indulge the hope that it may be the means of procuring for its builder many orders from abroad, we cannot but regret that measures were not adopted by some one of our railroad companies to retain amongst us a piece of workmanship so highly creditable to the ingenuity and enterprize of a deserving fellow citizen.—[Lancaster Examiner, Pa.]

Delaware and Raritan Canal.

To the Editor of the Railroad Journal:

Dear Sir,—I have just passed over the Raritan and Delaware canal, which I found in excellent condition for navigation. You are, doubtless, aware that this canal was originally designed to accommodate the coasting trade, by which the delay, hazard, and expense of the route round the Capes would be materially obviated. In this respect it is an important communication; but, like most other improvements in facilitating intercommunication, it is found to be highly beneficial in promoting other objects than those originally contemplated. By means of tow-boats it affords a very cheap and expeditious transportation between New-York and Philadelphia.

The tow-boats, or barges, are towed through the canal by horses, and on tide water by steam-boats. The barges carry from 100 to 150 tons, and are drawn through the canal by two to four horses. Barges of over 200 tons have passed through the canal. The latter, however, are too large for convenient management, and it is considered, by those navigating and managing the canal, that barges of 100 to 150 tons are best adapted to its navigation. This size appears to move with ease, and are very conveniently governed by the common tiller. I saw a loaded schooner of about 100 tons moving at a velocity of two miles to the hour, drawn by two common horses. The horses worked moderately, and appeared to make no more than ordinary effort. The barges tow easier than the sail vessels of same burthen.

A daily line of packet boats has recently been established. One of the packet boats is on the Burden plan: having two long cylinders placed about 10 feet apart, on which the cabin is supported. I saw this boat moving (by three horses) at the rate of about 7 miles per hour. The horses did not appear to labor as much as they do on the packet boats of the Erie and other small canals that I have seen when moving at the rate of 4 miles per hour. The swell created by this boat was less than that made by packets on the Erie canal at four miles per hour. The appearance was fine: the horses trotted along without any extra effort, and the boat glided elegantly through the water. The average speed of the boat, including all detentions at locks, &c., is seven miles per hour.

The length of the canal is 43 miles. The locks are 24 feet wide and 110 feet between gates. The depth of water is 7 feet, and its minimum width 70 feet. I observed, however, that a great portion of it was from 80 to 100 feet wide.

Experience on this canal exhibits the great economy in transportation on large canals over small ones; and as the expense of construction is not as great in proportion for large canals as for small ones, it therefore seems highly important, when a large trade is to be accommodated, that the canal should have liberal dimensions. In the great canal communications between the Atlantic and Western states, sufficient attention has not been paid to making the navigation the most perfect and economical that was practicable. The length of those canals, and the great amount of property that will ultimately seek a market through them, will demonstrate their want of suitable adaptation to the great and growing trade they were designed to accommodate. The projectors appear only to have viewed the great superiority of a common or small canal over turnpike roads. This, when designed to accommodate the transportation

for short distances, and comparatively for moderate amount, would, doubtless, have been wise; but when applied to lines hundreds of miles in length, where the transportation was materially affected by the value of the article transported, and where the amount of trade is great, this policy does not meet the case. It should not, however, be forgotten, that those canals, already made, were planned in the infancy of trade, with limited knowledge in the science of canals; and it is, therefore, matter of pride, that in a country so recently reclaimed from a wilderness, we have done so much. At the same time it would be unwise not to profit by experience in our future operations in constructing canals.

Respectfully, your ob't sv't,

Report of the Committee of the Board of Directors of the Elizabethtown and Somerville Railroad, N. J.

The controversy heretofore existing in regard to the advantages and disadvantages of canals and railways, for the transportation of passengers, merchandise, and country products, may be considered now settled by the experience we have already had in this country. On the route contemplated for this railway, canals and railways will be rendered mutually auxiliary, and the interests of the great West and the Atlantic board alike demand that both should exist. It is necessary for the full completion of the connexion of the sea ports of the Atlantic with the great Western region, that the certainty, the speed, and the advantages of a railway should be added to the facilities of the canals now existing or in progress; it is demanded by the enlightened spirit of the age, and the interests of the patriotic, industrious, and increasing population who are seated on the borders of its route. That route should be selected, not by sectional, local, or selfish considerations, but by liberal and enlarged views, harmonizing the public and local interests, and combining the shortest practicable distances with the facilities of transportation by motive powers. The climate itself fixes the superiority of a railroad on this route over a canal. For at least one fourth of the year the canals are locked up by ice, and during that time a railroad would impart the bustle, activity, and wholesome action of business and trade through a region now paralyzed by frosts.

The route proposed is from Elizabethtown in New-Jersey to Somerville, thence to Clinton, thence to Philipsburgh opposite Easton, thence up the Delaware on the New-Jersey side to Belvidere, thence crossing the Delaware to the Water Gap, thence to Pittston on the Susquehanna, and thence by such routes as will be deemed most advantageous to join the New-York and Erie Railroad. From Elizabethtown a convenient access to New-York will be opened by an extension of the railroad to the waters of the Sound, which the Company are authorized by their charter to do, or by the New-Jersey Railroad, which is now in progress, from thence to Jersey City, opposite New-York. The route from Elizabethtown to Somerville has been surveyed by a competent engineer, who in his report states, "That it can be located on ground favorable for the construction of a railroad at a moderate cost. The curves are few and of a large radii, and the maximum inclination of the slope of the road need not exceed five feet per mile," at any point. The distance will be about twenty-two miles, and this road may be connected by short branches with Rahway and Bridgeton, or extended to

New-Brunswick and Perth Amboy by lateral roads. The legislature of New-Jersey granted a charter for this railway on the 9th February, 1831, and the Company has been organized for the purpose of making it. By the terms of the charter the road is free from taxes until the net income amounts to seven per centum per annum upon the amount of its cost, and then the Company are to pay to the State of New-Jersey annually the *one half of one per centum* on the said cost, in lieu of all taxes and imposts. The State has reserved the right of taking the road at the expiration of fifty years from its completion, on a valuation not to exceed the first cost of the road and its appendages; the road to be completed and in use, from Elizabethtown to Somerville, by the 4th of July, 1838.

On the 8th February, 1833, the legislature of New-Jersey, by a supplement, authorized the said Company to extend the said road from Somerville, on the most eligible route, to the village of Clinton, in the County of Hunterdon, and from thence to Belvidere, with the right to make a branch to the Delaware, at any point between the mouth of the Musconetcong Creek and the Easton Delaware Bridge; that extension to be completed in ten years from the passage of the supplement.

This route has been partially surveyed, and a recognizance has been made of the residue by a competent engineer. The route from Somerville to Clinton is of easy grade, not exceeding seven feet per mile, distant about twenty-one miles; from thence to Belvidere the location has not been fixed, but it is certain, that the distance from the Sound to Belvidere will not exceed seventy-three miles, nor the cost twelve thousand dollars per mile; the grade will be an easy descending one for the greater proportion of the distance, in the valley of the Water Courses, and will be accommodated to the use of motive power throughout.

This road will pass through a well settled portion of the Counties of Essex, Middlesex, Somerset, Hunterdon, and Warren, in the State of New-Jersey, rich in agricultural products, abounding in water power, limestone, and iron and copper ore, and the mountains and hills adjacent to the route, are known to be filled with mineral treasures. The country on and adjacent to the route is not only one of the most fertile in the State, but is remarkable for its picturesque beauty, and is inhabited by an industrious, enterprising, and increasing population. The route passes through or near the flourishing villages of Elizabethtown, Westfield, Scotch Plains, Plainfield, Totwontown, Quibbletown, Boundbrook, Middlebrook, Somerville, Pluckemin, New-Germantown, Mechanicsville, Readingtown, Flemington, Whitehouse, Lebanon, Jacksonville, Clinton, Quakertown, Pittstown, New-Hampton, Asbury, Bloombury, Philipsburg, Oxford furnace, Oxford meeting-house, Harmony, and Belvidere, in New-Jersey, and Easton, in Pennsylvania. This route will necessarily draw to itself the whole of the trade of Easton and its vicinity, and a great portion of the Counties of Lehigh and Northampton, in Pennsylvania, and of Warren and Somerset, and a large part of Hunterdon, Morris, Middlesex, and Essex, in New-Jersey. It will command the trade of the rich and productive valleys of the Raritan, the Musconetcong, and the Pequest.

The County of Warren has upwards of sixty stores, fifty grist mills, and forty-five saw mills, sixteen carding machines, seven furnaces for casting iron, two cotton and woollen factories, two fulling mills, four oil mills, five plaster mills, two hundred and

thirty-five tan vats, one glass factory, six distilleries of grain and twenty-five of cider, and has a population of upwards of twenty-five thousand souls. It abounds in lime stone and iron ore, and her mountains are rich in various valuable minerals. It contains about 140,000 acres of improved lands, and it is among the most fertile and productive grain counties in New-Jersey, and it is supposed to produce annually upwards of one million bushels of grain, of various kinds, for market.

The water power at Belvidere includes the whole of the river Pequest, and will afford fifty feet head and fall, and is equal to seventeen hundred and seventy horse power, and if applied in the best manner for manufacturing, would be sufficient to manufacture two hundred thousand barrels of flour per year.

Oxford furnace also possesses a valuable water power, which is applied to saw and grist mills and iron works. The product of those works yearly is three hundred tons of stove plates and five hundred tons of pig iron, and are rapidly increasing. The Musconetcong also supplies a very valuable water power at different points, besides those furnished by its tributaries.

The County of Northampton, in Pennsylvania, which bounds on the Delaware for a great distance, has 181 stores, fifty flouring mills, which manufacture upward of 337,500 barrels of flour and corn meal for market yearly; there are also in it seven oil mills, ten tanneries, seven distilleries, three blast furnaces, five forges, two trip-hammer mills, and a variety of smaller iron works, one gun factory, numerous saw mills, bark and country grist mills, clover mills, and various manufactories of saddlery, hats, &c. &c. The amount paid at Easton, for logs, by two individuals, this spring, exceeded \$40,000, and at least three millions of oak lumber is rafted down Broadhead's Creek, and it is estimated that at least 50,000 tons of lumber descend the Delaware annually. The amount of merchandise received at Easton, for that place and the adjacent country, annually exceeds 1,000,000 of dollars, and the exports in butter, lumber, castings, bar iron, slate, machinery, &c. &c., are very considerable; it also exports upwards of eighteen hundred tons of pork annually, besides a large amount in fat cattle, sheep, &c. There are three daily lines of stages from Easton to New-York, one by Morristown, and the other two by Somerville, and it is the starting point for numerous stages up the Lehigh and Delaware, and to the Susquehanna. The exports of Northampton may be fairly estimated at fifty thousand tons, and her imports are also very considerable, amounting in plaster, salt, and fish alone, to six thousand tons, besides the various articles of merchandise demanded for its consumption.

The greater part of Hunterdon, from the Hopewell line North, will travel to New-York by this route, as will also a great portion of the County of Bucks, in Pennsylvania.

From estimates made with great care, and drawn from accurate sources, it may be safely assumed, that the first year that this road is completed to Belvidere, the tonnage that will pass to market upon it will exceed 125,000 tons, without calculating the droves of cattle and live stock, lumber, coal, lime and lime stone, and the return tonnage.

The lime stone region terminates South at Clinton, and the country below that point must draw their supplies of that necessary article for building and manure by this road.

The return tonnage may be estimated at 25,000 tons, and passengers both ways at sixty thousand per annum. The increase after the first year can be readily calculated by data furnished by other railways, alike favorably located for trade and travel.

Such is the favorable location of this line of railroad, and the fertility, productiveness, and increasing prosperity and population of the region through which it passes, that each section from Elizabethtown to Belvidere, as completed and opened for use, will certainly pay an interest of at least seven per centum on the cost of that part of it brought into use, while the other portion is in progress.

It is to be observed, that this route, from its location, and the facilities which it will afford for the purpose will in all probability be selected to carry the mail for the different post offices on its line.

The above calculations have been made upon the idea that the railroad from Elizabethtown should terminate at Belvidere; but it is not so intended; it is meant to form a part of the continuous line of railroad from the Atlantic board to Lake Erie, and to bear to market the immense trade that will pass on this route from the far West, and from the fertile valleys of the Susquehanna, the Chemung, the Genesee and the Allegany; and the Southern tier of Counties of New-York, the anthracite of Luzerne, and the bituminous coal of Bradford and Tioga Counties. It will connect with the Susquehanna and Delaware Railroad, at Belvidere, thence through the Delaware Water Gap, Stroudsburg, the Valley of the Roaring Brook to the Lackawanna at Centerville, thence down the Lackawanna to Pittston, on the Susquehanna. A charter was granted by the legislature of Pennsylvania, by an act, 8d April, 1826, to a Company to make this road. This Company has been incorporated and the route surveyed, and the road commenced, with a capital sufficient to accomplish the work.

The dividends of this Company are limited to twelve per cent. on the amount expended in the completion and improvement of the same; they may purchase and hold one thousand acres of coal land in the townships of Pittston and Providence, in the County of Luzerne. The railroad to be completed in ten years from the 25th January, 1831. The route of this road passes for nearly eighteen miles through a clearly defined coal region, and the last ten miles of it may be considered as one continual coal bed. Besides, it will command the whole coal trade of the Lackawannock valley south of Carbondale. Offers have been made to the Company by several persons of known ability to furnish coal, and place it in the Company's cars, on the railroad, at fifty cents per ton, and it is not doubted that contracts for any quantity can be made for 37½ cents per ton.

The cost of this road from Pittston to Belvidere, seventy-four miles, is estimated by Ephraim Beach at \$624,720 60, and the route admits of the advantageous use of locomotive engines, except in ascending from the Lackawanna valley, where stationary power would be required to overcome about 600 feet; the water of the Roaring Brook will be used for the moving power. At the summit a continued line of level is kept for sixteen miles, and the line is favorable in regard to curves. Captain Beach says in his report, "The scheme is not only practicable, but the object may be effected without encountering any extraordinary difficulties, and at a comparatively reasonable expense."

The coal in this region occurs not in

veins, but in layers and repeated strata, and "the whole is completely underlaid by coal beds," and the quantity is inexhaustible and defies monopoly. Unlike most mining districts, this section of the country abounds in agricultural products, and the soil in the Lackawannock valley is generally fertile, and the beautiful valley of Wyoming, and all the main river lands, are celebrated for their richness and fertility.

At Pittston a choice is presented, to unite with the proposed route of the New-York and Erie Railroad at Binghamton, by the Leggett's Gap Railroad, or at Shepherd's Corner, near Tioga Point, by the Susquehanna Railroad, for both of which liberal charters have been granted by the legislature of Pennsylvania. The latter is the nearest route, and of very easy locomotive grade, not being at any point over two and a half feet per mile, [see Randle and Bennet's report to the Pennsylvania legislature.] and with very favorable curvatures, and can be made at a distance of seventy-five miles at a very moderate expense, less than eight thousand dollars per mile.

It will be thus evident that this route will be extended by the New-York and Erie Railroad to Portland, on Lake Erie, at a distance of 216 miles from the intersection with the York and Erie to Portland, and at an aggregate distance by these lines of 438 miles from the city of New-York, to Portland on Lake Erie, and being 70 miles nearer than by any other practicable route.

If the route of the Susquehanna Railroad should be adopted from Pittston to the New-York line, it will pass within nine miles of the bituminous coal regions of the Counties of Bradford and Tioga, and the course of the Lycoming, which runs into the Western branch of the Susquehanna and the Towanda, which empties into the North branch, and interlock at their summit, afford a very favorable route for a railroad to open a communication with the Elmira and Williamsport Railroad, which will soon be in progress, and will pass on its route the best bituminous coal beds in that country. By this route, and this only, can New-York hope to compete successfully with other markets for the direct trade of nearly 6,000,000 of acres of the most fertile part of her Southern boundaries. By this route, and this only, can the nearest practicable route for an easy locomotive grade, be extended in nearly a direct line from New-York to Lake Erie, accommodating the valleys of the Northern and Western branches of the Susquehanna. By this route, and this only, can the anthracite and bituminous coal be found in sufficient abundance on or in the vicinity of a railroad route, and meet an advantageous or remunerating price, whether transported in the direction of the lakes or the Atlantic; the demand each way will continually increase with the increasing prosperity of the different sections; and it must not be forgotten, that the bituminous coal of the Counties of Bradford and Tioga, and the anthracite of the Southern valley of the Lackawannock can reach New-York and the Northern and Eastern portions of New-Jersey, which abound in iron ore, one hundred miles nearer by this route than by any other practicable route. This route too will be open at all seasons of the year.

It would be useless to attempt to estimate the value of the descending trade of the Susquehanna. It is increasing every year, in a ratio more than proportionate to the increase of the facilities of travel. By an estimate which is supposed to be greatly below the actual amount, it is stated that

at least 200,000 tons of bread stuffs, and other agricultural products and lumber, descend the Susquehannah from within twenty miles of the New-York line annually. The Counties of Luzerne and Lycoming each consume one million of merchandise, and the consumption of Susquehannah, Bradford, Tioga, Wayne, and Pike counties, may be averaged at half a million each. The region through which this continuous line of railroads, from New-York to Tioga Point, will pass, abounds in forests heavily timbered with white and yellow pine, hemlock, curled and birdseye maple, cherry, poplar, &c., &c. Much of the land is rich and fertile, and is fast being brought under culture. The country abounds with fine water power and all the materials for mining operations. If in addition you impart to it the facilities of a railroad, connecting the Lakes with the Atlantic, the water power so abundant and so powerful on this route will be immediately called into action for manufacturing purposes of every kind.

It is a fact which cannot escape the most inattentive, that the trade of the Northern branch of the Susquehannah, and its various tributaries, will, by this route and the Delaware section of the Pennsylvania Canal, or the Delaware and Raritan Canal, reach Philadelphia by a shorter distance than by any other connected line of artificial communication executed or in contemplation; and that the descending and ascending trade of the great West, to and from the cities of Philadelphia and New-York will be necessarily attracted by this route, which will be connected with "the Camden and Amboy" and "the New-Jersey" railroads. In distance, in ease of grade and curvature, adaptation to motive power, and profit, this route affords more inducements for the investment of capital than any other railroad now in progress: and while its profits must increase with the prosperity of the country, its location is protected by the passage of the Delaware Water Gap from all competition, thus enjoying a natural monopoly and all its advantages, without its odium.

{ GARRETT D. WALL, } Committee of the
ISAAC SOUTHWARD, } Board.
JOHN W. BRAY, }

On the Obstruction of Cast Iron Water Pipes, by the formation of Nodules of Oxide of Iron within them. By M. PAYEN.

[Translated for the Journal of the Franklin Institute, by Jos. Wharton, at the request of the Committee on Publications.]

A singular effect has been lately observed to take place by use in cast iron water pipes, in certain cities. The passage of the water becomes gradually obstructed, by the formation of nodules of impure oxide of iron, of a light brown or greenish color, which adhere to the internal surfaces of the pipes.

This subject being one of the greatest importance in connection with the health of cities, and the agriculture of various districts, required an elaborate investigation, which I undertook, and of the results of which the following is a succinct account.

All soluble substances that give an alkaline reaction to water, such as potassa, soda, ammonia, and lime, the carbonates of potassa, of soda, and of ammonia, the borate of soda, and the sub-acetate of lead,

are capable of preventing the oxidation of iron.

The relative proportions of these substances, and of the water, required to produce the effect, varies with the alkaline agent employed, and is also affected by the presence of certain foreign salts; the alkaline agents being the same, the nature and quantity of these salts determine the proportions.

When the quantity of alkaline matter is insufficient, oxidation ensues; but it is remarkable that all the points of the surface are not, in this case, equally oxidized, so that the nodular form of the concretions must be assumed from the beginning. The preserving force is overcome only in places where the continuity of the surface has been interrupted, even although it be by an almost imperceptible division. Thus, for instance, the lines on fibrous iron, and the points where the parts of the iron are separated by foreign bodies, are oftentimes pointed out by traces of greenish oxide, which gradually fill up, while the rest of the surface preserves, for a long time, its metallic aspect; and hence the advantage of an iron as mechanically pure as possible. The points of contact between a connecting pipe, and the sides of a main, or between two pipes, are likewise sufficient to determine the effect.

The following are a few experiments upon these points.

A cylinder of polished iron, immersed in a saturated solution of pure potassa, diluted with 1000 times its volume of water, (the temperature being 59° Fahr.) was preserved untarnished for a long time; but as the carbonic acid of the air gradually weakened the intensity of the alkaline action, signs of oxidation began to exhibit themselves at various points, and became more and more apparent, while the greater part of the surface preserved its lustre after the lapse of a year.

Conical concretions of oxide were gradually formed on the surface of an iron cylinder, when the latter was immersed in water containing 0.02 parts of its volume of a saturated solution of carbonate of soda. The color of these concretions was a greenish brown, which acquired a yellowish cast at their summits, while the base in contact with the metal retained its original greenish brown color. The liquid was not protected from the air.

The same saturated solution being used, but diluted with fifty-nine parts of water, and kept for a year, in an open tube, in contact with polished cylinders of iron, greenish concretions were first formed, which slowly passed round the cylinders, and gradually assumed a beautiful yellow tint, whilst the rest of the surface, even of that part which, by the evaporation of the liquid, was uncovered, preserved its metallic state. In the same circumstances, the iron has been completely preserved from oxidation in water containing 0.023 of a saturated solution of carbonate of soda.

In a saturated solution of chloride of

sodium,* protected from the air, there appeared, on the surface, and, it is to be particularly observed, on the points of contact between several bars of iron, only some protuberances of greenish oxide, the remainder of the surface preserving its metallic lustre after the lapse of a year. In a similar experiment made in contact with the air, the oxidation continued, and assumed the color of rust, beginning with the parts nearest the surface of the liquid.

A solution saturated with marine salt, and carbonate of soda, preserved iron entirely from oxidation, for the same space of time, notwithstanding the presence of atmospheric air, and a crystallization of a part of each of the two salts.

The same solution, diluted with nine volumes of water, afforded concretions of oxide.

In endeavoring to obtain, in accordance with the above experiment, the exact proportions of water, of chloride of sodium, and of carbonate of soda, the most favorable to the formation of local concretions of oxide, I found that a saturated solution of the two last, (the solution being made at the temperature of 59° Fahr.) diluted with seventy-five times its volume of water of the Seine, (see note 3,) and filtered, produced, in less than a minute, an oxidation both on wrought and cast iron. The effect was first shown by the appearance of points of a pale green; in ten minutes' time, the lines were well defined.†

When, in compliance with a suggestion of M. Becquerel, the power of electric conductivity was increased, by bringing, by means of a wire, a fragment of well calcined charcoal into contact with a polished bar of wrought or cast iron—the other circumstances being the same as in the preceding experiment—the greenish protuberances were developed still more rapidly, and in much greater number.

In weak alkaline solutions of the same substances, freed from atmospheric air, oxidation does not ensue.

In those containing atmospheric air, oxidation is arrested when the access of the exterior air is prevented.

When the air of the atmosphere has free access, the concretions nearest the surface pass into a higher state of oxidation, while the greenish oxidation continues, at other parts of the surface, on the points at which it began.‡

The figure of the concretions is sometimes irregularly rounded, sometimes conical, and, at times, variously ramified into winding bands.

* (1) In making a saturated solution of chloride of sodium, in water of the Seine, the liquid suffered a contraction equal to 0.03 of its volume, and disengaged 0.015 of the same volume, of gases contained in the water. The temperature was 59 Fahr., and the pressure 30 inches.

† (2) The chloride of sodium, when present by itself, in small proportions, in water, determines, on the surface of polished iron, local oxidations, which remain greenish colored the longer, and preserve the remainder of the surface the better, accordingly as the iron is farther removed from the surface of the liquid in contact with the air; but these oxidations do not assume the nodular form.

‡ (3) In all the preceding experiments, made with a view to their practical application, the water used

Bars of wrought and cast iron, polished, which have been, for the last four days, immersed in water, that had previously stood in contact with a portion of white marble, in the form of a well washed powder, already exhibit, near the surface of the liquid, points of a greenish oxidation, and rust in a flocculent state.

The following conclusions may be drawn from the preceding facts, and others not mentioned.

1. That all solutions, having a slight alkaline reaction, may, while the general surface is preserved, occasion the formation of local concretions of oxide, at certain points of the surface of iron immersed in them.*

That the general character and rapidity of this process varies with the presence, and according to the proportions, of atmospheric air, and different salts, that may be brought into action, and is further determined by the presence of breaks in the continuity of the surface of the metal immersed, whether these interruptions exist in a single piece, or at the lines of separation between different pieces of iron, or even between the latter and other substances.

3. That acid solutions determine a uniform, and less bulky, oxidation; on copper, both acid and alkaline solutions determine a general oxidation.

Local concretions must then be expected to ensue in wrought or cast iron pipes, when exposed to a current of water slightly saline, and having a feeble alkaline reaction. In such case, it will be necessary either to abandon the use of this metal, or at least to contrive convenient places of access to the pipes, at short distances from each other. In this case, owing to the minute state of division of the particles, and the granular formation of the concretions, the obstruction may be removed by the application of a gentle friction, or by the assistance of a diluted acid, too weak to injure materially the metallic parts.

Note by the Translator.

The general properties developed in this paper, as belonging to all alkaline solutions, are considered by the author to present a new series of electro-chemical actions to the attention of the scientific chemist.

[From the Journal of the Franklin Institute.]

Remarks in relation to some new Concretions, produced artificially on Iron. By M. PAYEN.

In a recent paper, the results of which

was taken from the river Seine, and filtered after its mixture with the alkaline solution, and the subsidence of the precipitate, (which fell in consequence.) The temperature during the experiments varied from 59 to 62.6, and from 68 to 69.8, Fahrenheit. Several of these experiments, repeated with the use of distilled water, gave the same results, when the proportions of the alkaline substance, of the atmospheric air, &c., were the same.

* (4) Wrought and cast iron, half immersed in a weak ammoniacal solution, were preserved, by the vapor of the ammonia mingling with the air above the liquid, during all the variations of temperature through out the year. The solution contained 0.1 of ammonia. All the above mentioned concretions are composed of a mixture of hydrated protoxide and peroxide of iron; the proportion of the latter slowly increases.

have been verified by M. M. Becquerel and Dumas, I made known a method of forming the protoxide and peroxide of iron, in the shape of nodular concretions, on certain points of the surface of iron,* while the remainder of the surface preserves unchanged its metallic state.

An investigation, having its origin in the electro-chemical theory, and the properties of alkaline solutions, has led me to the discovery of another kind of local concretions, produced by a series of still more complicated reactions.

A polished cylinder of soft iron was kept immersed, for a year, in a close vessel, in a solution of sub-acetate of lead, and consequently exposed to the influence of an alkaline reaction; for a short period, no signs of oxidation were observable, but it afterwards became studded with a number of spongy, greyish excrescences, which presented themselves on a line parallel to the axis, (see preceding paper.) The remainder of the surface of the iron preserved, unaltered, its original appearance.

The concretions were made up of small particles, aggregated in the form of a metallic sponge, that presented the appearance and ductility of lead.

A slight friction was sufficient to unite the particles when separated, and to give the mass the brilliancy of that metal.

When flattened together under a slight pressure, and heated in a tube out of contact with the air, they melted, and hardened, on cooling, into a dross, that possessed all the properties of lead.

The liquid itself remained limpid and colorless throughout the year; afterwards, when exposed to the air, it quickly assumed a yellowish brown color, which gradually deepened; it still possessed a feebly alkaline character.

A portion of the liquid being treated with sulphuric acid, acetic acid was developed. Another portion, by the action of a soluble sulphate, gave a precipitate of sulphate of lead, and the supernatant solution had all the properties of the salts of iron.

The tube in which the solution, and the immersed iron, were enclosed, contained, then, evidently, the following substances, present, at the same time, together.

1, sub-acetate of lead; 2, metallic iron; 3, lead, in the form of a concretion; 4, acetate of iron, partly acetate of the peroxide.

It appears to me to follow, from the preceding facts, that, at the points where, by the presence of foreign bodies, and interruptions in the continuity of the surface, the elements of a pile are constituted, the iron is oxidized at the expense of the oxide of lead, the latter metal being revived, and aggregating in concretions, at the same points, while the oxide of iron, united to its equivalent of acetic acid, diffuses itself in the liquid.

By the continuance of the same series of reactions, the volume of the concretions is augmented, while, by the alkaline

reaction of the undecomposed sub-acetate of lead, the rest of the surface of the iron is preserved from oxidation, and is thus enabled to maintain its metallic lustre.

By our advertising columns it will be seen that the magnificent undertaking, the New Orleans and Nashville Railroad, is to be commenced immediately, the first fifty miles being advertised for contract.

The length of the road is 565 3-4 miles, estimated to cost \$10,063,946, including the machinery, depots, water stations, &c.

This estimate is predicated upon a graduation not exceeding ten feet rise per mile towards New Orleans; or twenty feet from it. There will be no curvature less than five thousand feet radius. The rails will weigh not less than forty-five lbs. per yard.

We learn that its projectors have determined to make it one of the most perfect works that the present state of science and art will admit. When completed, the time between Nashville and New Orleans will not exceed thirty-six hours.

This, by facilitating the mails and transit of passengers, will render it, in a commercial point of view, the most important improvement ever projected, and in case of invasion, the South may have a more prompt resource in the western militia,—as cantonments in the vicinity of Nashville, where the abundance of provision and health of the climate are equal to any in the world, can be made for the rendezvous of the Western Army, and when required, transferred to the coast at a single day's notice.

Mr. Ranney, the Chief Engineer, is now on his way to Europe, with a view to make contracts for the delivery of iron, and the examination of the machinery and roads now in use or progress there.

Should the Virginians determine to connect their contemplated James River improvement with this work, we may expect to travel from Washington to New Orleans in four days, with an ease and comfort never before contemplated.—[Globe.]

Mr. Hoffman, the President of the Company, and Mr. Woodruff, one of the directors, and agent of the road, are also in Baltimore, whither they have come for the purpose of examining our railroads, and the machinery connected with them."

ACCIDENT.—As the locomotive on the Paterson Railroad, with a train, composed of transportation and passenger cars, was approaching the depot at Paterson, on Monday evening, an axle of the leading transportation car gave way, which overturned that and the next car, and threw the third off the track. The locomotive and passenger cars remained upon the track uninjured, though the passengers felt a shock by the concussion. Mr. Speer, the conductor of transportation, a very industrious and sober man, was seated on the car at the break, and unfortunately was crushed to death under the load. No other person was injured.—[Gazette.]

G. S. NEWTON, Esq.—We regret to announce the death of this distinguished artist, which took place at Chelsea on the 5th of August. He was in the fortieth year of his age. The London Gazette, in noticing his decease, says that "his talents as an artist are too well known to the public to render it necessary for us now to expatiate on them. In the representation of beauty, in propriety of character, in delicacy and force of expression, in skill in composition, in vigor of effect, in richness of coloring, and in painter-like execution, he has left few, if any, superiors.

DEATH OF MR. SADLER.—The decease of this gentleman is also announced in the London papers. He died in Ireland, about the 29th of July. He distinguished himself within the last eight or ten years by his parliamentary efforts, and also by his writings on political economy. His principal work was an elaborate treatise on "The Law of Population," in two volumes octavo, which was made the subject of one of the strongest, ablest, and bitterest articles that ever appeared in the Edinburgh Review.

Extract of a letter, dated Near Darien, Sept. 1.—I have nothing worth communicating, save the prospects of the Rice Crop. I commenced cutting on the 19th ult. and have about one third of my crop in the barn yard, and it is in most beautiful order, never having had a shower of rain upon it. I shall endeavor to have the first Rice in market this fall, and have no doubt it will sell well.—[Charleston Courier.]

* The preceding paper is the one referred to by the author.—[Translator.]

Fig. 1.

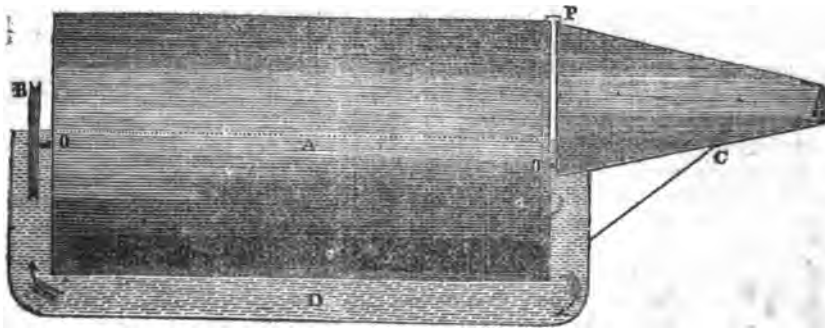


Fig. 2.

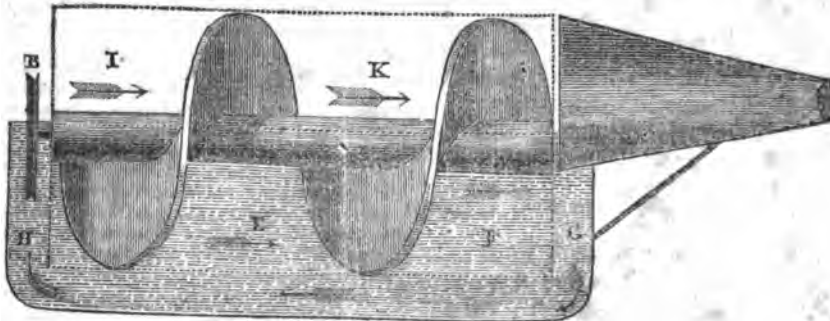
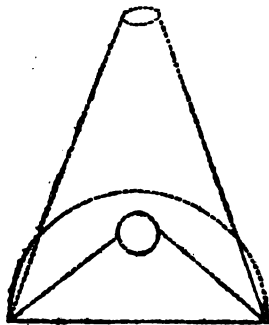


Fig. 3.



[From the London Mechanics' Magazine.]

HYDRAULIC BLAST WHEEL.

In foundries, smithies, and other manufacturing, large quantities of atmospheric air in rapid motion are in constant demand, and a large proportion of the motive power is spent in the supply. The pressure of fluids being equal in all directions, the aggregate amount of force employed in transmitting air by means of bellows, air cylinders with pistons, &c. is very considerable, there being the same pressure on every square inch of the blowing apparatus as on the like space of the orifice through which the air is transmitted.

The accompanying drawings represent a blast wheel lately invented by me, of which the following is a description. I have had a model of it made, and it fully verifies the correctness of my calculations; and in this case the effects must be the same in proportion on a large scale.

Fig. 1. A is a hollow cylinder (the length of twice its diameter,) which is made to revolve on the pivots O by means of a rope or belt acting on the pulley B, or by any other mechanical power. C is a stationary nose or tube, fixed to the side of the oval trough D. The trough is nearly full of water, its level being above the centre of the cylinder A, and of the small cylinder within it, hereafter described. Within the cylinder A is a spiral leaf wound round a cylinder of about $\frac{1}{4}$ th of the diameter of the

external one. The size of the internal cylinder need not be increased in proportion to that of the external. The leaf is soldered to both cylinders, and so rendered airtight; it may be made of the slightest material.

Fig. 2. The water is here seen occupying the lower half of the cylinder and trough, the top being always filled with air. On the wheel's making one revolution, the water in E is conveyed into F; that which was before in F escapes at G, and flows round the side and bottom of the trough, outside the cylinder, to re-enter the latter at H. The air in I (which is continually supplied by atmospheric pressure of 15 lbs. to the square inch) is conveyed to K, and so in proportion for less than a revolution; and the air which was before in K is forced through the pipe at C, to which branch pipes may be attached. A continuous blast of air is thus produced, and may be conveyed to any part of a building. The pressure of the water being equal on all sides, and as it is set in motion by the inclined plane of the screw, but little power is required to keep the wheel going, for the particles of fluids move easily amongst themselves. The trough should be of an oval form. In order that no air may escape between the tube and the cylinder, a small strap of leather is fastened to the tube (which is fixed) to lap over the cylinder at P, fig. 1, and is kept down by a small weight, hung at the corner of each side, thus,



No air, once enclosed or detached from the atmosphere by the end H of the spiral leaf being immersed in the water, can possibly escape but through the nose or tube.

Fig. 3. Transverse sections of both ends of tube; and outline, as seen from its under side.

The wheel may be made of any size required. To ascertain the quantity of air discharged at each revolution: First, find

the whole contents of the cylinder, which we will suppose to be 14 feet in diameter, by first finding the area of the base by multiplying the square of the diameter by .7854; then multiply the area by the length of 28 feet, thus, $14 \times 14 = 196 \times .7854 = 154$ nearly, $\times 28 = 4312$, contents of cylinder. But as it takes two revolutions to empty the cylinder, $4312 \div 2 = 2156$ feet of air and water discharged at each revolution, $2156 \div 2 = 1078$ feet of air less 78 feet for internal cylinder, &c. = 1000 cubic feet of air discharged at every revolution. If the motive power, or the velocity, cannot be easily regulated, a sliding-valve may be made in the side of the tube C.

ALFRED T. J. MARTIN.

Helston, Cornwall, June 6, 1835.

P. S.—Since writing the above, a practical difficulty has been suggested to me, viz. that the pressure of air for smelting should be 2, 3, and even 4 lbs. to the square inch, equal to the pressure of a column of water about 7 feet high. I do not see how this desideratum can be obtained by the foregoing plan; but still the invention may prove useful where large supplies of air are required without any considerable pressure.

Abstract of the Specification of a Patent for a Mode or Machine for making Wrought Nails, Tacks, or Spikes. Granted to WM. C. GRIMES, York, York county, Penn., Dec. 17th, 1834.

To make wrought nails by machinery is an object that has been sought by numerous individuals; hence it may be useful, in order to point out more clearly the novelty in the present plan, to refer to the general principles upon which preceding machines, or processes for that purpose, have been founded.

One of the first, and it is believed, an almost universal principle, that has been observed in previous attempts to make wrought nails, has been to make them from rods that were rolled or slit to the size of the larger part of the body of the nail. To taper, or to give to the nail its requisite form, from such rods, various modes have been essayed; swaging, forging, and rolling, have been tried, but the latter by far the most generally. Modifications of these principles, to effect the object proposed, have been too numerous to be here detailed. But whatever has been the modification of the machine, it has generally embraced or been constructed to operate upon only one of these principles. The novelty of the present machine consists in its being constructed so as to combine several of these principles at the same time, viz. cutting, swaging, or pressing, and forging, or percussion, and to make the novelty more apparent, the nails, &c. are not to be made from rods of the size of the body of the nail, but from broad plates, and these at a red heat. These plates are to be prepared by rolling, after the manner of plates for cut nails, but with this difference—they must be of perfectly sound iron, and two or three times as broad as the length of the intended nail, but of about the same thickness. These plates are to be cut off transversely into pieces, about two-thirds the length of two nails. From the sides of these pieces, or plates,

the nails are to be formed and cut, the length of the nail running with the grain of the iron, or parallel with the length of the original plate. These plates are held, turned over, and the nails cut from the sides or ends of them, in the same manner as is practised in making cut nails, but with this difference—in making cut nails, the plate is either cold, or at what is called a black heat, whilst in my process the plates are to be at a high red heat. In making cut nails, they are cut off with a regular taper from end to end; in this process they are tapered not more than half their length. In making cut nails, the width of the plate is the length of the nail; in this process the plate is cut into lengths transversely, which length forms two nails, by their points overlapping each other. In making cut nails, the first action upon the nail is to sever it from the plate; in this process the nail is nearly formed before it is severed from the plate.

As the plates are cut at a high red heat, they would soon destroy the temper of the steel cutters or dies, if continually applied, as in making cut nails; therefore, to prevent such injury, I cut a few nails in rapid succession, and then allow a short intermission, when the plate is withdrawn, and a jet of water is applied for an instant to the dies, which continue in motion, the plate and the jet of water being applied alternately to the dies.

Two or more of these plates should be in the fire at a time, as only a part of one plate can be cut or formed into nails without re-heating. The plates may be changed in the furnace during the time that the jet of water is let on to the dies.

The water in the pipe that conducts it to the dies should be under considerable head, or pressure, and the starting and stopping the jet may be done in various ways; the valves or cocks may be opened at regular intervals by the machinery, or a treadle may be applied for that purpose.

When the nail is to be formed and cut from the plate, such a portion of the latter as shall be necessary is placed between the jaws or dies, constructed for the purpose, and which are parallel with the end or edge of the plate, for about half or two-thirds of the length of the nail. The remainder of the dies are turned off at a slight angle, running out to the edge of the plate, thus forming the taper or point of the nail; the plate is then turned over, and its opposite side brought into the same position between the jaws, and another nail is cut, the point of which commences at the same point in the plate that the taper began in the preceding nail.

A heavy hammer for striking a head upon the nail is placed in front of the end of the jaws; this hammer is fixed upon the end of an upright rod, or helve, the lower end of which is fixed to a horizontal shaft, furnished with round tenons, or gudgeons, that work in suitable boxes on each side of the frame of the machine. From the side of this shaft, an arm projects, being inclined downwards; this arm may be about one-third of the length of the said helve. A beam or lever,

whose fulcrum is near its centre, lies nearly in a horizontal position, with one end beneath the fly-wheel, and the other above the said short arm, to which it is jointed by a link. A cam on the periphery of the fly-wheel acts upon the end of this lever, or beam, the latter being gradually borne down by it, while the opposite end of the beam rises, and by its aforesaid connection with the hammer, the latter is thrown back to a proper distance; the said cam then terminates abruptly, and by a strong spring the hammer is brought forcibly upon the iron which is to form the head of the nail.

I intend sometimes to form the head upon the nail by pressure, instead of percussion.

Any competent power may be employed to impel the machine.

Machines greatly differing in form, and in the particular arrangement of the respective parts, may be constructed upon the preceding principle to produce similar results, or effect the same end by similar means. I therefore do not intend to limit myself to the particular arrangement herein specified, but to change such form and arrangement as I may think proper, while the principle remains unchanged.

What I claim as new, and as my invention, and for which I ask letters patent, is, 1st. The making or forming wrought nails, tacks, or spikes, from or upon the edges or sides of metallic plates, by pressure and cutting, after the manner, or upon the principle, herein specified.

2d. The manner of severing the plate from the nail, so that a part of the latter is left standing out beyond the end of the jaws as herein before described.

3d. The side jaw by which the plate is gauged, and the nail compressed, and removed from the jaws.

4th. I also claim the general construction and combination of the respective parts of the above described machine, by which general combination it derives that character by which any competent machinist will readily distinguish it from any of the various nail machines heretofore in use.

But I do not claim as my invention the fly-wheel, cams, levers, or any other part of the machine, taken separately and individually; but, as aforesaid, the combination of these parts upon the principle herein fully set forth. Nor do I claim the forming of nails from nail plates, by cutting them with the grain, that having been already done; but in this particular I confine myself to the peculiar manner in which the cutting is effected.

WILLIAM C. GRIMES.

[From the London Mechanics' Magazine.]

EVIL EFFECTS OF THE DIVISION OF LABOR.—In attempting to prove that the minute subdivision of labor has an evil tendency, I am aware that I shall meet with few who will admit the evil to be so extensive as I shall endeavor to point out; and it is very probable I shall be written down by some of the many able correspondents of the *Mechanics' Magazine*. But as the follow-

ing facts are the results of long observation and experience among the working classes, I have resolved to publish them anonymously, in the hope that they will meet the eye of some who may be benefitted by them; and should they be the means of convincing even one, I shall consider myself happy in having brought the subject into notice. I have myself served an apprenticeship to a mechanical profession, and had then ample opportunities of observing the causes that tend to bring about the moral degradation of some of the working classes.

That the division of labor produces a cheaper article, and is a great source of national wealth, I readily admit. I believe were it not for this very cause, Britain would ere this have lost her political status among the nations. Groaning under a load of taxation, which no other nation on earth could have borne, we have been driven into an artificial state of society, and the division of labor with all its attendant evils is one of the results. This is illustrated by the fact that we export machinery to countries where workers are obtained at half the price: and yet these countries are unsuccessful competitors in the same market with the poor tax-eaten British. Our national vanity whispers that this is owing to our superior genius; but I contend that it is our artificial mind-degrading system of dividing labor, which by making individuals do only *one part of a thing*, with mechanical, or rather slight-of-hand, rapidity, enables us to produce a whole as cheap as our foreign brethren.

But the effects of this system upon society is truly deplorable. A poor boy, with very little education, is bound an apprentice for five or seven years, to do one particular act; he commences cheerfully, and in a few weeks can manage it completely; the only difference between him and a journeyman being that he takes twice the time. He is now doomed through life to be a mere *machine*; all the delight he felt in learning his trade is over; he has no more mental work to perform, and he goes on from day to day with his monotonous task without excitement of any kind, save the temporary one of the gin-shop: there, amongst the rudest ribaldry and mirth, he is exhilarated and comparatively happy. Next day he returns to his labor in the most melancholy and discontented mood, and hastens on with his work to procure the means for "a hair of the dog that bit him." In short, as his profession does not exercise his intellect at all, he cannot fail to indulge in what he thinks his only pleasure. Let us suppose this to be continued until he reaches man's years, when the effect will be seen in an intellect, blunted, and quite useless from inaction. For we know well, that the thinking, like the physical, part of the man, is either perfectly or imperfectly developed—by proper or improper exercise. This man's brain is unexercised, nay, it is diseased; he has acquired a sensual and ungovernable appetite for the drug that enfeebles, and still continues to enfeebles, both his mind and body, and he is in such a morbid state, that all his efforts to reform or improve his mind are ineffectual. He tries *Mechanics' Institutions*, and all the other schemes for improving the working classes, but to no purpose; his mind, from want of habit, cannot follow the lecturer; he gets inattentive—sleeps—and loses the thread of the subject; repeats his visits for a night or two, perhaps, and the lectures get to him "the longer the drier," until he quits in disgust, what might, under other circumstances, have been a source of enjoyment to him. When such a character

enters into the solemn engagements of matrimony, his previous habits and badly regulated mind ill qualify him for the various duties of husband or father; he brings into the world a few squalid, degenerated wretches, and by his brutal conduct, drives his well-disposed partner to that temple of infamy the gin-shop, for the melancholy purpose of "drowning her cares." I will not disgust the reader by dwelling upon the united effects of their example on their thus hereditarily vicious offspring. The wretched man continues to work and drink alternately, until he reaches the workhouse if in England, and beggary and crime if in Scotland: a poor grumbling, discontented, shameless pauper, both unable and unwilling to work; for the man who has spent twenty years of his life sharpening pin-points, or guiding a self-acting turning machine, has not physical strength to handle a spade or round hammer, even if he had not been previously wasted by dissipation. This is not an exaggerated picture; the melancholy details of evidence brought before the Factory Commission furnish multitudes of such instances. It is not the long hours, however, that is the sole cause of this evil I maintain: it is the division of labor that is the root of the evil, which I shall endeavor to illustrate by another example, *not ideal*, but like the former, *real*: and the writer has many characters under his own eye, of both kinds, to choose from.

In Scotland, some ten or twelve years ago, the division of labor was not (and is not even now) carried to the extent that it is in England, and consequently the working classes have a higher moral character, which is commonly ascribed to education, and a modern training. This is the case in a very few instances; by far the greater number of the Scotch mechanics and operatives receive a very limited education. When they are sent off to a trade, they can half read, and perhaps make shift to write the letters of their own name—but the difference rests here; the Scotch mechanic has to do a great variety of jobs, not one of which he can do so quickly as the expert Englishman.

As an instance: About twelve or fourteen years ago, an engine-maker had to learn to make a tolerable good pattern; he had to turn both iron and wood, to fit up, put together, and attach the engine to the factory; he had thoroughly to understand drawings, and in many cases had to draw himself. The reader will readily imagine, that this must be a clumsy "Jack of all trades;" this is not the case however,—he is a slow, but a good workman. Suppose exactly such a boy as we took in the former case, bound apprentice to this trade for seven years: for one year he is allowed to run loose about the work, he is every "body's body," runs messages, creeps into holes to do jobs which men cannot reach. By the end of the year, he has acquired a very rude general notion of the whole work, but can do little or nothing with his hands. He is now stationed at a bench, and from making simple articles, comes on with great satisfaction to himself to make good patterns; he then wearies, because he thinks himself master of the subject; having little mental work to perform, he is now in great danger of going astray, but happily for himself he is shifted to another department, upon which he enters with great spirit, and feels with intense delight, as bit by bit he masters the various tasks put before him. His brain thus stimulated and exercised, a thirst for knowledge is created, and he is driven in search of food for his

mind to a Mechanics' Institution, where he hears and sees, for the first time, the astonishing fact, that the water he drinks is composed of two gases that burn. This leads him to endeavor to read, that he may learn more of the matter, but he finds he cannot do it so quickly as he would like; he then sets to work with good will, goes to an evening-school, and his mind being in an excellent state for receiving instruction, he makes most rapid progress. I need not trace him farther—here is a useful and promising member of society, who himself enjoys life and all its blessings. A few such (according to the strength of their intellect) turn out eminent men—the rest are scattered over the earth in the shape of managers, superintendents, and foremen, of flourishing works; and it is worthy of remark, that in all the large manufacturing towns in England you find a large proportion of Scotchmen doing the intellectual work of large mechanical establishments. This does not arise (as Sandy's vanity always suggests) from a "national superiority." John's head is just as good as his, as is seen in every case where there has been the same chance of getting the organs developed. I regret to state that the baneful system of dividing labor is fast spreading in Scotland, and the moral degradation attending it cannot be denied by the most ardent admirers of the religion and morality of that country. It must not be supposed that the character I have last attempted to describe has been exempt from temptation. No, he has kept company with the drunken and the dissolute (of which there must be a large proportion in every society;) but his mind having been properly set to work, he soon calculated the amount of real pleasure or pain to be derived from seeking after knowledge, or from a course of profligacy. Nor must I be understood as assuming that all are depraved who labor at one particular object all their lives, for there are some minds that naturally resist the influence of such causes; but the number of the good bears a small proportion to the bad in countries where this vicious system is carried to great extent. There is another demoralising effect yet to be noticed, which I shall endeavor to do as briefly as possible. An improvement in machinery often turns hundreds adrift upon society, who having spent the best part of their lives in some such trifling work as heading pins, are too old to learn another business, and for reasons already mentioned they cannot do out-door work; their minds being untutored, they do not make a very vigorous effort to do their best at a new job, well knowing that they will not be allowed to starve in England. In many, very many cases, such men direct their blind rage to the breaking of machinery, not only the machine which superseded them, but machinery of all kinds; in short, a large proportion of the seditious, the incendiaries, the swinge, machine-breakers, &c. which disturb the peace of society, are division-of-labor people, thrown out of work, and who have neither physical nor mental strength left to turn themselves to another decent employment, seeing that the few that do so are scarcely fit to earn sufficient to support a miserable existence.

It is common enough to hear the *lordly* aristocrat, or wealthy man of business, express their *disgust* in such unmeasured terms, as the "beastly multitude," the "canaille," the "scum of the earth," &c., and grumble loudly at the overwhelming poor-rates. Let them examine themselves carefully, and see that they be not aiders and abettors of such infamy. Let them re-

member, that the cause of this evil is *over-taxation* (and every one who directly, or indirectly, robs the public purse, is to blame for perpetuating the evil,) and not turn away in disgust from his fellow-being whom he has already injured.

We take some trouble to educate the lower animals, and if some of these our humble servants are not so tractable as could be wished, we do not vent our anger upon them, but upon their trainers. Why, then, should the higher classes *spurn* the poor, misled, untrained mechanic, whose labor has perhaps enriched them? It were a wiser course, and a way to root out the evil, were they to set on foot a proper plan of national education, inquire into, and amend, some of the absurd apprenticeship laws, and put the rising generation in the way of acquiring more than one branch of a business, in order that their minds may be so far exercised as to make them good members of society, instead of converting them into *mere machines* for the acquisition of wealth. We see the good effects produced in the middle classes by education. Why, then, should a large proportion of our fellow-creatures be allowed, or rather doomed, to remain in a state of darkness? I trust these remarks will be followed out by some of your abler correspondents at some future period. I am afraid I have already occupied too much of your valuable space. L.

May 4, 1835.

FRANKLIN INSTITUTE.—The seventh conversation meeting of the Institute, for the season, was held at their Hall April 23d, 1835.

Mr. Thomas Ewbank, of New-York, exhibited a series of experiments on the rarefaction produced in the air within a tube, by blowing through another tube inserted into the first; the tubes were variously connected, and proportioned in dimensions, and the degree of rarefaction produced in each was measured by the rise of a column of water into the tube.

Mr. Ewbank showed that this principle might be applied conveniently to syphons, the flow of water through them being commenced by blowing through a lateral tube. He also exhibited a syphon, the shorter leg of which terminated in a tube, widening as it receded from the bend, and which was filled by stopping the longer leg with the finger, and immersing the other leg of the syphon in a liquid; on the removal of the finger, the momentum of the liquid carried it up the shorter leg, passing the bend.

Messrs. Lehman & Duval, of Philadelphia, exhibited various specimens of lithography, drawn and printed at their establishment.

Professor W. R. Johnson showed an apparatus intended to illustrate the principle upon which rockets ascend, and to show that such ascent might take place in vacuo, and, therefore, could not be produced by the reaction of the gas, issuing from the rocket upon the air without. The apparatus consisted of two revolving arms, with opposite apertures, like those of Barker's mill; this was placed in an exhausted receiver, and set in motion by admitting air through the apertures into the receiver. The arms were furnished with broad wings, presenting a large surface to resist the motion through air. The velocity was perceived to be greater as the vacuum was more perfect.

THE COMET.—We understand that Professor Anderson, of Columbia College, has seen the comet several times, and traced its path.

[From the Scientific Tracts.]

A LETTER TO DR. FRANKLIN, BY A SEAMAN, MANY YEARS AGO.—I have often wished that somebody would carefully collate a sufficient number of meteorological journals, with intent to observe and class the several appearances in the atmosphere before great changes in the weather, particularly before great storms. I am persuaded, from my own observation, that, in general, sufficient indications of impending tempests precede them a considerable time, did we but carefully note them.

The phenomenon which I am going to mention, is one of those indications which not only portend an approaching tempest, but ascertain from what quarter it will come: a circumstance that may render it of essential service to seamen. I believe the observation is new, that the aurora borealis is constantly succeeded by hard southerly or south-west winds, attended with hazy weather, and small rain. I think I am warranted from experience to say, constantly; for in twenty-three instances that have occurred since I first made the observation, it has invariably obtained. However, I beg leave to request that you will recommend it to the notice of the Royal Society, as a matter which, when confirmed by further observations, and generally known, may be of more consequence than at first appears. To show that it may, give me leave to recite the circumstance which first occasioned my taking notice of it. Sailing down the English Channel in 1769, a few days before the autumnal equinox, we had a remarkably bright and vivid aurora the whole night. In shore, the wind fluctuating between N. N. W. and N. W., and farther out W. N. W.; desirous of benefitting by the land wind, and also of taking advantage of an earlier ebb tide, I dispensed with the good old marine adage, "Never to approach too near a weather-shore, lest it should prove a lee shore," and by short tacks clung close along the English coast. Next day the wind veered to the S. W., and soon after to S. S. W. and sometimes W. We were then in that dangerous bay between Portland and the Start Point, and carried a pressing sail, with hopes of reaching Torbay before dark; but night came on, with thick haze and small rain, insomuch that we could not have seen the land at the distance of a ship's length. The gale was now increased to a storm: in this dilemma nothing remained but to endeavor to keep off the shore till the wind should change. Luckily, our ship was a stout one, and well rigged.

Reflecting, some time after, on the circumstances of this storm, and the phenomena that preceded it, I determined to have particular attention to future auroræ, and the weather that should succeed them; and, as I observed above, in twenty-three instances have found them uniform, except in degree; the gale generally commencing between twenty-four and thirty hours after the first appearance of the auroræ. More time and observation will probably discover whether the

strength of the succeeding gale is proportionate to the splendor and vivacity of the aurora, and the distance of time between them. I only suspect that the more brilliant and active the first is, the sooner will the latter occur, be more violent, but of shorter duration, than when the light is languid and dull. Perhaps, too, the color of the aurora may be some guide in forming a judgment of the coming gale. That which preceded the storm I have mentioned, was exceedingly splendid. The tempest succeeded it in less than twenty-four hours, was violent, but of short continuance. In June last, a little without soundings, we had for two nights following faint inactive auroræ; the consequent gale was not hard, but lasted nearly three days; the first day attended with haze and small rain, the second with haze only, and the last day clear.

The benefit which this observation on the aurora borealis, when further confirmed, may be to seamen, is obvious, in navigating near coasts which extend east and west, particularly in the British Channel. They may, when warned by this phenomenon, get into port, and evade the impending storm; or, by stretching to the southward, facilitate their passage by that very storm which might otherwise have destroyed them; for no winds are so dangerous in the Channel as the southerly and south-west. In a word, since I have made this observation, I have got out of the Channel, when other men, as alert, and in faster sailing ships, but unapprized of this circumstance, have not only been driven back, but with difficulty have escaped shipwreck.

Perhaps the observation, that southerly gales constantly succeed these phenomena, may help to account for the nature of aurora borealis. My own thoughts on that subject I shall sometime beg leave to lay before you. J. S. WINN.

[From the same.]

CONTACT OF COMETS.—In the course of a lecture on comets, delivered at the Royal Institution, by Dr. Lardner, on Friday evening, the 1st of May, the lecturer took occasion to allude to a report which has been going the rounds of the newspapers, purporting to come from Sir John Herschel, to the effect that Halley's comet, which is expected to make its appearance in the course of the present year, had long since changed its course, and now revolved in another orbit. Dr. L. observed, that Sir J. Herschel had not any means of ascertaining such a change, other than those possessed by any other astronomer; and he was of opinion that the paragraph was either a fiction, or else greatly exaggerated, exemplifying the story of the three black crows. There are only two circumstances from the occurrence of which the orbit of a comet can be changed. In its course it may meet with a planet, the attraction of which may be sufficient to produce such an alteration, or it may cross the path of another comet, and either coalesce with it, or be acted on so as to produce that effect. Sir J. Herschel, however, has no

means of ascertaining that either of these circumstances has occurred in the present instance, and Dr. L. sees no reason to doubt that the comet will make its appearance.

In the course of the lecture, Dr. Lardner mentioned a curious fact relating to the splendid comet which appeared in June 1770, and was observed by Messier, surnamed by Louis XIV. the *comet ferret*. It passed within the orbit of Jupiter, and was visible in an unusually large part of its course, which was very carefully observed and noted. Messier not being a mathematician, Lexon computed the observations, and laid down its path. He at first considered its course was a parabola, but not being able to compute it correctly according to that supposition, he examined further and ascertained that its orbit was an ellipse, and its course would be completed in about five years and a half. Considerable attention was excited on this occasion, and its re-appearance anxiously looked for; the time passed, however, and the comet did not make its appearance, nor could any account of any previous visit be discovered.

This fact proved a complete problem until Laplace grappled with it; and he ascertained by accurate investigation, that this comet of 1770, during its course, on the 18th of January, 1767, at noon, came in contact with the planet Jupiter, and remained entangled for about six months. Previous to this it described an orbit of fifty years, but the new orbit in which it revolved after its contact with Jupiter, was one of five years and a half. In this manner Laplace accounted for its non-appearance previous to 1770, inasmuch as previous to that date its path was so distant as to render it invisible. The explanation given for its non-recurrence was equally feasible. Jupiter runs its course in eleven years, and this comet in its new orbit completed its revolution in five and a half. At the end, therefore, of the first five years and a half, the planet Jupiter being then at a great distance, the comet should have been seen, but it so happened that at that time the earth was in such a position with regard to the sun, as to render it invisible. When the period approached for the completion of its second revolution, it was again met by the planet Jupiter, and again its orbit was changed. The ellipse into which it was thrown this time was one of 20 years, and its path was so distant as to render it again invisible.

From Charleston, by the steamboat, we have papers of Saturday afternoon. The Patriot of that day has this article respecting the *Stranger's fever*, or, as called here and elsewhere, the *Yellow fever*, which has broken out in that city:

HEALTH OF THE CITY.—It will be perceived from the Report of the Board of Health, that there have occurred but seven deaths from the *Stranger's Fever*, from the 17th of August to the 7th instant. This is a very small number for the season in which this form of disease usually prevails in our city, and we understand that such is the mild character of the prevailing fever, that it is perfectly manageable with care and skilful treatment, as is always the case when it appears after the middle of August.

[From the Apprentice's Companion.]

The following excellent article on Female Education is from the "American Annals of Education"; and, although it is not addressed to "Apprentices," it may be of use to them to know how to select—for most of you will probably desire to select, when in a situation, a companion for life.

A mechanic, above all other men, ought to have an industrious, prudent, and economical wife—she should not only know how to govern her family, but also to govern herself. She, above all women, should feel and know that home, rather than the streets and neighbors, is her proper place. If therefore you would have such a companion, seek not for her where the mother is a fashionable, or one who spends more time from, than at, home.

FEMALE EDUCATION.

Domestic Habits.—In advising as to the course of early female education, I have insisted on the necessity of cultivating, in childhood, the habits of Temperance, Order, Activity, Industry, and Self-command, as essential to the health, happiness, and usefulness of woman.

There is another branch of female education of the first importance which involves many particulars, but may be termed the preparation for domestic life. This involves both habit and skill in domestic employments.

We must begin with forming domestic habits. No quality is more essential to the dignity of the female character; and without it there will never be patience in the acquisition of domestic skill. On the other hand, the domestic disposition is best cultivated by giving domestic employments. Useless objects and occupations soon tire us. Splendid furniture and ornaments, and mere amusements, produce a weariness, from which there is no escape, but by perpetual change. On this plan, how many families are made, not automats, unfortunately, but locomotives, active only in vain and mischievous efforts for "some new things." As capable of happiness as their neighbors, they have never learned the true mode of enjoying it. They promenade the streets; they wander from shop to shop, from house to house, from street to street, gathering every subject for vanity or trifling, every secret or witticism, or report, they can find, to enlarge their supply of occupation for idle hours. Such "busy-bodies" always leave their own duties, undone, or ill-done; and the habit of neglecting their own concerns necessarily leads them to occupy themselves with the affairs of others, and to interrupt them in their occupations, or interfere with their peace.

Let the daughter then be guarded against this pernicious fault. Let her be trained to feel, that her first great duty, when not engaged in the acquisition of useful knowledge, is at home—that she is her mother's natural assistant or substitute, in the care of the nursery, and the family. When she has well-learned the lesson of obedience and self-command, she may safely be entrusted with the direction of the other children, but not till then. Under the direction of her mother, she may, in this way, complete her course of training in self-government, and learn to imitate her heavenly father, who is "kind even to the evil and unthankful."

But she must also learn in the nursery

that peculiar duty of woman, —the care of the feeble and the sick. Every family, and every child, are every day liable to accident and disease. Nothing in the nursery is so important as habitual care to prevent disease, and to relieve pain, or remove the cause at once, when it occurs. More can be accomplished to secure the health of children by the faithful, interested nurse, always present, than by the absent physician, however skillful, in occasional visits, which often prove too late to remedy the evil. This office, the elder sisters, and each of them, as they grow up, should be taught and accustomed to fill. For this purpose, she must acquire, not merely skill in watching and providing for the wants of her charge: presence of mind, gentleness of disposition, combined with firmness of resolution, are indispensable to the good nurse. These must, therefore, be cultivated and matured by constant practice. Daughters who are not trained in this manner can never be safely entrusted with the health of a family. Poor and pitiable matrons—still poorer and more pitiable, their companions, and their families!

But the nursery is not the only place for domestic duties and skill. Humble as the theme is, we cannot complete our view of female education without descending to the kitchen; for the table of the king himself must be furnished from it, and even the health of the family depends upon its right management. Order, and skill, and vigilance, must begin there, or comfort can never inhabit the house. She who governs it must learn in the only way possible—by acquiring practical skill in all that is to be done. This is an every-day business, not to be accomplished by one great effort, or by some wonderful plan, but by the regular, returning care of a directing eye, and a skillful hand. The mistress of a house becomes a pitiable cypher, if she has not the practical knowledge to direct the when, and the where, and the how, of every thing that concerns her family affairs; and she can learn this only by experience. Respect is paid to authority, only when those who exert it know how to give directions in the right time, and the right manner.

Let the daughter, then, as much as possible, learn every part of household duty, practically. It was a wise step in a circle of ladies in one of our cities, to finish the education of their daughters in a cookery school. They attended punctually, and daily, for a certain number of hours, long enough to give them a competent and practical knowledge of the arts and the economy of the kitchen. Their works praised them; and the convenience and pleasure of a well regulated, economical, and healthy table was the reward of their efforts. Regularity and order prevailed in every department of the house, because the whole was directed with intelligence and skill. The incessant causes of scolding, and fretfulness, and discontent, were in a great measure removed, by the training which not only gave these matrons habits of industry and self-command for themselves, but taught them how to direct the employments of others with regularity and success.

In visiting the house of Mrs. —, every one is ready to ask, "How could you bring your family to this regular, quiet, pleasant state?" The simple answer is, "by understanding what every one ought to do, and how it ought to be done, by beginning right and persevering in the right course, until every one knew her duties, and could do them well." A course of actions will form a habit; and habit, we know, is second nature. In this way, hard

things become easy, and labor pleasant. Idleness will be at length painful, and fretfulness intolerable. It will be easier to do right, than to resist the steady current of order in the family; and every disturber of the peace will be frowned upon, as an enemy of the whole.

And while I am urging this duty, I cannot help alluding to the sad neglect of it in modern days. What is to be the history of the rising generation? Must it be told in language like this?

"Fashion and accomplishments, and amusements, and unnecessary display in literature and science, absorbed the whole time of the females of this period. Domestic cares and virtue seem to have descended to the tomb with their grandames, or to be consigned with their pictures to the garret. Their domestic skill was lost, and their domestic habits forgotten or despised; and when the tale was told by some relic of former days, or appealed to as an example, it was only met with a suppressed smile at such antiquated notions, or an open scoff at those who busied themselves at home in ignorance, or submitted to be slaves to their husbands and children. The immediate consequences were such as might be anticipated. The wealth which industry abroad and frugality at home had accumulated, was scattered by indolence and ignorance, and prodigal expense. The noble dwellings which it had raised and furnished, were sold to pay the debts of extravagance, or pulled down to make way for others, which soon shared the same fate. Many a mechanic, who grew rich by the obsolete virtues of industry and economy, occupied the splendid house of those who looked down upon him, and despised his virtues; and his daughters held the first station in society, while those of his employer might be found in some obscure corner, with little to cover them but worn-out finery, and apparently with little to sustain them but their pride in what they had been. Nay, the domestic was often to be seen taking the place of his master, and occupying the station from which his children had fallen, by the neglect of forming domestic and industrious habits in their education."

Whether this shall be the record of the whole generation or not, such is, unhappily, the history of many a family, and is likely to be that of many more. Perhaps I shall not even obtain a hearing from those who have already begun this course. The whirlpool seldom permits any to escape who have once entered, even its margin. But those who are approaching it may, perhaps, hear me; and I warn them, that they guard against its powerful current before it is too late; for I have witnessed more examples than I can mention, of its ruinous effects.

I am aware that economy and its attendant train of minor virtues are old fashioned matters. They are found in here and there a family; but the very names seem rather to belong to the dictionaries of the last century. But there is a section in an old book, too seldom studied—the last counsel of a wise man—which recommends them; and as it describes particularly the virtues and the defects of women, it ought to be often read by mothers and daughters. Although not new, its very antiquity, I trust, will give it authority with most readers; and in addition to other salutary truths, they will learn that in female education, and in female duties above all things, "the fear of God is the beginning of wisdom." SENEX.

NEW-YORK AMERICAN.

SEPTEMBER 12—18, 1835.

EUROPEAN INTELLIGENCE.

LATEST FROM EUROPE.—By the packet ship United States from Liverpool, London papers to the 8th ultimo inclusive are received. Ours not having come to hand as yet, we are indebted to the office of the Gazette for the latest papers.

In England, the main topic is the Municipal Corporation Bill, under discussion in the Lords, where it was apprehended it might be thrown out—such apprehension, the Times however, pronounces unfounded.

The Paris papers of the 6th are filled with details of the funeral of the victims of the attempt to assassinate the King. We extract from Galignani a full account. Great care was taken to arrange the line of march, so that the royal family, in attending the procession, should not pass within shot of any dwelling. The gardens of the Tuilleries, through which they passed to join the procession on the *Place Louis XV*, were cleared of all visitors, and thence to the *Invalides*, the only building to be approached near by was the Hall of the Deputies. On the day succeeding the funeral the royal family went to return thanks at *Notre Dame*, for their escape from assassination. As that church is in the heart of the *Cité*, (the island so called,) and only approachable through narrow and densely populated streets, the royal family went in close carriages, strongly escorted by a detachment of lancers, and proceeding at full gallop. No accident of any sort occurred, and the royal family returned in safety.

In the sitting of the Chamber, M. Persil, after a prefatory speech from the Duc de Broglie, developed the new measures for restricting the press. A full report of them will be found below.

To publish anything offensive to the King, or attacking the principle or form of his government, is declared an *attentat*, or treasonable attempt against the State, and becomes thereby liable to be brought before the Court of Peers. The penalty may be perpetual imprisonment, and a fine of 2,000*l.* sterling. To deride the King or his authority may be punished with from six months to five years imprisonment, and with from 20*l.* to 400*l.* fine. The public declaration of Carlist or Republicanism is punished similarly with the last offence.

Every *gerant*, or responsible editor must, on being questioned, divulge the name of the author of any article. He must insert any answer or contradiction which the Government may think fit. He cannot be responsible editor after condemnation.—For infraction of these laws he is amenable, not to the Jury, but to the Correctional Police. The censorship is re-established for prints, lithographic emblems, and theatrical pieces.

The vote of the jury is to be secret; and the names of jurymen are not to be published by any journal. The verdict is returned by a bare majority; viz., of seven votes.

A person condemned to deportation may be sent to any house of detention beyond the limits of France. This clause is introduced for those about to be condemned by the Court of Peers, who will probably be sent to the African coast. The final judgment of the Lyons prisoners is expected in the course of the ensuing week. Notwithstanding rumors to the contrary, no sentence has yet been passed.

TEXT OF THE BILL.

"CHAP. I. Crimes, Offences, and Misdemeanors, by means of the Press, or any other mode of Publication.

"ART. 1. Every offence against the person of the King, whether by one of the means mentioned in article 1 of the Law of 17th May, 1819, or any other mode of publication, is an attempt against the safety of the State. Whoever shall be found guilty of the same, shall be punished with detention, and a fine varying from 10,000 francs to 50,000 francs.

"ART. 2. Whoever shall by the same means have endeavored to turn into ridicule the person and authority of the King, shall be condemned to

imprisonment for a term varying from six months to five years, and to a fine varying from 500 to 10,000 francs. The offender shall, moreover, be deprived of the whole or part of the rights mentioned in Article 42 of the penal code, for the entire duration of his penalty, and for a term equal to that of the imprisonment to which he may have been condemned.

"ART. 3. In discussing the acts of Government, it is forbidden to introduce the name of the King, either directly, indirectly, or by allusion. The author of an offence herein shall be punished with imprisonment, for a term varying from one month to one year, and with a fine varying from 500 to 5,000 francs.

"ART. 4. Any attack by one of the same means against the principle and the form of the King's Government, as established by the constitutional charter of 1830; any direct or indirect provocation to change them, is an attempt against the safety of the State. Whoever shall be found guilty of it shall be punished with detention, and a fine varying from 10,000 to 50,000 francs.

"ART. 5. Whoever shall have publicly manifested his adhesion to another form of government, either by assuming the qualification of a Republican, or by expressing a wish, hope, or threat, for the destruction of the monarchical or constitutional order, shall be condemned to imprisonment for a term varying from six months to five years, and to a fine varying from 500*fr.* to 10,000*fr.*

"ART. 6. Whoever shall have publicly attributed the right to the throne of France, either to one of the Members of the family condemned to perpetual exile by the law of the 10th April, 1832, or to any other than Louis Philippe I. and his descendants; whoever shall have expressed a wish, hope, or threat for the restoration of the fallen Government, shall be condemned to imprisonment for a term varying from six months to five years, and to a fine varying from 500*fr.* to 10,000*fr.*"

The Minister of War proposed to the Chamber, amid unanimous acclamations, a pension of 20,000*fr.* to the widow of Marshal Mortier, with reversion to her son—of 6,000*fr.* to the widow of Gen. Verigny, with reversion to her children—of 3,000*fr.* to the mother of Captain Villatte—and of 3,000*fr.*, in addition to his half pay, to Gen. Blin, the only one of the four officers named, who survived his wounds.

M. Carrel, and other editors who had been arrested in the first ebullition of resentment, had been liberated after an insignificant interrogatory.

Gerard the assassin, or, as his name is now ascertained to be, Fieschi, was recovering from the effects of his wounds. Nothing has been discovered to inculpate, or connect, others in the attempted assassination.

[From Galignani's Messenger.]

FUNERAL OF THE VICTIMS OF JULY 28.—The sad solemnity by which it was intended to close the fatal and deplorable tragedy that so cruelly interrupted the rejoicings of last week, being appointed for yesterday—the day fixed upon for the interment of the murdered victims—every part of the metropolis began at a very early hour in the morning to display the bustle of preparation for the melancholy ceremony. Crowds were seen pressing from all quarters to every point which promised to command a view of the mournful procession, while numerous groups of General Officers, National guards, and detachments of the line, were encountered, crossing each other in every direction, hastening to the post assigned them in the performance of the solemn duties of the day. The National Guards were in immense force—not only those of the capital, but corps from all the towns, villages, and hamlets in the environs, were in attendance; some had even sent detachments from a distance of upwards of 30 miles. These brave citizen troops, always the firmest friends of public order, and never backward when their services are really required seem to have felt the necessity of manifesting their detestation of the late atrocious crime, and its abettors, should any such monsters exist, by this significant expression of their sympathy with the sufferers.

The shops of the capital were, with scarcely an exception, entirely closed, not only in the line of the procession, but in the remotest parts of the town; fine, nothing was omitted which could mark a respectful sympathy of the public at large

with the sorrowful occasion. The line of the Boulevards was, as usual, the great point of attraction, and their entire extent, from the Place de la Bastille to the Church of the Madeleine, was crowded with spectators; balconies, windows, trees, and temporary stands, wherever accommodation could be afforded, or a human form be placed, not a spot was untenanted by an anxious though a silent gazer upon the solemnly gorgeous pageant. At precisely half-past 8, the remains of each victim was removed from the *chapelle ardente* in the church of St. Paul, where they had lain in state since Saturday last, and placed in their respective hearses. This task being completed, the sad procession moved onward. Three mourning coaches, in which were the clergy of the church of St. Paul, preceded the first hearse, in which was the body of Mademoiselle Remy, who met her untimely fate at the age of 14. The effect of this simple bier was most touching; it was ornamented with entire white draperies, and drawn by two beautiful snow-white horses; twelve young girls, veiled, and also dressed in white, attended as pall-bearers, and the remains were followed by the relatives and friends of the deceased.

At the moment the procession first advanced the awful silence created by the sight upon the thousands, or rather hundreds of thousands, who crowded every dwelling from the roof to the pavement, in the populous rue St. Antoine, and the visible expression of sorrow in every countenance, was a sublime protest on the part of the people against the base and cowardly assassination which had hurried so many victims to a bloody and untimely grave. The next hearses in succession were those of M. Labrousse, receiver of taxes of the 7th arrondissement; M. Brunot and M. Ingland, spinners of yarn; and M. Ardouin, a workman. Next came those of Messrs. Benester, Leger, and Ricard, grenadiers of the 8th Legion of the National Guards, and M. Prudhomme, sergeant of the same Legion. The pall-bearers were their comrades of the 8th Legion.

The pall-bearers of Captain Villatte were officers of the army; those of Colonel Raffie, officers of the Municipal Guards and the departmental Gendarmery; those of Colonel Rieussee, of the 8th Legion, were four officers of the National Guards; those of Major-General Delachasse de Verigny, four superior officers of the army; and those of Marshal Mortier were Marshals Grouchy, Gerard, and Molitor, and Admiral Duperré. All the hearses of the military men were surrounded by tricolored flags and military emblems, and became gradually more handsome according to their rank. The horses of the last five, each led by two grooms, followed their respective masters, the first four being covered with black crape and white fringe, and that of Marshal Mortier with crape powdered with silver stars, and edged with silver fringe. The pall on each coffin bore an escutcheon with the initials of the deceased; that of M. de Verigny was surmounted by a coronet. The hearse which covered the remains of Marshal Mortier was, of course, as becoming the princely rank of the deceased, of a much more magnificent description than the others. It would, in truth, be difficult to conceive a funeral car of construction at once so richly gorgeous in its effect, and yet so solemnly appropriate to its melancholy purpose. Four large allegorical figures in silver raised upon a massive ornament of the same metal, the whole surrounded by a silver casque with rich sable plumes, composed the crown of the car, each corner of which was formed of a female figure, emblematic, as were those of the central superior ornament, of the Christian virtues. These figures, also in silver, were likewise each surmounted by a casque and large sable plumes.

Several tricolored flags were placed at various points of the vehicle. On the pall which covered the coffin, and on which the dual arms and coronet of the deceased were embroidered, lay his armed robe with other insignia of his rank, among which the well-worn sword of the gallant veteran, was the most touchingly conspicuous. The car was followed by the members of his afflicted family and a concourse of private friends. On arriving at the Place de la Bastille, where tents had been raised for the accommodation of the ministers and the various deputations from public bodies who were to join the procession at that spot, some delay and irregularity took place, but the necessary arrangements being soon made, the march recommenced, and proceeded along the Boulevards without interruption or accident. After the public bodies, followed the Polytechnic School, and deputa-

tions from the *décorés* of July, workmen and laborers. The porters of the wharf of La Rapée bore a large willow branch covered with crape and surmounted by wreaths of everlasting, and a flag with the inscription—*Vive la Charte! Vive la Liberté! Port de la Rapée!* On another—*Les Ouvriers des Ports.*

As the hearse passed the fatal spot where the assassinations were perpetrated, the emotions of the mourners were most painfully apparent. The window at which the truly-named *machine infernale* was placed has been blocked up, but two women (respectable as far as dress is concerned) boldly sat at the window beneath, quite unabashed by the gaze of the thousands turned upon them. The Boulevards offer nothing further to remark upon, except that upon any less melancholy occasion, the crowds of beauty and rank which thronged every window and balcony, the admirable order and appearance of the National Guards and troops, and the animated nature of the entire scene, would have rendered it a sight so gratifying as never to be forgotten. We now turn to the part of the ceremony in which His Majesty and the Royal Family bore a part. The King, with the Dukes of Orleans and Nemours, and the Prince de Joinville, left the Tuileries on horseback precisely at 11 o'clock, and notwithstanding the great interest necessarily attached to a sight of the funeral pageant, immense crowds awaited His Majesty leaving the Palace, and the bridge, quay, and every part of the town through which he was to pass with his family in their way to the Invalides. His reception was more than enthusiastic—so cheering that it was easy to perceive that the *sang froid* and manly indifference, he last week displayed in the moment of extremest danger, was more than once overthrown by the touching marks of affection and loyalty with which he and the Royal Family were received.—His Majesty looked calm and well, as did the Duke of Orleans and his brothers; but we regretted to see that the cruel event of Tuesday had left deep traces of grief and apprehension on the features of Queen and the Princesses.

At about half-past 11 o'clock, the Queen and the Princesses, who were in deep mourning, reached the Church in the Invalides; and in a few minutes His Majesty also arrived accompanied by the Dukes of Orleans and Nemours, and the Prince de Joinville, and escorted by his staff. Long before the appearance of the Royal party, the countenance of the auditory admitted to view the ceremony with tickets, betrayed a degree of anxious expectation, which was heightened not only by the solemnity of the occasion itself, but by a natural and loyal feeling of impatience for the presence of the Sovereign, whose existence scarcely more than eight days before, had been so miraculously preserved. This feeling was evinced at intervals by the deepest silence, interrupted only by the firing of the minute guns, which announced his Majesty's progress along the line, followed by the procession.—The King entered by the gate on the side of the Place Vauban, which he reached by means of a bridge thrown across the Fosse. On entering under the dome, he made a turn to the right, and passed before the Peers, by whom he was received with reiterated acclamations of *Vive le Roi!* which were re-echoed by the Deputies seated on the left.

His Majesty then passed before the *Corps Diplomatique*, by the members of which he was respectfully and cordially saluted as he proceeded towards the throne which had been prepared for him near the altar. After a short stay in the church, their Majesties retired into a separate part of the building which had been prepared for their reception.—The deputations from the Courts, the Tribunals, the Institute, &c., occupied that part of the *pourtour* of the dome, which remained vacant after the Deputies and the members of the *Corps Diplomatique* had taken their places. The estrade, which had been disposed under the dome for the reception of the bodies, was decorated with the most tasteful magnificence and brilliantly illuminated, and indeed the whole of the arrangements made in the building of the Invalides were most judicious, and perfectly in unison with the solemnity of the day. Each side of the avenue leading from the gate to the front of the edifice was ornamented with a succession of obelisks hung with black, and connected together with cypress garlands and tricolored flags. The *pourtour* of the Court of Honor was hung with black draperies. The *coup d'œil* presented by the church was most imposing. From the centre of each arch

in the grand nave enormous draperies were suspended. All the windows were hung with black to the top, and received no light whatever from the outside.

Each arcade was lighted by a lustre. The pillars and pilasters near the principal altar were covered over with black crape and velvet, and between the principal altar and the dome to the left, a sort of low estrade had been arranged with seats, cushions, and black velvet, *prie dieu*, trimmed with silver, for the accommodation of the King and the Royal Family. Under the dome had been arranged an immense square estrade with fourteen cenotaphs, all disposed at the same point of elevation, and surrounded by a rich canopy of colossal proportions. The architectural ornaments of the dome were veiled by sable draperies, which extended to the height of the galleries, and completely excluded all external light. At the base of the vast catafalque, to which we have just referred, were several enormous candelabra, whilst the upper part of it was covered with innumerable wax tapers, the whole being illuminated from above by four large sepulchral lamps, and a quantity of lustres and chandeliers. The name of each of the victims of the atrocious attempt of the 28th was inscribed in letters of silver on each of the sides of the catafalque, around which were stationed a detachment of the 7th Legion of the National Guards and some troops of the line.

At half-past 1 o'clock the arrival of the funeral procession was announced to His Majesty, who immediately passed through the nave, and was again received with the warmest and most enthusiastic acclamations by the assembled crowd, a large proportion of whom were ladies. The biers were placed in succession on the estrade; this part of the ceremony, in which the entire of the 14 murdered victims were brought together under the eyes of the Royal Family and the whole assembly, produced an impression of the most awful nature, and hundreds of the spectators were unable to control their emotion. At half-past 2 o'clock the Archbishop of Paris, and a number of the clergy, ascended the altar, and chanted the magnificent service of the dead, by Charubini. The funeral oration, which produced a deep impression, was delivered by the Abbé Landrien. The Rev. orator dwelt on the noble and brilliant actions which marked the military career of the gallant but ill-fated Marshal Mortier, and concluded by paying an eloquent and feeling tribute of respect to the memory of his fellow victim. The last prayers for the dead having been recited, the *De Profundis* was chanted with a degree of sublimity, of which the auditory testified their admiration by their breathless silence.

The funeral ceremony terminated at about half past 4 o'clock, and at that hour the King and Royal Family quitted the church, His Majesty and the Princes on horseback, and a few minutes before the Queen and Princesses. The departure of their Majesties was announced by a salvo of twenty-one guns. The King, accompanied by the Princes, and attended likewise by his brilliant and numerous staff, then inspected the ranks of the National Guard and the troops of the line mustered in review order on the Esplanade of the Invalides, the Quai d'Orsay, and finally in the garden of the Tuileries, and after meeting on every point with the most devoted and unaffected expression of loyalty and attachment, their Majesties and the Royal Family returned to the Palace of the Tuileries at a few minutes past 6.

Reviewing the solemnity of yesterday, looking to the zealous attendance of the National Guards not only of Paris, but of the vicinity, which alone, we should believe, amounted to upwards of 60,000 men, and the reception of the King by that class who form emphatically the people—coupling with these demonstrations the spontaneous expression of horror and indignation at the crime heard from the remotest quarters of France—it is impossible not to come to the conclusion that in paying this generous debt of sympathy to the honored dead, the victims of a blow aimed at the King, the country has also declared in language not to be mistaken, that its hope of order, security, and national prosperity, reposes on the dynasty of Louis Philippe.

The *Constitutionnel* contains an extraordinary statement as to the assassin. It is this:—

"The author of the crime is a Corsican of the name of Fieschi, who belonged to the guard of Murat when King of Naples, and who had joined in the expedition in which that Prince fell. On his

return to Corsica he was condemned for stealing a cow to ten years' imprisonment. In 1830 he succeeded, it is not known how, in getting himself inscribed on the list of those condemned under the Restoration for political offences. The Chamber had voted pensions for all these, and Fieschi received his until the end of 1834, when the falsification was discovered, the pension stopped, and he himself obliged to fly. Since 1830, he has been a domestic in the service of M. Caunes, inspector of the waters of Paris. He was recognised by M. Oliver Dufresne, inspector general of prisons; by M. Ladoucet, Colonel of the 12th Legion of the National Guard; and by many others. The discovery was made by M. Dufresne, who had just recovered from the effects of a fall, and made his first visit on Friday to the prison. Fieschi was somewhat annoyed at being recognised, but did not refuse to own that he knew these gentlemen."

We yesterday mentioned that there were doubts as to his identity, and those doubts are now removed in an extraordinary way. The discovery, however, supplies no clue of the motive for the attack. Some insinuations, we see, are thrown out against the Buonaparte family, because Fieschi is a Corsican; but they are probably as gratuitously and wantonly cruel as the immediate arrest, on the commission of the crime, of such respectable gentlemen as M. Armand Carrel and other editors of the liberal Paris papers. We would not indeed allude to the names of any persons in conjunction with that of the assassin had it not been done in other Journals, and had we not wished to express our utter disbelief that any member of the Buonaparte family can have so wickedly conspired to destroy Louis Philippe.

Paris, Aug. 2.—A Joiner, residing in the Rue de Montreuil, has been discovered to be the person who made the framework of the infernal machine, and taken into custody. It was ordered in April last, and executed at that period.

An address, signed by upwards of 900 of the British residents, has been presented to the King by Sir Sidney Smith, expressive of the feelings of his countrymen on the late atrocious attempt.

The autopsy of the Duke of Treviso was effected on the 29th ult., at the Hotel of the Legion of Honor, by Doctors Husson, Poisson, and Julia de Fontenelle. The ball which occasioned his death penetrated obliquely his left ear, and having fractured the mastoid apophysis, and that of the second cervical vertebra, traversed the muscles of the neck. A considerable sanguineous effusion was found in the brain and cerebellum, with clots of blood. A contusion was perceived on the upper part of the head, and on the fore finger of the right hand, which seems to indicate that the Marshal in falling struck those parts.

A subscription has been opened in the Department du Nord for the erection of a monument to the memory of Marshal Mortier, in the Place du Caetau, at Cambrai, and, if possible, opposite the house where he was born.

Of the fourteen victims of the fatal 28th July who have been deposited in the church of St. Paul four only were embalmed before they were laid in their coffins, but on Friday it became necessary for all the others, including the bodies of Colonel Raffé, and Colonel de Roussec, to be subjected to the same process. They were all enclosed in double coffins, one of lead and the other of oak, both sent to the families of the deceased from the King's household; but the fermentation from the decomposition became so powerful that the lead was cracked in several places. A dangerous mephitic gas filled the church, and to avoid the consequences to the visitors it was absolutely necessary to re-open ten coffins, and embalm their respective depositors. This operation, so dangerous from the heat of the weather and the miasma emitted from the putrifying corpses, was performed by several physicians, surgeons and apothecaries of the neighborhood, under the inspection of superior clerks, sent from the office of the minister of the interior, in obedience to a special command from the king, who also sent one of his own aids-de-camp, and in the presence of the director of funerals, the inspector-general of this department in the prefecture of the Seine, a commissary of police, and the mayor of the eighth arrondissement. Such relations of the deceased as were come to pray by the remains of their murdered relatives had the melancholy and painful satisfaction of once more seeing the features of those they mourned.

Our goodly city is obtaining no enviable character abroad. The Liverpool Chronicle, referring to late papers from New York, received by the Carroll of Carrollton, says:

"Beyond, however, the usual and expected quantum of fires and riots, which are far too 'Irish' for us to extract, there is no news."

The House of Lords was occupied on the 7th, from 11 in the morning till 11 at night, in hearing evidence on the Municipal Corporations Bill. It was supposed the evidence would be closed the next day.

In the course of a conversation relative to the proceedings in reference to this measure, the Duke of Wellington said, "There was another consideration which it was important for their Lordships to bear in mind on the present occasion—he alluded to the advanced period of the session of Parliament. It being absolutely necessary that this bill should be taken into consideration, and decided on by their Lordships as speedily as possible, he entreated them not to spend more time in hearing further evidence than was requisite, when they might rather be applying themselves to the consideration of the bill itself."

In the House of Commons, after the presentation of petitions, it was agreed, on the motion of Lord J. Russell, that for the remainder of the session the orders of the day shall have precedence of notices of motions on Tuesdays and Thursdays.

Mr. Hume, addressing Lord J. Russell, said, "he should be glad to know what was the present prospect as to the termination of the session, supposing, as was alleged, that the Municipal Reform Bill should be rejected in another place. In that case, he (Mr. Hume) should feel it his business to submit the propriety of a call of this House to determine what measures should be taken."

Lord J. Russell observed, "that in the event of the bill being thrown out elsewhere, he agreed with the hon. member for Middlesex in thinking that an extraordinary course of proceeding would be required on the part of this House. With that course the motion which he had made could not interfere, as it could easily be set aside in case of urgency or necessity."

On the above the London Times remarks:

Mr. Hume and Lord J. Russell might have known, as well as the Lords themselves know, that there is not, nor ever has been, any intention on the part of their Lordships to reject the measure. We trust, however, that the House of Lords will not refrain from applying to the measure all the amendments that it needs, notwithstanding these very harmless little ebullitions in what Mr. Hume has found out to be the "Great Council of the Nation."

BRITISH HOUSE OF COMMONS.—The Ladies.—Mr. G. Berkeley considered his motion for the admittance of Ladies to hear the debates of that House as greatly too important to be deferred. (A laugh.) In former times and until the year 1762, ladies were allowed not only to sit in the gallery of the house, but to occupy seats usually appropriated to Members alone. In the Irish Parliament ladies were always allowed to be present during the debates. In our House of Peers they were also admitted. And why should not they be admitted to the debates of the House of Commons. (Hear.) He was quite aware that an erroneous opinion was prevalent among hon. members that the ladies already possessed too much power and influence in the political world. (A laugh.) But so long as a female could by law wear the crown of England, that was an opinion to the justice of which he would never assent. (Hear, hear.) No one could contradict that females shared as largely in the distribution of intellect as men. (Hear.) It was well known also that the exercise of that intellect had frequently decided elections both for counties and towns. (Hear, hear.) Possessing so much influence over the return of members to that House, it was merely but just that they should be admitted, in order to hear how the hon. members who had been returned by their influence acquitted themselves. (A laugh.) He had been informed by two or three hon. and right hon. gentlemen, that the only reason which made them doubt whether they could conscientiously support his motion, was the apprehension that if ladies were admitted into the House, a number of hon. members, instead of addressing the Speaker, would address

the ladies. (A loud laugh.) Really, he did not think that a sufficient reason for rejecting his motion. A stronger motive for adopting it might be found in the superior one of discussion, which the consciousness of the presence of ladies would necessarily induce. (Hear, hear.) Let the House recollect the violent language and gross personalities in which hon. members now occasionally indulged, and then say if they did not think that the tone of the debates would be much refined and elevated by the presence of the ladies. (Hear, hear.) No hon. member would make a speech of five hours and a half in length if he knew he was drawing so largely on the patience of his female auditors. (A laugh.) There would many other advantages accrue from the adoption of his proposition; and the more he considered the subject the more he became convinced that the admission of ladies during the debates of that House would, in every respect, be highly advantageous. (Hear.) He would conclude, therefore, with moving, in the words of his notice:—

"That a Select Committee be appointed to consider the best means of setting apart and adapting a portion of the strangers' gallery for the admission of ladies during the debates." To which he would add, "that admittance might be granted in such form and manner as the Speaker might appoint"—(A loud laugh)—and, "that provision be made in the new House of Commons for the accommodation of ladies."

A dozen hon. members started up to second the motion, but we believe Mr. French obtained the enviable distinction of doing so.

The question having been put from the chair, the sound of "Ayes" shook the walls of the House.

Lord J. Russell said, that without entering at all into the merits of the question, he would merely observe that he could not acquiesce in the motion, because, in his opinion, if it were deemed advisable to adopt the proposition for the admittance of ladies during the debates, it would be much better that the House should do itself the honor of adopting it, instead of referring it to the consideration of a select committee. Moreover, a select committee appeared to be quite unnecessary, as the honorable member for Gloucestershire had moved that the Speaker should appoint the form and manner in which the ladies should be admitted.

The gallery was then cleared for a division—

For the motion	153
Against the motion	104

Majority for the ladies - 49

The announcement of the numbers was received with vociferous cheers.

On our return to the gallery, Mr. Berkeley was reading the names of the committee; but the confusion of entrance, and the noise occasioned by the shouts of laughter with which some of the names were received, prevented us from distinctly hearing them. The mirth of the House was loudly renewed, when, after the appointment of the committee, the hon. member made the proposition, which was instantly acceded to, that the names of Mr. Pryme and Mr. Pease should be added to the list.

FROM FRANCE.—The ship Lorena, Capt. Urquhart, arrived this morning from Havre, having sailed on Sunday the 9th August, bringing Paris dates to the evening of the 7th, being one day later than our previous advices.

The papers continue to give further particulars respecting Fieschi. The *Messenger* of the 1st, says, It is currently reported to-day, that Fieschi alone acted under the influence of the Duchess of Berri, who has been more desirous of avenging her injuries as a woman, than of re-establishing her rights as the mother of the pretender. We are assured that an agent of this Princess, named L., remained five days in Paris, but that the police, always skilful, could not find him.

The *Courrier Francais* adds, it is currently reported that Fieschi was employed by the French police as a spy upon the movements of the Duchess de Berri, and was gained over by her or her confidants, and that the attempt of this man was made with the hope of getting a considerable sum of money. It is said that in the depositions of persons intimate with him, they have stated that he had boasted of soon being in possession of 80,000 francs.

[From late Foreign Journals.]

The Missionary Wolff.

The annual meeting of the Society for Promoting Christianity among the Jews, was held on Monday evening last, in the Welsh School Room, in Russell street, which was crowded to excess.—With regard to the parent society's proceedings, it was stated that the contributions during the past year have amounted to 12,328l. 11s 1d. The sum of 540l. had been raised at the time of the London meeting, in behalf of the Hebrew church and mission at Jerusalem. A portion of the Church of England liturgy has been translated and published in Hebrew. The Society's school continues to prosper, and there are in them at present 31 boys and 39 girls. Between the London anniversaries in May, 1834, and 1835, 7 boys had been admitted, 3 apprenticed to very eligible situations, and one had died. Out of 72 boys who have left the school during the last 13 years, the committee are only acquainted with eight cases in which they are not conducting themselves in a creditable manner, and even of these none have relapsed into Judaism.

The great attraction of the evening, however, was the Rev. Joseph Wolff, (the Jewish missionary) who addressed the meeting at great length.—The following is an outline of the principal facts detailed by him:—He said he set out on his mission with his beloved wife, who forsook the comforts of home, for the express purpose of rendering assistance to a poor Jew. They arrived at Malta immediately after the battle of Navarino (eight years ago) which was a discouragement to them to proceed. They then went to Cyprus and returned to Cairo. He and his lady travelled through the Deserts of Arabia, seated in baskets slung on each side of a camel, singing as they proceeded, "Guide us, O thou great Jehovah, pilgrims through this barren land," &c. They were surrounded by Robbers, but they got safe to Jerusalem; and here they were destitute of a consul or ambassador, as they had both left the city; but they had a protector, even the Saviour. They passed their time in walking together on Mount Zion, and there beheld the fulfilment of the prophecy, "How does the city sit solitary that was full of people." They took up their abode in a Greek temple, and thither about forty Jews, when they heard of his arrival, came singing, "The Mighty One shall build the city of Zion and give her to thee; then shall he raise from the dust the needy, and from the dunghill the poor," &c.—The Jews, thinking that he disbelieved in their future restoration and conversion, which he did not, read these passages to him, asking what he would make of them. "And many shall go and say come, and let us go up to the mountain of the Lord, to the house of the God of Jacob; and he will teach us of his ways and we will walk in his paths; for out of Zion shall go forth the law, and the word of the Lord from Jerusalem, and he shall judge among the nations, and rebuke many people; and they shall beat their swords into ploughshares, and their spears into pruning-hooks; nation shall not lift up sword against nation, neither shall they learn war any more." Such passages make a great impression in that literal Zion. "For Zion's sake I will not hold my peace, and for Jerusalem's sake I will not rest, until the righteousness thereof go forth as brightness, and the salvation thereof as a lamp that burneth." Mr. Wolff observed, that the Jews said to him, "Look here, this is Jerusalem, say ye, to the daughters of Zion, behold thy salvation cometh." He would tell them the answer he gave the benighted children of the promise, "Cast ye up, cast ye up, prepare the way: take up the stumbling block out of the way of my people," a passage which is particularly forcible there, for in going towards Jerusalem the way is exceedingly stony; and when the Pasha travels towards the city, the Arabs, while they gather up the stones, cry out, "Cast ye up, cast ye up, prepare the way, gather up the stones out of the way." He agreed with them in the truth of all these passages but treated them to reflect upon others which especially concerned their salvation—such as "He was despised and rejected of men; a man of sorrow and acquainted with grief." "They shall look upon him whom they have pierced, and mourn." Having travelled upwards of twenty thousand miles, he found it difficult to be brief, but he must pass on to Cairo, and thence to Alexandria, where he left his wife. From this place he set out for Tenedos, where he distributed the scriptures to the Greeks: for though he was a Jew, he loved, like his Saviour, the be-

nighted Gentiles, believing with the Apostle, that "there is neither Jew nor Greek; there is neither bond nor free; there is neither male nor female—for we are all one in Jesus Christ." From Tenedos he went to Lemnos, and then to Mount Athens, where he distributed the scriptures; from thence to Salonica, where he was recompensed for his sufferings by having the pleasure of preaching to upwards of one hundred Jews, and distributing the New Testament among them. He said travellers had often told him that they had seen the books which he circulated torn in pieces. This might be the case in reference to some of them; but he had no doubt that the contents of the Bibles and Testaments he circulated found their way both to the heads and hearts of numbers. Mr. Wolff said he determined to go from Salonica to Bokhara, Ocsakoro, Ancient Phrygia, &c., to carry the gospel where it never shone. In his journey, he observed the Apostles' plan, preaching Christ even in the synagogues, and in proceeding to Meschid, Balk, and other places, he was told he should certainly be put to death. He thought he would use great prudence at Chorazan, but human prudence often fails, and therefore he went to the nearest governor to request him to protect him (Mr. Wolff) on his journey to Bokhara, there being continued wars with the Turcomans, a savage race of people, who, he heard, always sold their prisoners for slaves.—He told him he was always ready to serve an Englishman; but when he knew what the speaker wanted, he desired him to write an order upon the king of England to grant him a pension of 10,000*l.* per annum. Mr. Wolff told the chief he could write the order and put his seal to it, but he greatly feared that his order would not be honored. Then, said the chief, you may go where you please. Mr. Wolff said he then set off for Herat, and had travelled about thirty miles, when two horsemen came after him, and brought him back, declaring that he had stolen ten thousand pieces of money; and it was in vain that he told them that he had not a hundred pieces. On arriving before the chief again, his Bible attracted the attention of the people, and he read some passages to them, translating them as he proceeded, and distributed twenty copies in the Persian language, which he afterwards saw this barbarous people reading in the streets. He was from this place escorted to Terschiz, where he saw the streets filled with the dead bodies of men, killed by the Turcomans, who had been there and taken away 1500 prisoners, burning the villages as they proceeded along. At this time, said Mr. Wolff, I understood better than I had ever done before an expression in the Psalms. The Arabs were mourning and exclaiming, "Our bones are broken! our bones are broken!" signifying that they were greatly afflicted. Then came forcibly to my mind the passage of Scripture, "Make me to hear joy and gladness, that the bones which thou hast broken may rejoice." He afterwards proceeded to say that the Khan of Terschiz refused to furnish him an escort, and he went on with his servant being joined by seven muleteers. On the road they heard firing, and shortly afterwards twenty-four horsemen came up and surrounded the muleteers—they did not see him (Mr. Wolff) for half an hour afterwards; however, at last, one of the party came up to him, and demanded some money: he gave the man some, and told him he had more. He requested him not to tell his comrades that he had got any from him; he had scarcely spoken, when the remainder of these ruffians came up and took all the money Mr. Wolff had from him; and on discovering that their comrade had concealed what he had got from him, they gave him a good flogging. The party then tied him, (Mr. Wolff,) after stripping him, to the tail of a horse, and as they went along kept flogging him continually. It is in such an hour as this, said the reverend gentleman, that we learn to pray in sincerity; I prayed to my Saviour to help me, and he heard my supplication and delivered me—for those who were ill-treating me, after listening to my prayers for some time, unbound me, and put me upon the horse. When they halted, they valued all the captives they had taken: Mr. Wolff's servant, they said, was worth 10*l.*; but when they came to the individual who was now addressing the meeting, they desired him to open his mouth; one of them looked into it, and exclaimed, "O, he is not worth much, he has lost three teeth already." They said he was good for nothing, but might fetch three pounds. On searching my papers, my captors found the firmans I had got from Abbas Mirza, Prince of Persia, and they were

afraid, and said one to another; "This is no common man; let us kill him, or we shall lose all the rest." I entreated them not to kill me, and I would put them in a way to get their price for me. I then wrote in some of the New Testaments, "To the Jews at Terbad Hydarca, in Khorassan; I, Joseph Wolff, of the Jewish nation, who goeth about to proclaim Jesus Christ, have been made a slave, purchase me and I will give you the money back." These books were immediately sent off, but they still consulted about killing me. I said to the chief, Abel Hassan, "I see what you are about—I am sure you will all be killed if you kill me." Mr. Wolff said, he believed that the remark he made to the chief kept these lawless brigands from murdering him; yet, though they did not do this, the day before they arrived at Terbad Hydarca, seeing he was not a good horseman, they put him upon a wild horse, whipped the animal behind, drove him up the mountains, hoping that he would tumble off his back and thus be destroyed; but, said Mr. Wolff, in this expectation they were disappointed, for I sat as fast and as steady on my steed as a colonel of cavalry. At last they got to the city, a most awful place; on their entering it, the Moguls and Turcomans came out and offered praise to God that they had made so many slaves. He (Mr. W.) saw some Jews coming out to look at the captives, and he exclaimed, "Hear, O Israel, the Lord our God is one Lord." A Jew immediately came up to him, and taking his bible and journal, he hid them under his clothes, at the same time telling the barbarians he would settle every thing about me. Soon afterwards, the same Jew took him to his house, and as he was naked, and almost frozen, he gave him some brandy; and he (Mr. Wolff) was certain, that in the circumstances in which he then was, the most zealous members of the Temperance Society would not have refused to drink it. The Jews questioned him about the books he had got; and all night he was engaged in reading and explaining the New Testament to them. The Jews there were not so hardened against the Saviour; for they say, that as their fathers left Jerusalem, after the Babylonish captivity, and they never returned, they had no share in the crucifixion of Christ. In the morning they invited him to accompany them to their Synagogue, where he again read and explained the New Testament; and though so greatly fatigued yet his heart rejoiced with unspeakable joy, that he was again permitted to speak to his own nation about Jesus Christ and him crucified. The next day (said Mr. Wolff) I was brought back and put in chains with the other prisoners, Mahomedans, who cursed me, and continually cried out, "this infidel makes me unclean." In about half an hour after I had been locked up in an awful dungeon, the door was opened, and some one asked, if any English were there. I instantly answered the call, and was taken out of the dungeon. Here was an answer to prayer; Abbas Mirza had heard of my being captured, and had sent horsemen to demand my release; an English officer in his army lent me money and clothes; and he afterwards ordered them to escort me to Bokhara; from thence I proceeded to Calcutta under the protection of the Persians. On my arrival there, I was hospitably treated by Lord William Bentinck, Dr. Morrison, and other Christian friends; and here I am among you, willing to go wherever the Lord directs me, to preach salvation to the House of Israel. Though I may be called an enthusiast, a hypocrite, or an impostor, or any thing else, I am resolved to live and die in the cause of Christ. (The Rev. gentleman sat down amidst the most deafening applause.)

• AN HONORABLE PLEDGE.—During the consular sway of Napoleon in France, and when the conscriptions were in full force, there lived in one of the provinces of the south a very aged man, who exercised the profession of a tailor, and had twelve sons, all of whom served in the armies of Napoleon. They having one day obtained leave of absence from their regiments, made use of the opportunity to go and visit their aged parent, but on their arrival were shocked to find that he was so reduced in circumstances as to be in want of bread. "No bread!" cried one of them—"the man who has given twelve conscripts to his country! We must procure him sustenance—yet how? We are ourselves destitute."—"Is there no pawnbroker in the neighborhood?" exclaimed the youngest, who placed great confidence in the compassion of human beings, as well as reliance on his Creator. "A pawnbroker! What good would that do? we

have indeed nothing to pledge!" "You shall see brother. Our father is known to be an honest citizen, who has exercised his trade long enough, and being destitute of bread, that is a sufficient proof of his integrity. We also have all served during several years, and no one can cast the slightest imputation on our honor. Let us pawn this 'honor'—certainly there will be some who will willingly lend us fifty louis on such a pledge!" This idea was immediately approved of, and the twelve brothers wrote out and signed on the spot the following billet: "Twelve Frenchmen (sons of a tailor, who at the age of near 90 years, is fallen into the deepest poverty,) all zealous in the service of their country, request from the directors of the pawnbroking establishment the loan of fifty louis-d'ors, to assist an unfortunate father. As a security for the payment we pledge our 'honor,' and promise to repay the said sum within the space of one year." The billet was brought to the money office, where the benevolent directors immediately counted out the fifty louis asked for, and tore the obligation in pieces, pledging themselves, at the same time, to provide for the old man as long as he lived.

THE AMUSING SCENE IN A BARBER'S SHOP, which we copy to-day from *Nephisophilus in England*, is, as our readers will readily recognize, a burlesque upon *Cobbett*, under the name of *Billy Gridiron*. The keeping of the whole scene is so admirable, that it might readily pass for an actual occurrence.

[From *Nephisophilus in England*.]
Scene in a Barber's Shop.

In the centre of the apartment a tall and cadaverous looking individual, with high cheek bones, red whiskers, and crop to match, most luxuriantly curled, wearing an apron which was once white (bearing in his huge pockets his professional apparatus,) and with sleeves of a similar fabric, was operating upon the chin of a customer, an apoplectic looking man, with a red nose and a capacious corporation, landlord of the neighboring public-house, whose beard he had nearly succeeded in removing. Shortly after I had entered, a person made his appearance, dressed like a respectable farmer, his face of a florid complexion, with features expressive of health and good humor, and his hair of a pure silvery whiteness. He was strongly built, evidently in the possession of all his faculties, and he might be about sixty years of age. He strode into the room, seemingly taking no notice of any person present; sat himself down in an empty chair, and took up the preceding day's edition of the Times. Glancing his eye hurriedly over the leading articles he every now and then exclaimed,—"Pooh!" "Fudge!" "Twaddle!" "Cant!" "Lies!" Then observing the barber at leisure, he flung down the newspaper in disdain, and placed himself in the vacant seat.

"Mister Kennedy received his customer with a bend which was meant to be graceful; and, after having fixed a cloth under his chin, proceeded to make the lather of the proper consistence.

"A braw day this, sir!" blandly insinuated the man of shaving.

"Yes!" briefly replied the unknown.

"The operator then commenced sharpening his razor on a leather strap, nailed to the table; but during the process his tongue was not allowed to remain in idleness. By a wise dispensation of Providence, barbers have been gifted with extraordinary conversational activity. The great anti-eater inserts his long tongue into the an's nest, and the poor insects, attracted by its smoothness and oiliness, throng round it, and are devoured. The barber catches his prey by the same means.

"Sure, sir, ye've been reading the noos?" inquired the barber, as he stropped the razor; "tho' I'm anything but indifferent to the public weal, I canna find time to mak mysel acquainted with the transactions o' state. These polietical changes in my humble opinion, are of mickle importance. Dinna ye think so, sir?"

"I don't know!" gruffly replied the interrogated individual.

"You see, sir," continued the talker, nothing daunted, "the present parliament have labored weel, for the public gude. It canna be denied, they might have conferred upon the kintra many substantial benefits which they have neglected doing. But Rome was na built in a day, was it, sir?"

"I didn't build it," answered his victim, more gruffly than before.

"For my part," continued the barber, laying the lather rapidly over the beard of the person he was speaking to, "I am quite dissatisfied with that Reform Bill they made sic a fuss about. What has it done? nothing. Where are a' the advantages the minsters promised it should confer upon the people? I have not met with a single individual who has gained the smallest profit by the passing o' that measure. But you see the hale kintra was mad about it, sir. Folks ran gabbling from house to house, as if they were demented; and if you listened to the pair daft creturs, you would have imagined that, when the Reform Bill became the law o' the land, lege o' mutton and quartern loaves would go flying in at every poor man's windy. It was morally impossible, in the nature of any legeal measure, to come to sic a catastrophe: and so I told 'em. I reasoned w' em logically and pheelosophically on the subject. But they would na' listen to reason; and tae ha' now the pleasure of reaping the fruits o' their disappointment." After a pause of a few seconds' duration, in which the operator got his razor in readiness, he continued, "Did you see any thing interesting in the Times, sir?"

"I never see any thing but lies in that beastly paper," observed the stranger, with some asperity. "Hoot awa, mon!" exclaimed Mr. Kennedy, with considerable surprise; "sure an it's the leading journal; a maist respectable periodical! professing leebler opinions; always pooblishing the earliest intelligence; and then its leading articles are so pointed and clever! The lads must ha' sharp wits that write 'em." He commenced his attack upon the bristles, yet continued his conversation, with the nose of his victim between his finger and thumb, while the edge of the razor was gliding over the chin.

"There's an uncommon clever article in yesterday's paper, which deserves your attention. It's an attack—sic a smart attack isn't written every day in the year—on that archimpostor, Billy Gridiron. Sit still, Sir, or maybe ye'll get a cut wi' the razor!—Ye see, the old bone-grubber, in a number o' his Poleetical Register, a blackguard pooblication, which no respectable mon will alloo in his hoose.—I beg, Sir, ye'll sit still! It's unco dangerous to wriggle ye're chops about in sic a fantastical manner! The old atheistical seepoblican attacked the Times! only think o' the fellow's assurance, to go to abuse the leading journal! And he called it the bloody old Times, and mony sic sanguinary epithets. But he's a shocking low fellow, sir; and like his old crony, Tom Paine, whose bones he brought over fra' America, deesn't care a fig for morality or religion. Well, I never met with any person so feedjitty as you are: sure ye must be uncommon nervous!—Well, sir, the editor of the Times gangs at him, and in the twinkling of a bed post, smashes him to a mummy. Oh, the pair deevil has had sic a handling, that I doot vary much if he ever recovers it. But I'm glad on't. It serves him quite right. The vagabond ought to have been hanged long ago; don't ye think so sir?"

"The only reply the barber got to his question was a rude shove, given with all the stranger's strength, that sent the former and his razor spinning in different directions. At the same moment up jumped the stranger, with the lather remaining on one side of his face, the cloth about his shoulders, his eyes flashing fury, and his appearance bearing that of a man who had vainly endeavored to suppress his passions, but had now determined to allow them their full indulgence. As the barber fell to the ground, the black cat awoke from her sleep, and raised her back in alarm; and the parish apprentice dropped the curling irons from his trembling grasp, and opened his mouth with amazement.

"You nasty, lousy, stinking Scotchman!" exclaimed the stranger to the prostrate shaver.

"It's false, sir, I'm nothing o' the kind!" replied the other, rubbing that muscle known to the anatomist as the *gluteus maximus*; "and if there's sic a thing as law to be had, I'll have it. A pretty thing, indeed, if industrious tradesmen are to be assaulted and abused in this shameful fashion. Sir, ye've insulted me! Ye've cast reflections on my country!"

"Your country!" said the stranger, contemptuously; "why, you don't mean to style that miserable, dirty, beggarly province, called Scotland, a country? the home of rags and filth, of disease and vermin; a wilderness of barren rocks and fetid lakes; where nothing grows but the heather

and the thistle, a few stunted fir-trees, and some half-withered pines. A wretched place, inhabited by a few beggarly, thievish, cowardly miscreants—"

"Cowardly!" exclaimed the indignant Scotchman, as soon as he could find courage to interrupt the torrent of abuse directed towards his beloved birth-place: "do ye call the people of Scotland cowardly? Were Wallace, were Robert Bruce, were the victors o' Bannockburn cowards, ye false loon?"

"Yes, you poor, pitiful sneaking knave, they were all contemptible cowards, or they would have stood up and fought the Englishmen, instead of stealing about like thieves in the dark, and surprising their enemies when off their guard. The battle of Bannockburn is their grand boast; and how did they gain that? By digging pits, into which a tired army and imbecile king were entrapped; a stratagem worthy of their Tom Thumb—the great heroes! Did they ever gain a fair stand-up fight? Halidon Hill, Falkirk, Cuten Moor, Flooden Field, and Neville Cross, reply in the negative. A treacherous, malignant, vindictive race. Who betrayed Charles the First?—the beggarly Scotchmen; and they would have betrayed their fathers for the same sum. Who destroyed poor Mary Stuart?—the beggarly Scotchmen; and they would murder their mothers if they thought they could gain anything by it. And yet the despotic scoundrels mention England as owing all her glory to them! When did they ever produce a Nelson, a Marlborough, or a Wellington? They boast, too, of monopolizing all the wisdom and genius of the kingdom. Where are their Shakespeares, their Miltons, their Newtons, their Baccas? The only poet they ever had, was Burns, and him they starved to death; the scabby, shabby, stingy vermin. And what sort of literawice do they now possess? A parcel of ignorant, impudent, unprincipled fellows; who pretend to write about feelosophy, and poetry, and the Lord knows what, without being able to compose a sentence of decent grammar; and inundate this country with their trash. The boastly Scotchmen; they have the impudence of the devil? Why, it was but the other day that a vulgar wretch of a journeyman stonemason took it into his head to scribble what he called the Literary History of the last Fifty Years! It would have made a horse laugh to read the superficial twaddling rubbish the poor wretch published. England owes Scotland for a race of kings the most tyrannical, profligate, and mean that ever disgraced the English throne. She is also indebted to that humane people for the invention of a new species of murder, for the sale of the dead body, called Burking. A set of crouching, canting, unprincipled hypocrites, who come over to this country like a swarm of locusts, devouring the very substance of the land, and go spreading their pestilential persons over the whole world; cringing, fawning, flattering, lying their way into wealth and power. Hear a Scotchman speak of his country, you would think he could not exist out of it; and yet, of the thousands who leave it for the more fertile shores of England, scarcely one ever thinks of returning. A swaggering, bragging, drunken crew, who talk of their morality, forsooth! Why, 'tis enough to make an honest stomach heave to hear the lies they tell in their own praise. They boast of their temperate habits, and are known as inveterate dram-drinkers, swilling their filthy threats with their smokey whiskey; and will pig on any sort of filth set before them; their haggis and brose would sicken an Englishman. They boast, too, of their feelosophy, and have invented a science called Political Economy—a set of miserable twaddlers, who publish the most mischievous, wicked, and nonsensical opinions on a subject of which they know nothing.

"I said long ago that political economy was a parcel of rubbish, collected by a few revolutionary adventurers for their own profit. I said so, and, like all I say, the truth of my opinion has since been proved. Parson Malthus has ceased to gain as many fools as he used to do. I said the humbug would be found out; and I predicted what would be the consequence if Peel's bill became the law of the land. I predicted that the Catholic Emancipation Bill, when passed, would only add to the disturbances and wretchedness of that devoted country, Ireland. I predicted that bank notes would soon be considered old rags, and that every one would strive to possess gold. I predicted a hundred other things of equal importance, and all my predictions were fulfilled to the letter. Have I not

saved the country over and over again, when it was on the brink of perdition? and had the government taken my advice, England would now be a fine, flourishing, powerful kingdom, instead of being devoured by its huge debt, its greedy placement, and horrible taxation. But the people know what I have done for them; they see that I am the only man capable of setting things to rights; and the king, and all his ministers, will be obliged at last to come cap in hand to me, to pray that I would help them out of the cursed hobble into which their own misgovernment has placed themselves and the nation!"

"Then, in the name o' the deil, who are ye?" asked the affrighted barber, gasping for breath; while the parish apprentice stood with his mouth open, endangering every fly in its immediate neighborhood; and the black cat raised her back higher than ever, and stared her yellow eyes out of her head.

"Who am I? you snivelling, gawling, sneaking Scotchman," repeated the stranger, as with the aspicion fixed round his neck he wiped the soap from his chin, "I'm BILLY GRIDIRON!" Then throwing the cloth at the terrified barber, who, at the mention of his name, had again sunk on the floor, he darted out of the shop."

SUMMARY.

NAVAL.—An order for building a new steam Frigate, was, we understand, received at the Navy Yard on Saturday last. The model was received, and the timber got out, yesterday. Her force, it is said, will be twelve guns.

The President of the United States has officially recognized F. L. Brauns, Esq. as Consul of Saxony for the port of Baltimore.

The Dutch frigate De Mars, Capt. Arriem, and the brig-of-war Smeendek, Capt. Ferguson, which arrived here from Curacao on the 24th ult., sailed early yesterday morning for Flushing. Soon after getting under way, they complimented the city with the usual salute. On Tuesday his Honor the Mayor gave a splendid dinner to the young Prince and the officers of both vessels. In the evening they attended the Park Theatre, accompanied by Major General Morton.—[Gazette.]

A dinner was given at the Mansion House, on Thursday, by the St. Nicholas Society, to Prince Hendrik, of the Netherlands, who recently arrived in this country in a Dutch National vessel, Chevalier Martini, Chargé of the Netherlands to the United States, and Col. Arriens, of the Dutch frigate De Maas, now lying in the harbor of New York. Several other officers and gentlemen connected with the two vessels of war were expected to have been present, but owing to the necessity of sailing in a few days, some of them were obliged to leave the city on Wednesday.

Among the guests present, were the governor, and the Mayor and Recorder. The venerable President of the Society, Alun. Van Vechten, presided, assisted by Hermanus Bleeker, Esq., and Gen. Solomon Van Rensselaer. The proceedings were characterized by the warmth and feeling that might have been expected on such an occasion; and we doubt not that this expression of regard from residents of our ancient city, the descendants of "Vader Landt," was reciprocated by the Prince and his companions.—[Alb. Argus.]

Extract of a letter from Buffalo.

The U. States Bank has sold out its debt here of \$650,000. Judge Rochester, D. E. Evans, Day & Burt, S. Thompson and Charles Townsend, are the purchasers. They get one, two, three and four years to pay in, at 5 1-2 per cent. interest, and charge 7. It is done ostensibly to relieve the debtors of the Bank, and probably will, many of them.—[Jour. of Com.]

GALENA, 29th August.—The Land Office at this place was opened on the 8th of June last, and from that period to the present time, there has been received for lands sold, Two Hundred and fifty thousand dollars. The district of country, where purchases have been made is below this, bordering upon, or in the vicinity of Illinois River, lying mostly, within the counties of La Salle and Putnam; a body of land, generally speaking, equal to any in the State; and that is as much as to say, inferior to none in the Union.

We are happy to learn that five thousand two hundred dollars have been collected in this city, for the relief of the aged officers and soldiers of the revolutionary war.—[Gazette.]

LUCIFER MATCHES.—A friend of ours who was bound up the North River a few days ago, happened to be early on board the Ohio, and so sat himself down on the back side of the boat to read a book. As the bustle increased, and just as the boat was starting, a porter threw down a trunk at his feet, took two shillings of a countryman for his trouble, and hurried off. Directly our friend discovered an impression of fire on his olfactory nerve, and looking about, beheld the countryman's trunk smoking like a coal-pit. On being opened, it exhibited a doleful mass. In addition to a quantity of Lucifer matches, the countryman had furnished himself with a quantity of small torpedoes which had also exploded, so that the silks and calicoes for the ladies, and the sugar plums for the children, were all in ruins. The affair was hardly over, when our friend walked to another part of the boat, where several gentlemen of his acquaintance were regaling themselves with segars, and beheld the pocket of one of them was smoking almost as much as the countryman's trunk! "Mr. —," said he, "your pocket is on fire,"—and the gentleman pulled out his linen cambric handkerchief, which on coming to the air, blazed up beautifully. The friction of throwing a bunch of matches back into his pocket after taking one to light a segar, had been sufficient to produce an explosion. The countryman's matches were exploded by the concussion of throwing down the trunk. In Germany severe laws have been passed against the having, making, or using Lucifer matches.—[Jour. of Com.]

The following tributary lines are ascribed to the Rev. Andrew Reed, of England, who was recently in the United States and visited the tomb at Mount Vernon:

Washington,
The brave, the wise, the good:
Washington,
Supreme in war, in council and in peace:
Washington,
Valiant without ambition, discreet without fear;
And confident without presumption:
Washington,
In disaster calm; in success moderate; in all himself;
Washington,
The hero, the patriot, the christian;
The father of nations, the friend of mankind;
Who,
When he had won all, renounced all,
And sought,
In the bosom of his family and of nature,
Retirement;
And in the hope of religion,
Immortality.

[From the National Intelligencer.]

The American Sword.

FORGED from Oppression's chain;
Valiantly used,
Wielded when prayers were vain;
Never abused:
Sword, that our fathers drew!
We, by their dust,
Swear to prove good and true
Heirs of the Trust.
Should e'er domestic strife
Call for thy steel,
Be thou the pruning knife,
Wounding to heal!
Should Freedom's foes accurst
E'er seek our shore,
Forth like God's lightning burst
Even as of yore!
Blood rusts thy blade upon:
Why was it shed?
Answer from Lexington,
Glorious Dead!
Cry, from your lowly rest
'Neath the green sod,
"Sons! for our rights, the blest
Charter of God!"
From our Sires' hallowed earth
Breathes a deep tone:
"Not for the South or North
Fought we alone:
All in one holy band
Sought we to bind—
Oh! let not faction's hand
Loose what we have joined!"

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bloeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J35 if

AUBURN AND SYRACUSE RAILROAD.

NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road. Individuals disposed to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

EDWIN F. JOHNSON,
Chief Engineer & Agent A. & S. R. Company.
Auburn, Aug. 22, 1835. 37—t150

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Grading and Bridging of the same.

The Superintendent Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,
Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
Aug. 25, 1835. 37

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Rail Road between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skillful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting.

MONROE ROBINSON, C. E.
Philadelphia, Sept. 2, 1835. s2 StawtO19

AMES' CELEBRATED SHOVELS, SPADERS, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades,
Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
2 Liberty street, New-York.
BACKUS, AMES & CO.
8 State street, Albany.

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices. Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.

Paterson, Aug. 19, 1835. 34—ly

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads.

R-ly feb14

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.
J8 ROGERS, KETCHUM & GROSVENOR.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New-York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—t

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMASTURNER, at the Factory, Troy, N. Y. sept-13 ly

RAILWAY IRON.

35 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 14 to 16 feet, counter sunk holes, end cut at an angle of 45 degrees, with splitting plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 32, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 32, 36, 38, and 40 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. RALSTON,
9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1835.
In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the Levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a revolving telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

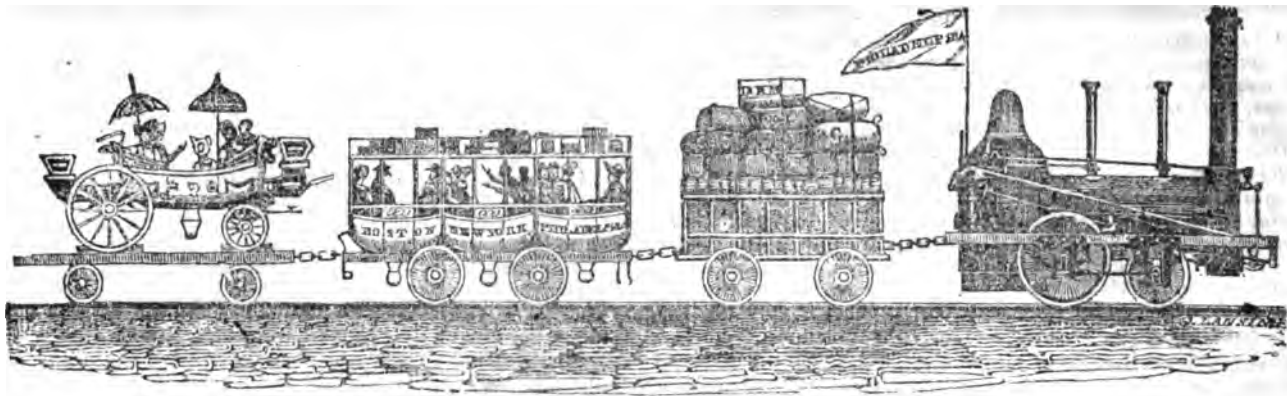
Philadelphia, February, 1835.
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.
Germantown, February, 1835.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
Germant. and Norrist. Railroad



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 33 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, SEPTEMBER 26, 1835.

[VOLUME IV.—No. 38.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, SEPTEMBER 26, 1835.

RUNNING GEARS OF RAILROADS.—We commence in this number, "A Dissertation upon the Running Gears of Railroad Carriages," by Mr. JAMES STIMPSON, of Baltimore, which will be found well worth reading. It will be concluded in our next.

SANDY AND BEAVER CANAL.—We would call the attention of those contractors who are accustomed to *tunneling* for Canals or Railroads, to an advertisement of E. H. GILL, Esq., Engineer, in this number of the Journal—from which it will be seen, that the Tunnel is to be about 900 yards, or nearly half a mile, in length—mostly through a sand-stone rock.

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
38—44

New-Lisbon, Ohio, Sept. 17, 1835.

NEW-ORLEANS AND NASHVILLE RAILROAD.—This road, which at first, by many

of our readers, and indeed even by ourself, was considered more as a subject of conversation, than of serious consideration, is to be pushed forward with energy and spirit. Fifty miles of the road, as will be seen by the annexed notice, is to be put under contract in December next. And it affords us pleasure to say, as we are enabled to do, from information derived from the President and Chief Engineer,—the latter of whom, H. J. RANNEY, Esq., is now on his way to Liverpool, to make contracts for the Rails,—that the Company intends to make it a road of the most substantial character, especially where a wood rail and a flat bar of iron are used. The superstructure is to be of wood. The wood rail is to be 7 by 9 inches, and the iron rail 2½ by 1½ inches, which is, we believe, both thicker and wider than any other flat rail in use.

The survey proves this route to be one of the most feasible that has been projected in any part of the country. The maximum ascent, in the direction of the *greatest* business, that is *towards* New-Orleans, is only ten feet per mile, and *from* New-Orleans it is only 20 feet.

We expect to receive a copy of the report of Mr. Ranney in a few days, when we shall enter more into particulars. In the mean time we would call the attention of contractors to the following notice.

NEW-ORLEANS & NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Graduation and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being

the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,
Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
Aug. 25, 1835. 37

GEORGIA RAILROAD.—We are gratified, says the Augusta, Geo., Constitutionalist of the 8th inst., in being able to inform our readers, and the friends of this laudable undertaking throughout the State, that the work on this road is steadily progressing under the direction of its chief engineer, J. EDGAR THOMSON. The line of this road, after leaving Augusta, pursues the elevated piney ridge, separating the waters of the Savannah river from those of Brier Creek and the Ogechee. This ridge is celebrated for its salubrity, and is believed to be quite as healthy as any part of the United States. European laborers have been engaged on the work during the whole summer, without scarcely a single case of sickness.

The contracts entered into in June last, for the graduation of upwards of 20 miles of this road, are rapidly progressing towards completion, and it will be seen by the annexed notice, that 30 miles more of the Road will be placed under contract on the 31st day of October next.

GEORGIA UNION RAILROAD.

NOTICE TO CONTRACTORS FOR EXCAVATION AND EMBANKMENT, ETC.

Proposals will be received at the Engineer's Office in Augusta, between the 20th and 31st day of October next, for the excavation, embankment and bridging on 30 miles of the Georgia Railroad terminating northwest of Warrenton.

Contractors, unless personally known to the Engineer, must accompany their proposals with certificates or recommendations as to qualification and character.

Profiles of the line and plans of the different constructions on it, will be exhibited at the office after the 10th of October, and all necessary information in relation to the work afforded by the Chief Engineer or his assistants.

Augusta, Sept. 8, 1835.

J. EDGAR THOMSON,
Civil Engineer.

A Dissertation upon the Running Gears of Railroad Carriages—illustrating some of their most important natural Mechanical Actions, inseparable thereto; and also describing a remedy for the evils set forth in the Dissertation, embracing principles not heretofore known. Also, a concise description of a Turning Platform for Railroad Carriages—a Curvature to turn corners of streets, wharves, &c., and Grooved Rails for the Curvatures, and the general use of the streets. Also, a newly invented Wrought Iron Wheel, for Railroads. By JAMES STIMPSON.

In presenting to the notice of proprietors of Railroads my patent for an improvement in the running gears of railroad carriages, it may perhaps be proper for me to set forth the causes which called for this improvement, together with its advantages over any other mode now in use. In doing this it will be necessary to illustrate the true principles of the natural actions and mechanical motions of railroad carriage wheels as heretofore applied; there being several leading characteristics in their operations inseparably connected with them; some of which are prominent and powerful in their effects; and from the observations which I have been led to make, I am well convinced that they are not well understood, for otherwise their ill effects would ere this have been counteracted. I think I am warranted in my conclusions by the fact, that numberless alterations have been made on both sides of the Atlantic in the running gears of railroad carriages, with a view to overcome the difficulties that have constantly attended their operations.

To common observers the application and use of the running gears of railroad carriages appear extremely simple, and unattended with difficulties—merely round wheels running upon smooth iron rails—and at first sight one would be led to believe that such apparent simple and easy movements must necessarily operate without risk of damage either to the wheels, the carriage or the rails. But, in order to form a correct opinion upon this subject, it is necessary to observe that the natural course of running of four wheels of equal diameter is only in a straight line, when their axles are kept parallel to each other; and that whenever the railway deviates from a straight line, it becomes necessary, as wheels are now applied or geared to the carriage, to overcome a great proportion of their powerful adhesion to the rails. These facts have not been sufficiently taken into consideration by those who have hitherto endeavored to obviate the difficulties attending the passage of carriages over curves, crossings, crooks, and unequal undulations in railways; yet this adhesion, which must be overcome, very often constitutes the first great cause of all those difficulties, and renders it necessary, as will be hereafter explained, that the wheels should be made fast to their axles, especially when in the least conical; and that to prevent an extralability of running off the tracks, their axles should be always confined in positions parallel to each other, while their flanges and cones are relied upon to keep them upon the rails, and cause them to conform to the course of the railway. It must also be observed, in order to a correct understanding of the subject, that when the wheels are fixed fast, and set true upon their axles, and their axles are kept parallel with each other, they cannot, without the use of great force, be moved in any other than a straight line, but are in fact,

as to any lateral movement, like four fixed props or legs—and it must follow of course that the force, that will be requisite to produce a lateral movement, must be more than equal to the resistance offered by the wheels to that movement; or in other words, sufficient to overcome their adhesion to the rails. Hence it will be readily perceived in what manner the stress of the carriage is brought to operate upon the naves, axles, spokes and rims of the wheels: for whatever power is used to overcome the adhesion between the peripheries of the wheels and the surface of the rails, must act upon all parts of the carriage and wheels, and of course react upon the axles, keys and naves in an inverse ratio of power proportionate to the difference between the diameters of the wheels and those of their axles. Now it is well known that this adhesion of the wheels to the rails is proportionate to the amount of surfaces in contact and the superincumbent weight to a certain extent; as has been illustrated by the experiments of Mr. George Rennie, Fellow of the Royal Society, London, and ascertained by him to be equal to forty-three per centum for seven hundred and nine pounds upon a square inch—or for every square inch of wheel and rail in contact.

By a calculation based upon these facts it will be found, that upon rails of the usual width, each wheel of a carriage, with a common load, adheres to the rail with a power of more than three hundred pounds. Now to produce an instantaneous lateral movement upon the rails, three of the wheels, as now applied and used, must slide, while the fourth will only have to oblique a little, or twist as it were, in order to conform to the direction of the others—and, by the way, this obliquing or twisting alone produces a damage to the rails and wheels equal to the force exerted by their adhesion together—and hence the great impropriety of using vibrating axles; for it is well known that they are made to oscillate or vibrate far beyond what is necessary to enable them to follow the true course of the road, besides that produced by every considerable impediment to motion under the peripheries of the wheels. I therefore propose to consider some of the most important effects produced by different modes of construction as they suggest themselves to my mind; and also the remedy.

The natural power of adhesion of the Wheel to the Rails.

The adhesion of one wheel being equal to three hundred pounds, that of three wheels will be equal to nine hundred pounds; therefore, a force more than equal to that resistance must be exerted by something in order to overcome it, whenever a lateral movement is required—and it must be borne in mind that this force, when one wheel has to move all the rest laterally, reacts upon the axles, keys, wedges, pins, or whatever may be used to fasten the wheels to the axles, with a power inversely proportionate to the excess of the diameter of the peripheries of the wheels over that of the axles—which is in most cases as twelve to one, and consequently amounts to ten thousand and eight hundred pounds at the nave of the wheel which produces the movement; and three thousand and six hundred pounds upon each of the others at their naves; and as roads are made in this country with frequent curvatures in different directions, and also with crossings from one track to another, when the power to be exerted is still greater than upon curves, this stress upon the axles and wheels is

acting and reacting almost constantly. Who then can be surprised at their early destruction?

The means relied upon to change the direction of the Carriage.

Let us now inquire what means are provided and used to effect a lateral movement, and to overcome the above mentioned resistance thereto; or in other words, to change the direction of the carriage and cause the wheels to follow the track without force; keeping in mind at the same time that from the causes before stated the wheels will run only in a straight line, and that they are held in that course by the parallelism of their axles and their power of adhesion—that is to say, a power of adhesion equal to three hundred pounds for each wheel at its periphery—and we find that a single cone is all that is relied upon to effect the object and to change the direction of the carriage when required.

The amount of the adhesion of a cone compared with that of the tread of the Wheel.

Let us next inquire what power one cone has to enable it to overcome the resistance of nine hundred pounds; which will be the resistance of three wheels when one cone acts alone, as before stated. Now, the power of adhesion being proportionate to the bearing surface and weight, up to seven hundred and nine pounds for each square inch of wheel and rail in contact, it follows that when a cone comes with its obtuse angle in contact with a flat horizontal rail, its bearing surface is thus reduced to less than one fourth of that of either of the other wheels, which, at the moment when the cone begins to act, are upon their treads, its power of adhesion by its reduction of bearing surface is thereby reduced to less than seventy-five pounds. How can a power of seventy-five pounds, acting with no extraneous advantages, produce a change in the direction of the carriage, which is held in its straight course by a power of nine hundred pounds? It must be admitted that it is impossible. It follows then that the wheel on its cone must itself slide as much as its periphery exceeds that of either of the wheels running on their treads; and that it must continue to slide in that proportion until the vertical part of the flanch impinges against the edge of the rail, when the resistance to a change of direction in the carriage will be overcome by main force; that is, by means of the flanch. This will always be the case, unless the full size of the cone on the hind wheel, or a diameter thereof corresponding to that of the front wheel upon the same side of the carriage, comes in contact with the rail in time to act before the flanch of the front wheel is caused to impinge as aforesaid, for then the direction of the carriage will be changed by the joint action of the two cones, which have a leverage power over their two fellows equal to the length of the axles; and as the wheels upon their treads have only to oblique as they roll, and not to slide, they will yield to the action of the cones of their fellows.

When the direction of the carriage is about to be changed or turned from a straight line at the commencement of a curve, the fore and hind wheels on the outside of the curve cannot be in contact with the rail upon equal diameters simultaneously; consequently there must be a sliding somewhere until the hind wheel reaches the point where the curve commences and runs upon its cone to a diameter corresponding with that of the fore wheel: during all which time the strain upon the footings

and axles must be in proportion to the power of adhesion, &c., as before described. To this cause we may ascribe the early destruction of the wheels by the wearing out or indenting of the surfaces of their cones, and their constant tendency to work loose; and hence also the danger of using large wheels, unless the size of the axles be also large.

The ill effects produced by the cone not being able to change the direction of the carriage in season, and also why it is not changed, &c.

There is one extremely pernicious effect produced by the forcing of the wheels on one side of the carriage upon a higher part of their cones than is necessary before they are able to turn the carriage into the true course of the railway, to which I would call particular attention.

It is a well known fact, and has often been observed by travellers on a railroad, that the carriage will run from one side of the railway to the other, producing a kind of vibratory motion extremely unpleasant to the passenger. This is caused by the cone's not being able to change the direction of the carriage in season as before stated, and which is produced in the following manner: The wheels on the outside of the curve or crook at its commencement having been forced to run upon the very highest part of their cones by the causes herein before enumerated and explained, that is, want of power to change their course, they are in contact with an increased diameter to an extent that causes them to have a tendency as soon as they can act to turn a much shorter curve than that required by the railway upon which they are running: so that they necessarily cause the carriage to give a rank shear across the railway, whereby it is thrown upon the opposite side, and the other wheels forced upon the higher part of their cones on that side, also causing the carriage to take another shear back again; and thus it continues to vibrate from side to side, until all the wheels are brought to run upon that part of their cones or treads which adapts their diameters to the true course of the railroad. This vibratory motion will be produced, not only by curves and crooks, but by any unequal undulations or unevenness in the surface of one track of the railway, more than the other: thus, when it becomes necessary for one wheel to describe more space in the same time than either of the others—and from the causes set forth it cannot do it—there must be a dragging or sliding, which, whenever it does occur, an immense stress upon the wheels is produced, and a proportionately unnecessary wear to both rails and wheels.

The improvement will allow the carriage to change its course of direction with perfect ease.

One of the beauties of my improvement consists in its being a complete remedy for the evil consequences above set forth—for this improvement permits a single cone to change the direction of the carriage the instant it touches upon the rail at the commencement of a curve, and steer it precisely in the course of the railway, without causing the flanches to impinge against the rails, or producing any stress upon the axles, the wheels, or the carriage.

The importance of the improvement at the crossings.

But when the carriage is about entering

a switch at a crossing the importance of this improvement becomes immense; for it reduces the force of action or stress between the flanch and switch more than one-half; which is a great security against its running over the switches, and cutting away their top edges or breaking the flanch by the force of the blow.

Large Wheels may be used, &c.

By the application of my improvement, large wheels, if made in a proper form, may be used with safety where the tracks have no very short curves, and without increasing their weight or that of the axles beyond what would be their due proportion for their increased size, without any regard to the stress caused by adhesion, &c. With respect to the size of wheels, there is something to be said in favour of both large and small. Small wheels are lighter, safer in turning short curves, and easier to load heavy goods upon; but the smaller the wheel the less the bearing surface upon the rails: and the more rapidly will both wheel and rail be cut and worn away by the crushing of gravel between their surfaces, and also the metal itself. Small wheels make more revolutions in a given space, which creates more heat at the gudgeon and consumes the oil much faster. They also require more power to move them; and when passing over stones or any uneven places in the tracks, their concussions therewith are much more severe and injurious to wheels, carriage and rails, under equal speed, than when the wheels are large; and therefore they are more unpleasant to passengers both in their actions and on account of the noise they produce. When the roads are nearly level and tolerably straight, I should prefer wheels of thirty-six to forty-two inches in diameter for passenger cars that are intended for speed; and with the use of my improvement wheels of this size will cause less expense per annum, taking every thing into view, than smaller sized wheels.

When the wheels are composed partly of iron and partly of wood, and the stress naturally resulting to wheels made fast to their axles is properly considered, together with the effects produced upon them by the variations of the weather, the immense importance of the easement to motion, and relief from lateral or other strain, afforded by the application of my improvement, becomes the more conspicuous. Indeed for such wheels the use of this improvement is as indispensable as iron shoes are to horses upon hard roads.

The saving of power to a locomotive that would be made by the application of my improvement throughout a train of cars, is worthy of particular consideration; for without it in the same sliding of the wheels, which has been before spoken of, would appertain to each car, and thus the resistance resulting therefrom would be increased to a large amount by the number of cars in the train. It would thus require a proportionate increase of power to overcome this resistance; the exertion of which would produce extra stress upon the engine and boiler, and render it necessary to keep up the fire by an extra quantity of fuel, the excess of which heat is most certain to destroy the fire pipes. Now if the train of cars of the same weight can be moved over the same road with fifty pounds of steam instead of sixty, the saving is more in every respect than it would at first sight appear to be, and more especially in respect to the effects produced upon the engine, boiler, fire pipes, &c.; for the higher the pressure

of the steam the more power is requisite to move the valves, consequently they will wear out faster in all their connecting parts and get out of repair much sooner, and the more liable will the joints of the boiler, the pipes and all parts be to fail; and when the least thing does give way, all operations or movements are brought to a stand. The cost of the locomotives at the lowest estimation, embraces an item of expense which should leave no auxiliary to their duration and safety unnoticed.

The bad tendency of loose wheels—they have no power to guide the carriage.

As a means of avoiding the evils attendant upon the use of wheels made fast to their axles, resort has been had to wheels loose upon their axles—but to this mode of gearing there exist inseparable objections, which prove that the remedy is far worse than the evil; for the wheels themselves are rapidly destroyed at their naves and peripheries—the axles within the naves, with the collars and washers, as well as the rails themselves, are also subjected to an immensely increased wear and tear. Besides these evils there is a great loss of power, for loose wheels have not the power to guide the carriage, and the consequence is that their flanches will continually impinge against the edges of the rails, and thus the flanches and rails will cut each other in proportion to the power of adhesion which the treads of the wheels have to hold the flanches up to the edge of the rails. Nor have loose wheels the power to guide the carriage even when they are provided with cones upon their peripheries; for when the carriage approaches a curve, the front wheel, which first meets it, must run up upon its cone; the effect of which is, not to guide the carriage, but to impede its own motion, for being loose, it acts independently of its fellow wheel upon the same axle, and of course when its periphery is increased, instead of its acting as a guide to its fellow, it will merely describe the same space at the same time without turning so far on its axle. Its own motion is impeded, because in the very act of running up upon its cone, it runs as it were up-hill; and its diameter being increased, it is thereby made to sustain more than its due proportion of the weight of the carriage and load; both of which circumstances produce resistance to its advance. Nor will the direction of the carriage be changed until the flanch of the wheel strikes against the rail, and then the direction will be changed, but the flanch will grind along against the edge of the rail, producing an immense resistance to its own progress, and great injury to itself and the rail.

The facts must be obvious to all who have given best subject a thought. The wheel at the can have no more power of itself to change the direction of the carriage, than the amount of adhesion of the inside of the nave to the axle; which is of itself totally inadequate to the task.

But there are other ill consequences attendant upon the use of loose wheels, some of which I will endeavor to point out. Immediately after the flanch upon the front wheel touches the rail, that of the hind wheel will do the same—when their united resistance to motion will cause that side of the carriage to lag, and if there is any play in the joints of the transverse rails of the carriage where they join to the cheeks, it will cause the wheels on the other side of carriage, (which always run free when flanches of their fellow wheels are in con-

tact with the rail,) to get in advance, and thereby keep the flanges of their fellow wheels crowded up to the rail on the other side, by the course of their own direction, and keep them continually in contact therewith.

[From the Journal of the Franklin Institute.]

On the comparative Corrosion of Iron, Copper, Zinc, &c., by a saturated solution of common salt. By A. D. BACHE, Prof. of Nat. Philos. and Chem., Univ. Penn. To the Committee on Publications.

Gentlemen,—An inquiry was addressed to me some months since, by Mr. Joseph S. Walter, Jr., in relation to the material which would be most proper to be used for pipes to convey a strong solution of common salt to a pump intended to raise it, and for the material of the pump itself. From this solution it was intended to recrystallize the salt. The circumstances being of a somewhat complex character, I determined not to be satisfied with the indications of general theory, but to try the experiment, under the circumstances of the case, as nearly as might be possible. The materials in relation to which inquiry was particularly directed, were iron, copper, brass, lead, and zinc. Of these, the rapid oxidation of iron, when exposed to a solution of common salt, is well known; the corrosion of copper by sea water is also well known; the influence of the earthly muriates contained in the ocean prevents this case, otherwise very closely resembling that in question, from corresponding precisely to it, the common salt referred to containing these muriates only as impurities. Zinc does not decompose water readily, and oxidates very slowly, even when exposed to the combined action of air and moisture; it also ranks below sodium in the list of electro-positive metals; its chloride, however, is soluble. Lead is readily acted upon by the combined agencies of air and water, first oxidating, and then passing to the state of a carbonate; its place in the list of positive electrics is below zinc, and, of course, below sodium, which latter we should expect, therefore, to have the greater affinity for chlorine; the protoxide of lead, however, and several of its salts, interchange elements with chloride of sodium. The chloride of lead is insoluble, and hence the presence of soluble muriates acts as a protection against the corrosion of lead by water.

As the experimental results directly obtained may possibly prove of value to others than the estimable individual for whom they were to be applied, I have thought it right to put them on record.

The materials used were iron, copper, brass, lead, and zinc, the metals being as presented in commerce, and, therefore, probably not quite pure. They were prepared in rectangular plates, about two and a half inches in length, and three fourths of an inch in width, and varied in thickness from .03 to .07 of an inch. These were placed in glasses containing saturated solutions of common salt, rather less than one fourth of an inch in depth from the top of each plate being left exposed to the air. The vessels were left uncovered, and the evaporation of the water of the solutions was supplied from time to time during the exposure. The temperature in the room in which the vessels were placed, was not very different from 50° Fahr. during any part of the time.

After an exposure of about three weeks, the plates were removed from the solutions, and carefully washed and dried. Having been weighed before placing them in the solutions, they were now again weighed, and the loss of weight ascertained.

The iron plate was found covered with oxide of iron, strongly adhering to it in part, and in part deposited at the bottom of the glass containing the solution. There was upon the upper plate, and in the glass, a deposit of proto-chloride (white) of copper, colored by carbonate of copper, and a similar deposit upon the brass plate. The lead and zinc had been, to all appearance, very slightly acted upon; there was upon the latter a white deposit, probably of oxide of zinc.

The following table shows the amount of surface actually exposed to the solutions, the weight of the entire plates, and the loss of weight by the exposure. I have not reduced the weights used to grains, because the object is merely to obtain comparative results.

Material exposed.	Surface exposed.	Weight of plate.	Loss of weight.
Name.	Sq. inch.	Grammes.	Grammes.
Iron.	4.656	6.320	.312
Copper.	3.936	10.720	.059
Brass.	4.138	5.150	.029
Zinc.	4.572	6.115	.003
Lead.	4.762	20.080	.013

From the foregoing data I have calculated, below, the loss of weight, in grains, which a surface of forty square inches, or a plate of twenty inches on each surface, and very thin, of the materials would have suffered, and the relative loss by each material, referring to that which lost least, namely, the zinc, as the standard of comparison.

Material.	Loss of w'ght by 40 square inches of surface.	Comparative loss by exposure of same surface.
Name.	Grains.	Ratio.
Zinc.	0.40	1.00
Lead.	1.68	4.20
Brass.	4.31	10.78
Copper.	9.07	22.68
Iron.	41.27	103.18

The corrosion of the iron, with the same extent of surface as zinc, and exposed to a solution of common salt for the same length of time, is thus shown to be upwards of one hundred times [that of the zinc. The zinc appears to protect the copper in the brass, probably by rendering it electro-negative, and thus diminishing the affinity of the chlorine, which would otherwise destroy the copper.

Since the experiments indicate zinc and lead as the materials to be selected from those named, on account of the slight corrosion which they suffer, lead would obviously have been the material selected for the pipes to conduct the solution of salt to the pump, and zinc for the material of the pump, the selection depending upon well known properties of these metals.

The coatings formed upon both the lead and zinc, would protect the underlying surface from action, unless removed by mechanical force.

[From the Albany Daily Advertiser.]

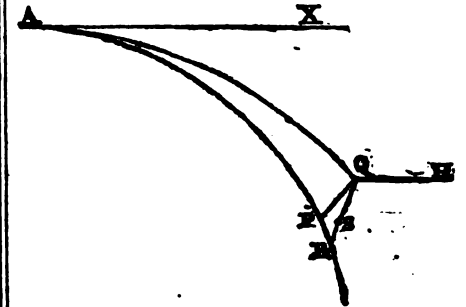
SANDUSKY AND MAD RIVER RAILROAD.—On the 16th of this month, yesterday, thirty-five miles of the road were put under contract, and the residue of the distance, one hundred and eighteen miles, is preparing for contract. A great celebration was to take place this day in honor of the commencement of the work, and Gen. Harrison was expected to be present. Mr. Bell the Engineer-in-Chief, has received a request from the Leipsic and Dresden Railroad Company, to come immediately over, and take charge of that work.—This is the first instance of an American having received such an offer.

[For the American Railroad Journal.]

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points. By J. S. VAN DE GRAAFF.

(Concluded from No. 31, p. 483.)

Example 2. Let A R represent the curve of a graded roadway, and suppose A Q to be an approximate curve, traced 10 chains, of



100 feet each, with a modulus of curvature of 2° 45'. From the extremity at Q, suppose a normal line Q P to be measured 40 feet to the centre of the roadway at P. It is proposed to show a method of ascertaining the modulus of curvature which will trace the curve A R.

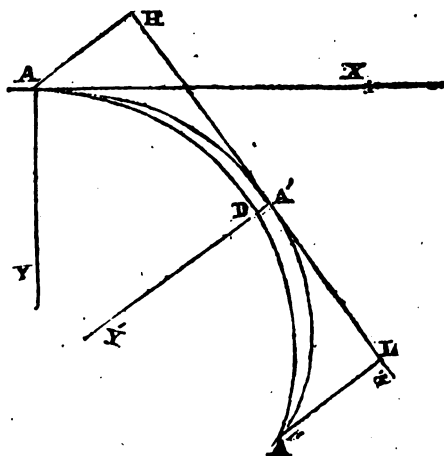
In order to obtain an approximate value for the new modulus of curvature by means of (XXXIX.), the given data are, $T = 2^\circ 45'$, $n = 10$, and $w = 4$; that is, $T' = 2^\circ 45' + \frac{4}{10} = 2^\circ 45' + 0.4 = 2^\circ 45' + 0.175 \times 100 = 2^\circ 45' + 17.5 = 2^\circ 58\frac{1}{2}'$. Now, if a new curve were to be commenced at the origin A, and traced agreeably to the modulus of curvature $2^\circ 58\frac{1}{2}'$, it would not touch the point P by a deviation of about 3 feet, as an accurate calculation will show, and a variation of even 6 inches from the true centre of a graded surface is frequently a matter of some consequence. If a small error be made in the modulus of curvature at the commencement of a curve, it is not a proper remedy, after the line begins to deviate a material quantity from the true centre, to make a new change of curvature merely to correct the former error; for such a method of operation not only shows a great want of skill, but it also multiplies the difficulties when the road at any future time may want adjustment. When, therefore, the approximate result, $2^\circ 58\frac{1}{2}'$, has been obtained, the next thing required to be done, by means of an instrument placed at Q, is to ascertain the true position of a point S, where the extremity of the 10th chain in the new curve would be situated, without actually tracing that curve upon the ground. The length and position of the line Q S may be correctly computed by means of (XXIII.), and (XXIV.); and then having measured the amount of error S R, to the centre of the roadway, the modulus of curvature required may be determined by means of (XXXIX.) For the given data will then be $T = 2^\circ 58\frac{1}{2}'$, $n = 10$, and $w =$ measured distance S R.

It will be here easily observed that there are two sources of error in the first result obtained from (XXXIX.) The greatest part of this error arises from the want of coincidence in the directions of the lines Q P and Q S; for an accurate calculation will show that in the present example, a difference of $13\frac{1}{2}'$ in the moduli of curvatures corresponds accurately with a distance of 39 feet between the two extremities of the curves, which agrees with the distance

supposed in the first calculation, within one foot. But owing to the obliquity of the line Q S, a new curve laid from the origin A, agreeably to the modulus of curvature $2^{\circ} 58' 3''$, would intersect the line Q P at about 37 feet from the point Q, and therefore pass 3 feet from the true centre of the roadway.

Example 3. Suppose A A' and A' A'' to represent two different curves, connected together upon a common tangent at the point A', and selected in the field by tracing systems of rectangular lines agreeably to the method of co-ordinate axes as explained in art. 17; and let the numerical values of all the quantities remain as in the example given for that article. Now, in the place of these two curves, it is proposed to lay one continuous curvature from A to A'', if the ground about the intermediate point A' will permit such an alteration; and it is therefore required to know how far the new proposed curve A D A'' would pass from the point A'.

It is very evident that the co-ordinates A' H, H A, of the point A, taken with reference to the axes A' X', A' Y', are respectively equal to the co-ordinates x, y, of the point A, taken with reference to the axes A X, A Y. Hence, the given data for com-



puting the modulus of curvature of the proposed curve A D A'', by means of (XXII.), are the following: $\alpha = A' H = 20.21$ chains, $\beta = H A = 12.47$ chains, $x = 17.18$ chains, $y = 10.24$ chains, and $z = 63^{\circ} 20'$. Therefore, $\sin. T' = -2.23 \times \cos. 63^{\circ} 20' + 37.39 \times \sin. 63^{\circ} 20'$

$$= \frac{32.412}{1403} = .02310; \text{ or, } T' = 1^{\circ} 20' = \text{modulus of curvature which would trace the continuous curve A D A''}.$$

The data for computing the distance A' D, by means of (XXXVIII.), will now be, $n = 25$, $T = 1^{\circ} 16'$, and $T' = 1^{\circ} 20'$; that is, $w = .0175 \times 625 \times \frac{4}{60} = 0.75 = \text{the required distance A' D nearly, expressed in chains}.$

30. When two curves, having their respective moduli of curvatures represented in degrees by T and T', are laid from different origins upon the same tangent line, let α denote the number of chains between the origins. If, then, the curve T be continued n chains, and the curve T' be supposed to contain $n \pm \alpha$ chains, it is evident that the following formula will obtain for a reason similar to that in the preceding article, the quantity w denoting the same line as before:

$$w = qn^2 T \rightarrow q \cdot n \pm \alpha^2 \cdot T'. \quad (\text{XL.})$$

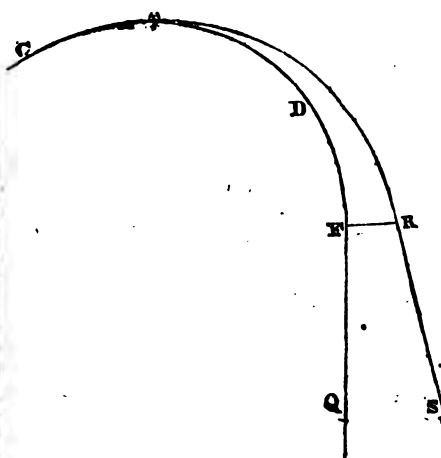
The expression thus obtained will be frequently useful in the field when short curves only are under consideration; and if it be supposed that $w = 0$, a formula may obviously be easily deduced which will correspond to (XIX.) by an approximation. For then $n^2 T = n \pm \alpha^2 \cdot T'$; that is,

$$T' = T \times \frac{n}{n \pm \alpha^2}. \quad (\text{XLI.})$$

This expression is remarkably simple, and will be very convenient for short curves.

31. Let C A D F represent a given curve, whose modulus of curvature is denoted in degrees by T, and let it pass into a tangent F Q at any given station F. Let also F R represent any small distance immediately on the right or left of the station F, and R S a straight line, whose inclination to the line F Q is denoted by a given quantity z° . It is then proposed to determine a point A in the given curve C A D F, and the requisite change of curvature at A, in order to lay the curve A D F into the position A R, and the tangent F Q into the position R S.

Take w to represent the small given distance F R, and let n denote the required number of chains from A to F, and T' the required modulus of curvature of the new curve A R.

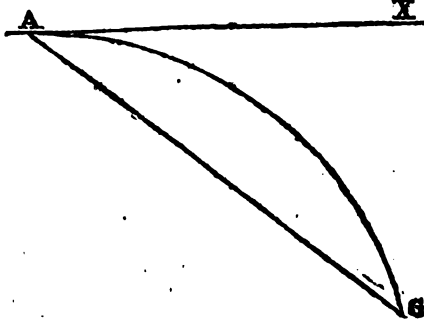


* The two equations, $z = 2n \cdot (T - T')$, and $w = qn^2 \cdot (T - T')$, are furnished by means of (V.) and (XXXVIII.) respectively; and therefore, by eliminating n and $T - T'$, the following expressions will result:†

$$n = \frac{2w}{qz} \quad T - T' = \frac{qz^2}{4w} \quad (\text{XLII.})$$

These formulas will be very convenient in the field when two short curves in reversion are to be connected by means of an intervening tangent common to both curves.

32. Suppose A X to represent a given



tangent line, and A a given point therein, which is designed for the origin of a certain

required curve to be laid passing through a given point G. Suppose, also, that the point G is visible from the origin A, and that the approximate distance A G is known. It is then proposed to find the necessary modulus of curvature, in order to trace the required curve A G.

By means of an instrument placed at the origin A, let the angle X A G be measured, and let its value be denoted by D'. It evidently appears from (II.) that the angle D' will contain the modulus of curvature as often as the curve A G contains chains. Hence,

$$T = \frac{D'}{n} \quad (\text{XLIII.})$$

The expression thus obtained is extremely simple, and for short curves will be highly useful in the field.

HEAT.—For a long time, philosophers have supposed that meteoric iron is made hot while traversing the atmosphere. A curious experiment was resorted to by M. Bierley, a foreigner, within a few months, which may possibly be of some service to those engaged in similar pursuits. A bar of iron, heated to whiteness, was held against a strong current of air (from the blowing apparatus of a forge. Singular as it may seem, the bar, instead of cooling, burned very brilliantly, throwing off scintillations in every direction. The temperature rather increased than diminished. This experiment makes it very certain that a metallic mass, whirled through the upper regions of the air, would become extremely hot and eventually sparkle, as many meteors do just before they fall.—[Scientific Tracts.]

Report to the Board of Directors of Bridges, Public Roads, and Mines, upon the Use of Heated Air in the Iron Works of Scotland and England. By M. DUFRENOY, Engineer of Mines. Paris, 1834.

(Continued.)

REMARKS UPON THE NATURE OF THE COAL EMPLOYED IN THE FURNACES USING CRUDE COAL.

It results from the preceding description, that certain coals, those of Wales, are employed in their natural state, for the fusion of iron ore in the smelting furnaces in which combustion is sustained by cold air.

That a great number of others—the coals of Glasgow, for example—are also susceptible of being used in the crude state, when the hot blast is employed; but that, for some varieties, the transformation into coke appears still to be indispensable, whatever be the plan on which the iron is made. To appreciate the causes which produce these remarkable differences in the properties of these coals, I have collected samples of most of those employed in the works spoken of in this report, which M. Berthier has analyzed in the laboratory of the School of Mines, and the results of which he has communicated.

Coal employed in the crude state in the Welsh Iron Works. Cold Blast.

	Dowlais.	Cyfartha.	Pen-y-daman.
Carbon,	0.795	0.784	0.768
Ashes,	0.030	0.028	0.032
Volatiles matters,	0.175	0.188	0.200
	1.000	1.000	1.000

The coal of Dowlais is lamellar, separating across the layers in smooth and brilliant plates. This coal is composed of two distinct parts, one brilliant, dividing into

small cubic fragments; the other, completely hard, fracture conchoidal, is nearly analogous to the Cannel coal.

These two varieties do not blend, but form in each strata small beds of greater or less thickness; the brilliant part greatly predominates. The Dowlais does not soil the fingers; it swells very little in coking, and does not cake; the ashes are perfectly white.

The coal of *Cyfartha* is rather slaty, or lamellar, but is composed, as the preceding, of the union of the brilliant and compact black parts, intimately mixed, like the quartz and feldspar crystals in granite.

These two varieties of coal act very differently; that having a brilliant fracture swells and cakes sufficiently, whilst the dull kind is dry, and does not change by exposure to the fire. It is probably this mixture that gives to the coal employed at the *Cyfartha* works the property of resisting more than any other the action of the blast, and the different movements which take place in the furnace; its friability is also due to this circumstance; but the bitumen, which exists in sufficient abundance in the shining coal, cements the different parts of this coal, and gives it a great solidity after having been exposed to the fire.

The coal of *Pen-y-danau* has the same properties as the preceding, except that the mixture of the two kinds is less intimate. These three coals, belonging to the coal basin of Wales, are very dry, and owe this property to the excess of carbon which they contain; they are analogous to the coal of Rolduc.

Coals employed in a crude state in Furnaces worked with Heated Air.

	Environ of Glasgow.			Staffordshire.		
	Clyde.	Calder.	Monkland.	Tipton near Wed'y.	Butterly.	Codnor Park.
Carbon.	0.644	0.510	0.502	0.675	0.570	0.515
Ashes.	0.046	0.040	0.014	0.027	0.030	0.030
Volatile matters.	0.005	0.030	0.115			
	0.130	0.081	0.094	0.300	0.400	0.455
	0.166	0.330	0.215			
	1.000	1.000	1.000	1.000	1.000	1.000

The coal of the environs of Glasgow, employed in the Clyde, the Calder, and the Monkland works, present characters sufficiently marked, and of a composition very analogous, as seen by the preceding table.

This coal is usually dull, a little compact, hard, and does not crumble between the fingers; it presents, in its transverse fracture, a series of small lines, which gives a slaty appearance, though it does not, in reality, possess this quality. It is very well stratified, and the lumps cleave in flat fragments, of greater or less thickness: the surfaces of separation are almost always marked by black carbonaceous matter, which soils the fingers, and resembles charcoal in its fibrous appearance and dull color.

This coal is often traversed by extremely thin fillets of carbonate of lime, the direction of which is perpendicular to the layers, and sometimes pyrites is found.

The pieces of Glasgow coal submitted to analysis, softened but slightly; they cement together without change of form.

The coal of *Tipton*, which supplies the works of Lloyd & Forster, near Wednesbury, is slaty; it is composed of small beds, a few lines in thickness, separated almost always by an extremely thin bed of black carbonaceous matter, like charcoal. This substance is so abundant, that a piece of coal is rarely found at Tipton more than four inches thick, which does not present one or two layers of this friable ma-

terial. This coal, shining in its fracture, divides into small pseudoregular fragments; it is slightly tenacious, and swells but little in coking.

The coals in the environs of Derby are divided into two principal qualities, designated under the names of *Cherry coal*, and *Soft coal*; the first, which is the harder, resists the action of the fire better than the second. The furnaces of Butterly, which use heated air, consume the *Cherry coal* exclusively; this coal is slaty, and presents lines of dull black, which gives it a strong resemblance to the coals of Scotland.

The soft coals, employed principally for steam engines and puddling furnaces, are used also, at Codnor Park, for the roasting of ores. This coal is shining, slaty, and separates in pieces by very light pressure; it contains some thin portions of black and friable carbonaceous matter, already alluded to.

Notwithstanding the considerable loss which these two coals sustain by coking, they scarcely change their form; they swell and cake slightly, and their ashes are perfectly white.

Coals that appear to require transformation into Coke, when employed even in Furnaces worked with Heated Air.

	Birtly Works, near Newcastle.	Tyne Works, near Newcastle.	Apdala Works, near Newcastle, Staffordshire.
Carbon.	0.605	0.675	0.694
Ashes.	0.040	0.025	0.035
Volatile matters.	0.355	0.300	0.341
	1.000	1.000	1.000

The coal consumed at the Birtly and the Tyne Iron Works comes from the mines in the environs of Newcastle-upon-Tyne; it is shining, and splintery; it does not soil the fingers, nor does it crush by a light pressure.

This coal is, in general, very pure, containing no veins of carbonate of lime, or pyrites; it is very adhesive, and swells much by the action of heat, so that the value of the coke exceeds that of the coal employed. I am assured at the Tyne Works, that they have tried in vain to work Newcastle coal in the crude state.

The coal of the *Apdala Works* is lamellar, shining and splintering in the direction of the strata; it divides into small quadrangular fragments; in the cross fracture, it presents large bands, perfectly smooth, and very brilliant. This is owing to the superposition of small layers, of which the nature is a little different; this coal is very adhesive, swells in the fire, and gives a light, silvery, but very solid, coke.

If we compare the composition of the different coals that we have examined, we perceive—

1st. That the coals employed in a crude state, in the furnaces worked with cold air, are dry, very carbonaceous, and, in fact, true anthracites.

2d. The coals, as those of Scotland and Derbyshire, which, though bituminous, serve, in a crude state, for the fusion of iron ore in the smelting furnaces worked with heated air, are, however, still dry coals.

3d. Finally, the fat, bituminous, adhesive coals, which change their volume, and swell by the action of fire, appear still to require a transformation into coke, to give advantageous results in the smelting of iron ore.

QUALITY OF THE PIG IRON AND BAR IRON OBTAINED IN THE WORKS USING THE HEATED AIR BLAST.

The iron for castings in Scotland bears

a less commercial value than that of Staffordshire. The first were quoted in the Liverpool market, in the month of July (1833) last, at 4l. 15s. sterling per ton, whilst the Staffordshire iron sold, at the same time, for 6l.

The difference between the price of these kinds, together with the prejudice generally entertained that the hot blast is unfit for the manufacture of iron, led some to doubt the advantages to be derived from the new method. The numerous observations I have made, tend, on the contrary, to prove that, for cast iron, at least, the products of the furnace working with heated air are superior to those of the cold blast. The less value of the Scotch iron is no evidence against this opinion. In fact, the Staffordshire iron has always been regarded as the most suitable for castings, and has always borne a higher price than that from most of the other parts of Great Britain; perhaps, also, the great difference in price between the Scotch and Staffordshire irons may be accounted for by commercial circumstances, for the Scotch now make iron much cheaper than others, and the production being increased almost one-third, by the employment of heated air alone, the iron masters have thought it to their interest to reduce the price of their iron, which they are enabled to do without loss.

It would be desirable if this important question could be decided by direct experiments; but for want of such, I will state the uses of these different products in the arts—uses which are, perhaps, as conclusive as experiments.

In the works near Glasgow, they make iron only for the foundry; I have seen the iron which they produce employed for the manufacture of castings, which require great strength and softness, to wit: steam engine cylinders, boilers, gas pipes, mill gearing, &c.

At Birtly, near Newcastle, and at Butterly, near Derby, I have also seen steam engine cylinders, pipes for water pumps, and fastenings for iron bridges.

I should state that the furnace of Torteron, at the Fourchambault works, in the Nièvre, produces, since the use of this plan, gray iron, which competes in the market with that from England.

The iron manufactured from hot blast pigs is also of very good quality.

At Codnor Park, near Derby, this iron is employed in the constitution of different parts of the steam engine, of chains for suspension bridges, and of straps and cross-bars in iron bridges.

The iron produced at the Tyne works is wrought into sheets, for steam boilers, gasometers, &c.

At Wednesbury, the iron is also of good quality, and serves for purposes which require great strength.

These different examples prove that, by means of the hot blast plan, as well as by the old mode, superior metal can be made for foundry purposes, and which is well adapted for conversion into wrought iron; but it must not be thought that, by means of this plan, the faults which result from the nature of the ore, or coal, can be corrected.

PROBABLE CAUSES OF THE INCREASE OF HEAT, DUE TO THE USE OF HEATED AIR.

I have remarked several times, in the course of this report, that the temperature of the furnaces worked with heated air appears to be higher than in those where combustion is sustained by the use of cold air; all the indications which are usually considered as guides for the working of the furnace unite in proving this assertion.

The scoria does not attach itself above the tuyeres; the color of the fire, in this part of the furnace, is so white as to be injurious to the eyes; the scorias, which are very liquid, flow with facility; the metal being hotter, can be cast directly into the most delicate objects. The quantity of ore in each charge is augmented in a great proportion, whilst the quantity of flux is decreased. This diminution in the proportion of melting is, of itself, the strongest proof of the increased temperature of the furnace; it indicates to us that the earthy matters find sufficient heat to fuse with a small addition of flux.

Probably it is to this excess of temperature that we should attribute the faculty of employing certain coals in a crude state, the transformation of which into coke appeared indispensable, at a less elevation of temperature.

In spite of these certain proofs of the increased temperature by the introduction of hot air into the furnaces, we cannot demonstrate its existence in a positive manner; but it appears to me that, to a certain point, a reason for this phenomenon may be given, by comparing that which passes in the furnace, by the constant introduction of air, to that which takes place by the mixture of two liquors of different temperatures, which we know will produce a mean temperature. The comparisons which I establish appear to me to be just, though the furnaces are in circumstances very different from the liquids having a given temperature, because the heat is reproduced without intermixture, by the combination of carbon and oxygen.

By admitting this cause of the augmentation of heat, it might be supposed to be very slight; on account of the great difference which exists between the temperature of the furnace, and that of the air which sustains the combustion; a difference that we have no accurate means of appreciating. I will show hereafter that this cause is not so feeble as might at first be supposed.

There is, I believe, another much more powerful cause, which it is impossible to estimate; it results from combinations, which could not be produced at the ordinary temperature of the furnace, and which are developed by the augmentation of heat due to the substitution of hot for cold air.

We see constantly, in our laboratories, examples of this phenomenon; substances which are acted upon slowly, and with much difficulty, by acids, at the temperature of the atmosphere, dissolved with facility when the liquor is slightly heated, and the combination formed often becomes itself a powerful source of heat. The operation of the smelting furnaces presents to us, perhaps, similar circumstances. The bitumen, and certain gases, which cannot burn at the temperature of the furnace using cold air, becomes ignited by the feeble augmentation of heat produced by the introduction of heated air; and the little smoke which passes out from the tunnel head when crude coal is consumed, and also the color of the flame, authorizes the belief that the bitumen, the hydrogen gas, &c., are almost wholly consumed.

This supposition naturally answers the objection that may be made, that, even admitting a certain augmentation of temperature by the introduction of heated air, there can be no diminution in the quantity of fuel consumed, because the diminished amount of fuel used in the furnace is compensated for by that required to heat the air.

We have stated that the quantity of air injected into the furnace could, by its great

mass, have the power of cooling it to a considerable degree.

This mass of air was raised in the Scotch works, before the adoption of the hot air plan, to 2800 cubic feet per minute, weighing 214½ pounds. The quantity of air injected in each day, therefore, may be estimated at about 140 tons.

The total amount of coal, mineral, and flux, does not exceed thirty-four tons; the weight of air, therefore, injected into the furnace, is more than four times that of the solid materials used in the same time.

We may conceive, therefore, that so considerable a mass, of which only a fifth part sustains combustion, thrown into the furnace at the mean temperature of the atmosphere, will produce a much greater refrigeration than when raised to the temperature of more than 600 degrees.

A circumstance which still tends to diminish, in a great degree, the refrigerating power of the air, by the use of the new plan, is, that the quantity of air is much less. In the furnaces of Scotland that we have taken for example, the quantity is reduced from 2800 cubic feet, to 2100 per minute, or twenty-five per cent.*

We can calculate the influence of the introduction of air upon the heat developed each instant, by the combustion of carbon; but it appears impossible to appreciate the augmentation which results from new combinations, caused by the combustion of the bitumen and carburetted gases, because we cannot, in the present state of the science, estimate the temperature in the interior of the furnace; the few observations that precede, though not giving any idea of the real influence of the heated air, appear to me, at least, to establish that it is very considerable.

RECAPITULATION.

The details into which I have entered upon the greater part of the works using heated air, have, perhaps, prevented the reader from seizing the principal circumstances of the plan; I deem it, therefore, useful to recapitulate briefly—

I. In all the works, with the exception of one or two, its introduction has resulted in an increase of the products, an economy in the consumption of fuel, and of flux, as well as in the expense of labor, and incidentals.

II. These advantages have followed in the same progressive ratio as the temperature to which the air has been heated.

III. The production of metal has generally increased.

IV. The quantity of combustible matters burnt in the furnaces appears to be nearly the same where the heated air is used, as before with cold air; the daily consumption at the Clyde being eighteen tons of coke, to obtain six tons of metal; now it is eighteen tons of coal, to produce nine tons of metal.

V. The metal produced in the furnaces

* The specific heat of water being represented by 1.0000, that of the atmospheric air is 0.2669, from which it results that a grammes of air at 322° Cent., (612° Fah.) the temperature at which the air is injected into the Clyde furnace, would raise 0.733 gms. of water to 100°, (212° F.) supposing the air reduced to 10°, (50°); and as the quantity of air introduced each minute is 124,770 gms., the heat which results from this mass is represented by 01,463 gms. of water, raised to 100°.

The charges at the Clyde works are now 34,416 kilogrammes of coal in twenty-four hours, or 23.00 kil. per minute, which, after deducting the waste by ashes, water, and gas, which escapes without being burnt, may be taken at a maximum of 20.30 kil.; the complete combustion of this quantity of coal would raise, in each minute, 1,465 kil. of water, from 0 to 100° centigrade; the increase of temperature which results from the temperature of the air at 322° cent., compared with that produced by the combustion of coal, would be as 92 to 1465, or one-sixteenth. This is the least ratio, the quantity of oxygen being insufficient to transform all the carbon into carbonic acid,

worked with heated air is generally gray, and fit for the foundry; nevertheless, this plan is employed with advantage in the works of which the pig iron is all, or in part, manufactured into bar iron, (Cudner Park, Tyne, Wednesbury, &c.) It is only necessary, for this purpose, to change the proportions of ore and fuel.

VI. In many works, the combustion requires much less heated, than it did cold, air; at the Clyde, for example, the same blast engine which served with difficulty for three furnaces, now blows four. The economy in motive force is not proportional to the diminished quantity of the blast, because a certain power is required to overcome the friction of the air in the heating apparatus, and the resistance which results from the expansion of the air by the heat. This last inconvenience is remedied by increasing the size of the tuyeres, their diameter having been increased from two and a half to three inches; the increased diameter of the tuyeres is also necessary to diminish the velocity of the current of air, when introduced into the furnace.

VII. When, as at Torthornton, a diminution in the quantity of air does not result from increasing the temperature, additional power is required to move the blowing machine.

VIII. The substitution of heated for cold air, in the fusion of iron ore, is marked almost immediately by a change in the nature of the metal, which becomes more carbonized; the charges descend more slowly, but the working is accelerated by augmenting the proportion of ore.

Relative to the Apparatus:

IX. The apparatus formed by joining pipes of large diameter, which receive the air, and of small pipes, in which it is heated, and dilated, appears to me to be preferable to that composed of a series of pipes, of great diameter; requiring a smaller space, being less costly in the construction, and consuming less fuel than the last named; besides, the temperature is not uniform in all parts of this apparatus, and a current is usually formed in the centre, of diminished temperature.

X. To diminish, as much as possible, the velocity of the air submitted to the action of the heat, and to avoid the resistance due to its expansion, it is necessary that the surface of the small pipes should be more extended than that of the large pipe which receives the air from the blowing machine.

XI. The interior capacity of the small tubes ought to be greater than the volume of air injected into the furnace; by this disposition, the air remains a longer time exposed to the action of heat, and acquires a more elevated temperature.

XII. From this last condition, the apparatus placed on the tunnel head appears to be of but little advantage to furnaces using coal; sufficient size cannot be given to it, to enable the air to remain long enough; to remedy this evil, the air is made to pass over another fire placed near the tuyere.

Relative to the Fuel:

XIII. The coals, very rich in coke, which are dry, and resemble anthracite, can be employed in a crude state, in furnaces working even with cold air.

XIV. The coals which contain a large proportion of volatile matters, (30 to 35 per 100,) but which are not very adhesive, and do not change form during combustion, serve, without being carbonized, to work in furnaces using air heated to 300° Cent.

XV. It appears, finally, that fat and bituminous coals, like those of Newcastle, which are fit for the fusion of iron, must, even with the hot blast, be transformed into coke.

[From the Journal of the Franklin Institute.]

REMARKS ON COMPETITION PLANS FOR BUILDINGS.—Every person, whose attention has been in the least degree directed to architecture, must have observed that, in the present day, the practice of procuring plans for buildings, by public competition, is becoming more and more prevalent. It is, perhaps, only of late years that this custom has been generally acted upon; and it is more commonly employed in the case of public buildings than in those of a private nature. When a public building is about to be erected, the parties advertise a description of what is wanted, offering, generally, a premium for the best plan, or for that which shall be finally adopted. Sometimes the successful competitors have nothing for their reward but that of being employed to conduct the work, for which they are paid as in ordinary cases. The plans submitted are, or should be, distinguished by a private mark, referring to a sealed letter sent by the competitor, in which his real address is to be found; and it not unfrequently happens that there will be from forty to fifty of such plans sent in, varying, of course, in equally numerous degrees of merit. Not a few of these drawings are the result of great labor, seldom occupying the time of the competitor for less than three weeks, and, if the building be very extensive, and the design well matured, having employed his sole attention for months together. The unsuccessful competitor, consequently, sustains a very serious loss; as he is not like the landscape or figure painter, who can carry his drawings to the market; the plans of the architect can be of no use but for the purpose for which they were originally intended. In fact, there cannot be, in any other profession, a competition which requires such a sacrifice on the part of the competitor, as in architecture; and, were this sufficiently impressed on the public mind, there can be no doubt but the labors of the architect would, in all such cases, be more duly appreciated, and, at least, rewarded with an impartial distribution of justice.

It may here be remarked, that sufficient time is seldom allowed by the advertisers for preparing the plans; for it will be confessed by every architect, that the faults of his composition will be easier detected by himself, after it has been laid aside for a time; we should say, therefore, that six months, at least, should be given, or even a longer period, according as the subject may require.

Although the system of competition in architecture is accompanied with no small expense to the parties competing, yet it cannot be denied that, when rightly conducted, it is conducive to the greatest advantages to the public, and is the only true method of eliciting the brightest talents of the country, especially when the premium held out is of sufficient value to induce proficient architects to come forward with their works; and, surely, the erection of a building which is destined to continue for ages, standing forth to posterity as an example of the architectural genius of our time, is not unworthy of the most assiduous attention. The practice has also a beneficial effect, in affording to a young architect facilities, which he could not otherwise possess, of pushing himself forward. Private competition plans are sometimes required, where the competitors are previously chosen out, and where all are paid a certain amount for their trouble, whether successful or not; this is certainly the most

liberal method, and should be adopted where the funds are sufficient.

In most cases where a decision is made on competition plans, the judges consist of men who are but indifferently qualified for the task, and whose fancy is easily carried away by a gaudy picture, the intrinsic merits of which they are incapable of appreciating; or, perhaps, by a design which has nothing else to recommend it but that of being so common-place in its character, as to be more familiar to their ideas than one of higher pretensions. Indeed, it is not to be supposed that men, whose pursuits of life are so totally unconnected with the subject, as never even to have led them to the inspection of a simple plan of a house, should be able to form a correct judgment of a number of elaborate drawings. It often happens, indeed, that the judges are so bewildered with the brilliant display before them, that they readily give way to some almost equally ignorant but pretending builder, to whom they look up as to the architectural oracle of their body, and who, it may be supposed, will not let slip such an opportunity of serving his own ends. This may, perhaps, be thought rather an uncharitable conclusion; but, certainly, there is but too much reason to fear that sinister influences have, in many cases, had an undue weight, and it is the particular object of this article to point out these grievances.

On such occasions as that we are just referring to, the most obvious method of proceeding, and that which would be the most entirely free from all suspicion of partiality, would be to name two or more architects, of acknowledged celebrity in their profession, (and residing at a distance,) to whom the plans should be sent for final decision. Care should also be taken by all judges, in forming their decision, to keep in mind the terms of the competition; for, although the value or cost of the building required by the advertisement be strictly attended to by some competitors, yet there are others who will disregard it, and will produce an elegant design, although its expense should be double the stipulated estimate, and who, by this trick, may blind the judgment of the umpires, and carry off the prize.

The undue means which are sometimes resorted to by competitors to forward their own cause, are disgraceful in the extreme: some have been known openly to carry about their designs, for the purpose of procuring votes, before the general election: some unfairly attach their names to their plans, (instead of using a private mark, as they ought to do,) in the hope that their friends may exert undue influence in their favor, or form a vain confidence in their own importance, which leads them to expect that the name alone will produce a favorable impression; and some have even been known surreptitiously to withdraw their designs from the exhibition, in order to add improvements which have been suggested by the designs of another: nay, such is the total want of principle, and disregard of justice to the competitors, shown in some cases, that an instance could be brought forward where one of the competitors was appointed the judge! This competitor judge most naturally gave his decision in favor of his own designs, and the unsuccessful competitors were dismissed with the most cogent and satisfactory argument, that "the judge was a man of such respectability, that he would not have chosen his own design, unless he had considered it the best!" Is it possible to conceive that language could be so sophisticated as to apolo-

gize for such conduct? Thus it is that nine out of ten competitions are decided, and thus are the architects treated who have spent a large portion of their valuable time for the benefit of the public. It must be acknowledged, however, that isolated cases occur, though few and far between, where no complaints of this nature can be made, and where fair play has been allowed to have had full scope. The Tron Church steeple, Edinburgh, erected, in 1828, by the architects Messrs. R. and R. Dickson, may be mentioned as an instance of fair competition; the choice of the plan reflects the highest credit upon the then magistrates of the city, who made their election from a great number of designs. Considering its cost, this steeple, for aptness, originality, and picturesque beauty, can scarcely be surpassed in any country. It would not be easy to cite many instances of the same kind in Scotland, but we may mention another, viz.: Burns' monument at Ayr, by Thomas Hamilton, Esq., of Edinburgh. This is an exquisite gem of Grecian architecture, of which school its tasteful architect is a distinguished disciple. Finally, it is evident that the grievance here complained of, and which calls so loudly for redress, is in no way amenable to the civil law, unless in such a case as we have before hinted at, viz.: where the judges do not abide by the advertised terms of the competition. Even in such cases, we are not sure how far they lay themselves open to have their proceedings legally called in question, so that an appeal can only be made to the moral rectitude of society; and we have no doubt that the evil only requires to be fairly exposed, to be, in time, totally eradicated.

Edinburgh, October, 1834.

OBITUARY.—The Orang Outang, or wild man of the woods, which has lately attracted such crowds at Peale's Museum, died on Saturday at 12 M. after an illness of one week. In order to ascertain the cause of his death, a *post mortem* examination was held in the Lecture Room of the museum.—[Transcript.]

On Friday night, the tiger in the menagerie in Sixth-street, Philadelphia, contrived to escape from his cage, and having a good appetite, he beset the little Shetland pony that belonged to the same concern. Having despatched the horse, he turned to one of the men belonging to the establishment, and would have torn him to pieces but for the timely interposition of some of the attendants. The beast was killed and the man saved.—[Transcript.]

[From the Cincinnati Gazette of 11th inst.]

ANOTHER STEAMBOAT ACCIDENT.—The *Hero*, Capt. Page, struck a snag near Sandy, on Tuesday last, and immediately sunk to the hurricane deck. She had a heavy load of dry goods on board, principally for this city and Louisville. The *Hero* had laid by for fog, which had partially cleared off when she put out; but it suddenly became so dense, as to obscure the shore, and the nearest objects. Her passengers were brought down by the Hantress. No loss of life, or any serious injury, except to the boat and cargo. The boat can be raised again, when the waterfalls a few feet.

EXPLOSION.—On Thursday, 9th inst. at 9 o'clock in the forenoon, an explosion took place in one of the graining mills in the powder factory of D. Rogers, Esq. near Newburg. The mill had not been in operation for more than a week previous to the time of the accident, which can in no feasible manner be accounted for. There were, fortunately, only two persons in the building, who were both killed, viz.: Henry Glessing, a young unmarried man, and John Sutherland, a married man, but without any other family. The former was thrown a considerable distance into the field adjoining, and bore but slight marks of external injury—the latter was dreadfully mangled. The explosion was heard at Fishkill, and for several miles around.—[Journal of Commerce.]

AGRICULTURE, &c.

On the advantages to be derived from the establishment of an Agricultural Professorship.

To the Editor of the Farmer's Register:

Barboursville, July 23, 1835.

Sir,—It has been a settled conviction on my mind for years, that a professorship of agriculture—a pattern farm, and such a paper as yours, united therewith, would be productive of incalculable benefit to the commonwealth. The space of a letter is too confined to admit of one half being stated. Suffice it to say, it would elevate the science—add dignity to the pursuit—call off from encumbered vocations a portion of the mind of our citizens now lost to the community—present a rallying point for all the scattered information of the land—reduce to the test of experiment every theory plausible enough to justify it—by the same standard to prove the value of every discovery or improvement—promote economy by causing one experiment for many—a certain and rapid communication, through the State, of the results—furnish a sure means of ascertaining the nature of our climate—the quantity of rain falling in the year—the seasons when drought most generally prevails—and by consequence, furnish data to guide the husbandman in the cultivation of crops, both as to time and kind. But I must stop—for I find no end to the advantages that would result from such an establishment. Let me, however, add one more. All these things are to be done before the youth of Virginia—the future men of the commonwealth, destined eventually to influence her destiny. A portion of these, selected from every part of the state, (say one to each congressional or senatorial district,) of promise, but unable, from poverty, to educate themselves, to become the adopted children of the state, would be able by alternate labor and study, alike to keep up the farm, and to improve themselves. Indeed, it is worthy of the profoundest consideration, whether every student of the University would not profit by a few hours work daily, in the proper season. These being my views, I submit to you whether it does not behoove the tillers of the earth to make an effort to induce the legislature to attend to their neglected interests. How is this to be done? I answer, as every other sect effects every thing by conventions—to that alternative we must also resort. What say you to such a convention, to meet in Richmond the first Monday in January? Let any one who feels an interest in the object attend. Let each agricultural society in the State be represented there. If it be asked what good can come of it, the answer is, let us try it. A free communion of the intelligence of the land cannot be altogether unproductive of good fruit. Apart from what can be done by such a convention on its own means, an appeal may be made to the legislature under the weighty sanctions of their united wishes, to do something for us. If the view which I suggest is esteemed

impracticable, they may incorporate an agricultural society in each congressional district, and award a small sum to each, to be distributed in premiums, after the manner of New-York and other states.

But it is objected that it will cost something. Have we not as a class offered our fleece annually, without a murmur, to be appropriated to other improvements? Is it unreasonable that in turn we should require a small portion of our own to be applied to our peculiar benefit? A small portion of the interest paid annually by the University, would in a few years put our scheme completely in operation, and I verily believe after that it would be able to support itself. However, all these things might be discussed in convention, and digested in a form that would be most acceptable. And I may be permitted to add, that for once we should have a convention whose sole object would be the good of the country—a spectacle so singular in these times, that it could not fail to be as consolatory as the oasis to the weary traveller of the desert.

If you agree with me on this point, you can greatly promote the object by inviting the meeting in your journal. If I thought my name would be of any service, you would be at liberty to use it with my remarks. But I fear not. However, do as you please. I have it much at heart to do something. Better heads than mine may suggest better plans, to which I will most cordially submit.

Accept assurances of my high consideration.
JAMES BARBOUR.

From the Farmer and Mechanic.]

TO DYE WOOLLENS.—Last September I was at the exhibition in Burlington, Kentucky, and was much pleased at the spirit shown by the ladies of that neighborhood, in manufacturing so many excellent articles of domestic manufacture for exhibition. For this they deserve great credit; but I observed that in many articles, particularly the carpeting, that though the spinning and weaving were well done, in most of them the coloring was deficient, which I attribute to their not having proper instruction in that branch of the business, and have therefore made out the following directions for dyeing, and I hope you will publish it for their benefit, viz:

Woollen yarn may be dyed yellow by boiling it for an hour with about one-sixth of its weight in alum, dissolved in a sufficient quantity of water, then plunging it, without being rinsed, in a bath previously prepared, by boiling black oak bark, (as ground for tanners,) in water; the yarn is to be boiled in this, and turned until it has acquired the wished-for shade; the oak bark should be strained out of the liquid. It would be of considerable advantage to add one ounce of cream of tartar to each pound of alum used. After the yarn is dyed it should be well washed in several changes of water.

Woollens may be dyed blue by dissolving one ounce of good indigo in four ounces of oil of vitriol (sulphuric acid.) This must be done in a glass or stone vessel, powdering the indigo before it is mixed with the

vitriol; to the solution one ounce of dry pearl-ash is to be added. The yarn must be boiled in a sufficient quantity of water with one ounce of alum, and one ounce of cream tartar, to every six pounds of yarn; the boiling to continue at least one hour; it is then to be thrown, without rinsing, into a water bath containing a greater or smaller quantity of dissolved indigo, according to the shade wished for. In this bath it must be boiled, until it has acquired the color, and then washed.

Green can be dyed by adding as much of the dissolved indigo to the bark bath, prepared for yellow, as with the proper shade. The cloth having been boiled with alum and tartar, as directed for yellow, is to be put into the mixture, and the same method pursued as directed for dyeing that color. I would observe that there are many methods of dyeing blue, many of them practically known in the families of most farmers, and therefore will probably be preferred by them, but this method is most certain and most convenient for obtaining a fine green.

A good red may be obtained by boiling Nicaragua wood in water until the color is extracted, and then straining the liquor; the yarn having been prepared in alum water as previously directed, is to be boiled in it in the same manner as directed for other colors. Different shades may be produced by adding a little copperas.

Wool may be dyed black by the following method—first prepare a bath by boiling one pound of black oak bark, to every ten pounds of yarn, in a sufficient quantity of water. In this bath the wool is to be boiled for two hours, it is to be put into a bath composed of three-fourths of a pound of copperas, and two pounds of logwood, for every ten pounds of yarn, and a sufficient quantity of water; in this it must be kept for two hours more, at a scalding heat, frequently taking it out and exposing it to the air during the operation.

A MECHANIC.

[From the Southern Agriculturist.]

RARE AND VALUABLE SEEDS AND STINGLESS BEES.—We introduce to our readers the promised letter of Henry Perrine, Esq., Consul at Campeche. It will be remembered that in our last number, we acknowledged the receipt from this gentleman, of a hive of stingless Bees; they have been committed to the care of one, whose public spirit will cause him to regard himself as the husbandman of the community in which he lives; he will second the patriotic efforts of the Consul at Campeche, in conferring upon us a gift so interesting. This has not been the first evidence of the liberal interest felt by Mr. Perrine, in promoting the introduction of valuable products from abroad; and if our motives were purely selfish, we still might very consistently wish, what we now offer in pure thankfulness, a renewal of his health, and of his public office in some other quarter of the globe.

"Consulate U. S. A.
Campeche, June 18th, 1835.

To the Editor of the Southern Agriculturist:

Sir,—Although on the eve of my return to the United States, yet as the schooner

Carolina Brutus, now returning to Charleston, is the only vessel which, during eight years, has afforded a direct communication between this port and yours, I avail myself of the few minutes allowed me to send you a few products of this peninsula.

I name first, a paper of the beans, which produce the root here, called Jicama (*Dolichus bulbosus*?) as the success of Mr. Skinner, in Baltimore, justifies the belief that in your latitude it will flourish and become a valuable addition to your horticultural, or even agricultural resources. Next you will find a paper of the four-winged pods of another leguminous plant, which rapidly grows into very ornamental trees (*Piscidia Campechana*), whose wood (here called Habi) is as highly prized for ship building in Campeche, as is the live oak in the United States, or the teak in the East Indies: and has the much greater merit than both, inasmuch as he who plants the seed may profitably cut the timber. I also send a small quantity of nankin colored, and of kidney shaped seed cotton, which will speak for themselves in a cotton growing country like South Carolina. Last, and greatest in my estimation, are the samples of the *foliaceous fibres* of Yucatan and of Gozacoalcos, (the coarse called Henequen, and the fine called Pita in the ports of Mexico) and of the leaves of the Agave, and of the Bromelia, from which they are extracted. Your own Elliot, in his Botany of South Carolina, long since anticipated the cultivable value of the foliaceous fibres of your indigenous *Yucca filamentosa*. I have not the time to give even an epitome of the relative advantages of the Agave Henequen and of the Bromelia Pita; for extensive cultivation in the most sterile districts of the south, the former in sunny plains and the latter in shady woods, where it absolutely usurps the place of the common worthless undergrowth. I still, however, persist in my conviction, that the production of foliaceous fibres in the most barren soils of the south, will be much more profitable than the cultivation of your present great staple of capsular fibres in the most fertile loams, and hope that during my travel after health this summer, I may take some active droselytes. By-the-bye, you must not mistake the present samples of the fibrous leaves to be good ones, as in truth, they are the refuse of a number collected two years ago, which have been tossed about in the dust.

While writing the above, an Indian has returned with the hive of stingless Bees, which I feared would not arrive in time for Captain Kerrison, who is hurrying me to conclude this unpremeditated epistle.

Very respectfully, your ob't serv't,
HENRY PERRINE."

The seeds mentioned, we will distribute among our friends who wish to attempt their cultivation. The *Piscidia Campechana*, we presume is the same as *P. Carthaganiensis*, a variety of the Jamaica Dogwood, the generic name is derived

from its power to intoxicate fish. It is said that the fibres of our *Yucca filamentosa*, are the strongest of any known plant. It is familiarly known as the silk root with which woollens are washed, but is not applied by us to any other use. We should suppose that it must surrender its pretensions as a fibrous plant of value, to the Bromelia sent by Mr. Perrine. The specimen of this, at our office, is well worth examination, and is by far the most interesting of the plants he mentions. His description of the locality in which it delights, will at once bring to mind the extensive body of pine land in Georgia, which spreads from the sea shore over half of the State, now infested with endless tracts of stunted palmetto. How can this have escaped the attention of Mr. Spalding, of Sapello? His name is connected with the first culture of many of our staples, and this is a new opportunity of identifying him with the prosperity of Georgia.—[Ed. So. Agr.]

THE CULTURE OF COTTON.—The following remarks are from a source which give them a title to consideration.—[Boston D. Adv.]

"The crop of cotton is turning out much larger than was expected, and will be quite equal to the consumption at present prices. There is no doubt it is very much short of what it would have been, had the season been propitious; nor can the reports of its disasters made by so many of the most eminent men in the country be rejected, from which we may infer that the progressive annual increase of cultivation was much greater than supposed, and that had the season been favorable, the quantity raised would have far exceeded the most extended estimates.

"The production of cotton has more than doubled every nine years since it became a staple of the United States. In 1816, nearly all Alabama, Mississippi, and Arkansas, and many of the most fertile districts of Georgia, Louisiana, and Tennessee, were a wilderness, the hunting grounds of savages. Florida was a retarded Spanish colony, and the whole negro population in the lower valley of the Mississippi did not exceed sixty thousand. But such has been the unparalleled prosperity of the country, that the Indians have nearly all dispersed out of these regions, the terrors of emigration into the wilderness have vanished, settlements and civilization have extended over the country, canals, railroads, and other useful improvements are rapidly progressing, and banks and factors are ready to grant facilities to planters to extend their estates—which leads to the belief that the annual increase will be greater than ever it has been, particularly as there is an almost unlimited extent of suitable land, and the migration far greater than ever it was from the northern slave states into the fertile cotton districts, where the labor of the slave is so much more valuable than in the grain states, and as cotton at eight cents per pound is the most profitable agriculture in this or any other country.

To those unacquainted with the culture of cotton, it is worthy of remark, that it is the most certain crop planted. The harvest begins in August and ends in February, or when the land is ploughed for a new crop. The bounds of latitude are about 36 degrees; therefore, by far the greatest part of the globe affords a suitable climate. The last crop in the United States is considered by the most experienced planters the shortest return for the labor, of any since its cultivation became an object of this country. The bordering province of Texas has a large extent of the finest cotton lands in America; but as it belongs to the Mexican Republic, where slavery is only tolerated under the name of apprenticeship, the production of cotton there may not increase so fast as many anticipate. It has land capable of producing more cotton than is now raised in the whole United States. The exports last year were about 1000 bales—this year they will be about 3,500, next year they may ex-

ceed 8000 bales; and should the climate prove favorable, to white laborers engaging in agriculture, there is no doubt that indigent Germans and other laborious orders of the white race will emigrate and increase the population in a few years to an extent capable of raising a large quantity of this important article.

The Slave population of the United States, by the census of 1800, was 893,041. In 1810, 1,191,364. In 1820, 1,538,038. In 1830, 2,009,043 Slaves and 319,599 free Blacks; which shows they double in about twenty-five years; therefore, according to the ratio, the Slave population at this time is about 2,300,000; to which add the free blacks, and it shows the colored or African race in the United States to be equal to the whole population at the commencement of the Revolution, or nearly the same as the present population of Scotland.

Our statistical estimate shows about 1,100,000 Slaves residing in the Cotton districts, from which number we deduct one half for superannuated, juvenile, mechanics, house servants and others that do not work in the field, and it shows a force of 550,000 field hands engaged in raising Cotton, exclusive of a number of white persons and free negroes. The reduction of one half on the slave population is the usual allowance that statistical computators have made to ascertain the effective force of field hands; and as this data has been formed on the slave population in the older or Northern Slave States, where the habits and customs are more indulgent than in the new and more enterprising regions, it leads to the belief, that the proportion of field laborers in the new States is greater than in the old. We should add our statistical estimate, but the document is too voluminous for a commercial letter.

In the Atlantic States, North Alabama and Tennessee, 2 1-2 to 3 1-2 bales to the field hand is the usual return. In Louisiana, Mississippi, and South Alabama, from 4 to 10 bales is the return—besides raising provisions; but in some situations, where the return of cotton is the greatest, some of planters find it more for their interest to purchase provisions than to raise them. The quantity of clean cotton made per annum, varies from 150 to 600 pounds, each hand cultivates about 10 acres.

In 1825, it was estimated that the number of slaves engaged in the cultivation of cotton, was 230,000 field hands. The export of 1825-6, was 710,000 bales, or more than double that of 1816-17. This year we estimate the force at 550,000 field hands, but the increase has been much the greatest in the most productive districts, which by the usual rate of return, would make a crop of over 1,800,000 bales.

Again, if we take the increase as doubling every nine years, it would give a crop for 1835-6, double that of 1826-7 (937,000 bales,) or over 1,800,000 bales, which nearly corresponds with the statistical estimates.

These views exhibit a surprising increase and a capability of producing to an extent few are aware of.

It takes at least two years to bring lands into crop. The highest prices of 1817-18, exhilarated the production which came forward in 1821—that crop being over 40 per cent. more than the crop preceding it. The reduction of prices in 1819 deterred such rapid extension until the advance in 1824-25, which gave an extraordinary stimulus to the cultivation, which caused the exports of 1827 to be near 33 1-3 per cent. more than the year preceding. The advance in price during the last three years, (and the facilities as noticed in the same paragraph,) would have no doubt showed a large increase this year, had it not been for the unparalleled injury done to the crops; and therefore taking the increase of the periods quoted as an example, it leads to the conclusion that this year the United States is capable of raising 1,800,000 bales, if the season should be propitious.

The growing crop is very promising, and the high prices have stimulated the cultivation so much beyond its usual progression, that should the season continue propitious, there will be a quantity raised far greater than almost any suppose. Those who hold high priced cotton, should consider that the new crop will be at hand in a few weeks, and that it may prove much larger than almost any contemplate, and that present prices may fall 50 per cent. without being as low as they had been when trade was good and stocks moderate.

NEW-YORK AMERICAN.

SEPTEMBER 19—25, 1835.

LITERARY NOTICES.

AN EXPOSITION OF THE MYSTERIES OR RELIGIOUS DOGMAS AND CUSTOMS OF THE ANCIENT EGYPTIANS, PYTHAGOREANS, AND DRUIDS.—ALSO, AN INQUIRY INTO THE ORIGIN, HISTORY AND PURPORT OF FREE MASONRY; by JOHN FELLOWS, A. M.; New York, Printed for the author, and sold by GOULD, BANKS & Co.—“This book” says a capable correspondent who took the book from our table, and returned it with this notice, “treats a subject of great interest to the learned world. It is composed of translations from eminent writers, on the subject of the Ancient Mysteries, accompanied with notes by the author, and dissertations upon the ceremonies of Masonry, their relation to the rites of the Egyptians, and those practised in the celebration of the mysteries of Eleusis. The work appears to us inartificial and confused, and wanting that unity of effect and consistency of design in the conduct of the argument, which a profound knowledge of the original sources, and a practised pen would have imparted. The author does not appear to have seen some of the modern works on different branches of his subject, or to have pursued the striking analogies which the Phallic worship, and the practices of Manichæism, might perhaps have afforded. But still the work is characterised by industry, and the love of truth, and we think will afford to the reader, many new ideas, and lead to some startling inferences. It is curious that a work on the same subject, has just appeared in England, which is highly spoken of, but which has not reached us.—We have no time to follow the writer through his book, or to give any quotations from it. His object is to prove, that in the higher mysteries of Greece and Egypt, the unity of God was taught to the initiated, in opposition to the Polytheism which formed the debasing creed of the common people.—Of this there has long been no doubt. That Masonry also inculcated the existence of one Supreme Governor of the Universe—that its emblems are mainly derived from Egyptian Mythology, from the worship of Isis and Osiris, and the strong astronomical character, which every thing Egyptian bears. And so far as we can judge, we think the writer has been successful.

Mr. Fellows has made, in this volume, allusions to the fact of many of the ceremonies and observances of the Christian church being of Pagan origin. This is a very interesting subject, but by no means a new one. We recollect reading a work some years ago, by Mr. Blunt, a Fellow of Oxford, in which he showed clearly, at least to us, that the ceremonies of the Church in the island of Sicily, and particularly of the Cathedral of Syracuse, were almost identical with the honors formerly paid there to Ceres. There is another fact not mentioned in this work, that the peculiar insignia of the festivals in honor of Bacchus, were engraved on the *abacus* of the Grand Master of the Knight Templars. After all, perhaps learning of this description is more curious than profitable—more suited to the closets of the learned, than the consideration of the humble and devout Christian.

THE STUDY OF MEDICINE; by JOHN MASON GOOD. 6th American from the last English edition—with Notes, by A. SIDNEY DOANE, A. M., M. D., &c. &c. 2 vols. 8vo. New York, HARPER & BROTHERS.—This is really a mighty publication—two stereotyped volumes, of double columns and of seven hundred and fifty pages in each volume. The mere pecuniary outlay in such a re-print as this, with the numberless additions—which in this

instance, are improvements—by the accomplished American editor, cannot fall short, we presume, of twelve or fifteen thousand dollars.

We cannot doubt, however, that it will prove a judicious outlay. Dr. Good's work has been for years, a text book in England, and in this country—but the excellence, and the great recommendation of this edition, to American students and medical establishments, is in the notes due to the research, ability, practical knowledge, and perseverance of the American editor, Dr. Doane—a gentleman, who by diligent study and assiduous application, has eminently qualified himself for the task—greatly above the reach of any ordinary capacity or acquirements—of *fitly* editing, and illustrating by notes, such a standard work as this.

The advantage, and the need among us, of an edition thus enriched, are to us modestly glanced at in Dr. Doane's preface.

“It was with extreme diffidence, and with no little dread of appearing presumptuous, that the American Editor assumed the responsibility of adding notes to a work characterized by such profound learning and deep research; but he was encouraged by the consideration, that although ‘The Study of Medicine’ has been used as a text book, for several years, in this country, and is thought to be indispensable to every American Library; it contains but few allusions to American practice; while, some forms of disease peculiar to this country, and the contributions of American Physicians to Physiology, Pathology, Therapeutics, and the *Materia Medica*, are generally unnoticed in it.”

This, it will be admitted, are all sufficient reasons for undertaking the task—and, in recommending the book as one of great general interest, and information, to persons in, and out of, the medical profession, we repeat, that so far as our knowledge enables us to judge, Dr. Doane has performed his part, with remarkable ability and discrimination.

FOSTER'S SYSTEM OF PENMANSHIP, &c. &c.; by D. B. FOSTER, Teacher of Writing and Book-keeping, &c. 1 vol. Boston, PERKINS, MARVIN & Co.—We like the evidence afforded by this title page, that the writing master is not above his business, or his proper title, and that instead of calling himself Professor—as is the wont now-a-days of all teachers, from the dancing, fencing, or boxing master, up—he qualifies himself simply as teacher. We do not doubt the rules laid down in this treatise are sound, and will lead, if duly followed out, to excellence—though they are rather calculated to dispel the dreams of those, who flatter themselves with the possibility of learning the art and mystery of writing, in twelve hours. Apropos, however, of this treatise, and of the anti-angular *Mr. Bristol*—whom it treats as not of the regular faculty—it is only fair to say, that within a few days, a clever young lawyer of our acquaintance, who, to cure “a c—d cramped hand,” had put himself under the teaching of Mr. Bristol—called upon us full of delight at the result, and with an earnest request that we would publish a glowing, though somewhat *lengthy*, recommendation he had indited, of “the anti-angular system.” He must take this notice as a substitute therefor.

NUTS TO CRACK, OR QUIPS, QUIRPS, ANECDOTES, &c., OF OXFORD AND CAMBRIDGE SCHOLARS; by the author of FACETIÆ CANTABRIGIENSES, &c. : 1 vol. Philadelphia, CAREY & HART.—There is some fun and amusement in this little volume, though too scholastic some of it, we apprehend, for the medium of this country. We take from it, however, some extracts.

THE VALUE OF A SYLLABLE.—“The masters of olden time at Athens, and afterwards at Oxford, were called *Sophi*, and the scholars *Sophista*; but the masters taking it in scorn that the scholars should have a larger name than they, called them-

selves *Philosophi*,—that is, lovers of science, and so got the advantage of the scholars by one syllable.” Every body has heard of Foote's celebrated motto for a tailor friend of his, about to sport his coat of arms,—“*List, list, O list!*” But every body has not heard, probably, though it is noticed in his memoir, extant in Nichols's *Literary Anecdotes*, that the learned Cambridge divine and antiquary, Dr. Cocks Macro, having applied to a Cambridge acquaintance for an appropriate motto to his coat of arms, was pithily answered with “COCKS MAY CROW.”

Every Cantab remembers and regrets the early death of the accomplished scholar, Charles Skinner Mathews, M. A., late Fellow of Downing College, who was “the familiar” of the present Sir J. C. Hobhouse, and of the late Lord Byron. He was not more accomplished than facetious, nor, according to one of Lord Byron's letters, more facetious than “beloved.” Speaking of his university *freaks*, his lordship says, “when Sir Henry Smith was expelled from Cambridge, for a row with a tradesman named ‘Hiron,’ Matthews solaced himself with shouting under Hiron's window every evening—

“Ah me! what perils do environ
The man who meddles with hot Hiron!”

CLASSICAL JEU D'ESPRIT.—Vere one day asked his learned college contemporary, Dr. John Taylor, editor of Demosthenes, “why he talked of selling his horse?” “Because,” replied the doctor, “I cannot afford to keep him these *hard times*.” “You should keep a mare,” rejoined Foster, according to Horace—

“*Equum memento rebus in arduis
Servare.*”

INVETERATE SMOKERS.—Both Oxford and Cambridge have been famous for inveterate smokers.—Amongst them was the learned Dr. Isaac Barrow, who said “it helped his thinking.” His illustrious pupil, Newton, was scarcely less addicted to the “Indian weed,” and every one has heard of his *hapless courtship*, when, in a moment of forgetfulness, he popped the lady's finger into his burning pipe, instead of *popping the question*, and was so chagrined, that he never could be persuaded to press the matter further. Dr. Parr was allowed his pipe when he dined with the *first gentleman in Europe*, George the Fourth, and when refused the same indulgence by a lady at whose house he was staying, he told her, “she was the greatest *tobacco-stopper* he had ever met with.” The celebrated Dr. Farmer, of black-letter memory, preferred the comforts of the parlor of Emmanuel College, of which he was master, and a “yard of clay,” (there were no *hookahs* in his day,) to a bishopric, which dignity he twice refused, when offered to him by Mr. Ritt. Another learned

LOVER OF TOBACCO,

And eke of wit, mirth, puns, and pleasantry, was the famous Dr. Aldrich, Dean of Christ Church, Oxford, the never-to-be-forgotten composer of the good old catch—

“Hark, the merry Christ-Church bells,”

and of another to be sung by four men smoking their pipes, which is not more difficult to sing than diverting to hear. His pipe was his breakfast, dinner, and supper, and a student of Christ Church, at 10 o'clock one night, finding it difficult to persuade a “freshman” of the fact, laid him

A WAGER,

that the Dean was at that instant smoking. Away he hurried to the deanery to decide the controversy, and on gaining admission, apologised for his intrusion by relating the occasion of it. “Well,” replied the Dean, in perfect good humour, with his pipe in his hand, “you see you have lost your wager: for I am not smoking, but filling my pipe.”

AN EPIGRAM ON A PETIT-MAITRE PHYSICIAN.

When Pennington for female ills indites,
Studying alone not what, but how he writes,
The ladies, as his graceful form they scan,
Cry, with ill-omen'd rapture, “*killing men!*”

Dr. Parr like the great moralist, Johnson, he had an aversion to punning, saying, it exposed the poverty of a language. Yet he perpetrated the following

THREE CLASSICAL PUNS:

One day reaching a book from a shelf in his library, two others came tumbling down, including a volume of Hume, upon which fell a critical work of Lambert Bos: “See what has happened,” exclaimed the Doctor, “*procumbit humi bos.*” At another time, too strong a current of air being let

into the room where he was sitting, suffering under the effects a slight cold, "Stop! stop!" said he, "this is too much; at present I am only *par levis ventis*." When he was solicited to subscribe to Dr. Busby's translation of Lucretius, published at a high price, he declined doing so, by observing, at the proposed cost it would indeed be "*Lucretius carus*."

PALEY'S SKETCH OF HIS EARLY ACADEMICAL LIFE.—In the year 1795, during his visits to Cambridge, Dr. Paley, in the course of a conversation on the subject, gave the following account of his own academical life; and it is here given on the authority, and in the very words, of a gentleman who was present at the time, as a striking instance of the peculiar frankness with which he was in the habit of relating adventures of his youth. "I spent the two first years of my under-graduateship (said he) happily, but unprofitably. I was constantly in society where we were not immoral, but idle and rather expensive. At the commencement of my third year, however, after having left the usual party at rather a late hour in the evening, I was awakened at five in the morning by one of my companions, who stood at by bed-side and said, 'Paley, I have been thinking what a d—d fool you are. I could do nothing, probably, were I to try, and can afford the life I lead: you can do every thing, and cannot afford it. I have had no sleep during the whole night on account of these reflections, and am now come solemnly to inform you, that, if you persist in your indolence, I must renounce your society. I was so struck (continued Paley) with the visit and the visitor, that I lay in bed great part of the day and formed my plan: I ordered my bed-maker to prepare my fire every evening, in order that it might be lighted by myself; I rose at five, read during the whole of the day, except such hours as chapel and hall required, allotting each portion of time its peculiar branch of study; and, just before the closing of gates (nine o'clock) I went to a neighboring coffee-house, where I constantly regaled upon a mutton-cop and a dose of milk punch: and thus on taking my bachelor's degree, I became *senior wrangler*." He, too, filled the trust-worthy and dignified office of Tutor of his College, and deserved, though he did not die in possession of, a bishopric.

AMERICAN TURF REGISTER AND SPORTING MAGAZINE. Vol. VII, No. 1. Baltimore. GEORGE B. SMITH. This sporting periodical does not flag under the guidance of its new Editor. Mr. Smith. From the September No., we extract an account, by Commodore Porter, of the Arabian horse, differing in many respects from any, we remember to have seen before.

GENUINE ARABIAN HORSE—HOW DISTINGUISHED.—About a month since I saw a singularly beautiful light chestnut sorrel horse standing in my yard, no one was holding him, his bridle was laying over his neck, and the person having charge of him was standing behind him, plating his beautiful long silky tail, which trailed on the ground; he appeared to be full of life, spirit and intelligence, and as docile as a dog.

There was something so fascinating in the appearance of this animal, something so gazelle-like, that I was determined if he was for sale, I would have him *coute que coute*. His age I ascertained to be a little over seven years. He had come from the city of Suleimanich, in Thaurdistan, which is a province bordering on Persia on one side, and on the other side by the Pachalic of Bagdad, which latter borders on the great desert of Arabia. The horse belonged to an Agha, who had recently arrived from thence; he said the horse was a little sick, and would not eat, and that as the Agha was compelled to return immediately, he had offered the horse for a sum which no one knowing the value of a Thaurdistan horse could refuse to give. I finally closed the bargain for the horse, adding a present of two hundred and fifty piastres to the groom.—After trying the horse under the saddle, and approving of his gait and fleetness, I sent for the sultan's farrier, who the moment he saw the horse pronounced him not only a pure Arabian, but a beautiful one, and said that he had seen but one so pure before in his life.

I now sent immediately to the Agha to request him, if in his power, to give me the pedigree of the horse; he sent me word that he did not know his pedigree, nor did the person from whom he bought him—that the Kurds when they stole a horse, stole

only the best, and did not stop to inquire after the pedigree; but if I wished to satisfy myself that the horse was of the pure Arabian breed, I must examine his neck, on both sides of which I should find a beautiful natural tree projecting upwards from half way down the neck, and that I should find spurs on his fetlock joints, both of which were certain indications of the purity of his blood.

About half way down his neck, a few inches from the mane on both sides, I found a round dark spot, rather larger than a duck shot, destitute of hair, but around these, to the size of a dollar, the short and silky hair made several eccentric turns, then shot up towards the ears in the form of an ostrich plume; nothing can be more beautiful, a spur of two inches long, of the size of the little finger, at the root, gradually tapering to a point, and turning up like those of a cock. On the hind fetlocks were the same, but not more than half the length—all were slightly fringed about the root with soft silky hair.

On being satisfied of the value of this horse, which circumstances had placed in my possession, I told the doctor to go to work and cure him if possible. He felt the pulse of his legs, then examined his mouth, and felt his ears, and turning to me, said, he had the *guenz kémiak*, which when translated means the eye bone, or bone eye. Never having heard of such a disease, I asked him what it was; he thrust his finger into the lower part of the horse's eye, and turning the lower lid wrong-side out desired me to feel of it. I did so, and felt a hard bony substance; the lid was much inflamed. He now thrust a needle with horse hair through the black rim of the inner lid, and pulling it out of the eye, cut therefrom the bony substance. The eye bled perhaps a half spoonful; he performed the same operation on the other eye, after which he blew up each nostril through a short reed, about a spoonful of burnt alum and black pepper, which brought on a violent sneezing. He then directed that some garlic, vinegar and salt should be mixed with a kind of red earth, which had the appearance of red ochre, and that his mouth should be washed with it three or four times a day, for four or five days; he next scarified his mouth and put him into the stable. We have followed his directions, and the horse, that for a long time past would not touch barley, now eats it freely, and is to all appearance well.

This disease and mode of treatment is to me altogether new—it may not be so to others. From the inquiries I have made I am satisfied that in ten days more the horse would have been ruined—the farrier said he would have been in five. The disease, it is said, is brought on by straining their eyes in anxious waiting for their food. A Turkish horse is double haltered to both ends of his trough, so that he cannot turn his head, which of course brings a great strain on the eye when he wants to look on one side or other.

I have measured this horse from the shoulder to the ground—he is exactly four feet, nine and a half inches, (fourteen hands, one and a half inches high.) Those who know Eclipses, say that this horse is a highly flattering likeness of him. I shall keep the horse, although I have been strongly advised to send him to America, but I am apprehensive it might turn out like many, nay, I may say all such speculations. But if you know of any one who wishes this horse, they may write to any disinterested person in this country to examine and report on him, and then we will agree on the terms.

I am satisfied there is not another Arabian in Constantinople; the sultan's horses are generally spotted, very fat, and very spirited; they look extremely well with their tappings on; but I am assured that he has not a pure Arabian among them.

THE REPUBLIC OF LETTERS; vol. III. edited by Mrs. A. H. Nicholas; New York, GEO. DEARBORN.—Here is another admirable volume of miscellaneous reading, made up of the weekly numbers of the Republic of Letters. The contents of this, are the conclusion of *Elia*, lives of eminent British Statesmen, the well remembered *Simple story*, by Mrs. Inchbald, and the *Bee*, a collection of Essays, by Goldsmith. We have only to renew our warmest commendation of this publication, and of the taste and discrimination with which it is edited.

ORMSEY'S PENTOGRAPHIC MACHINE has just

turned out another gem—a profile medallion likeness on a large scale of *Chief Justice MARSHALL*. The medallion from which the engraving is executed, was modelled by *Launitz* after the bust by *Frazer*, and the Pentograph has done ample justice to the model. It is a capital performance.

FOREIGN INTELLIGENCE.

MASSACRE AT PARA.—We cannot give place to the account of the horrid massacres and devastations, at the above place, without expressing both surprise and indignation, that this Government, though again and again warned of the unsettled state of things among the natives, and of their hostility to the whites—should not have sent, and kept there, or in the vicinity, some one of our ships of war. For want of such protection, the American Consul, and other Americans have lost their property, and been obliged to flee for their lives, with just the clothes they stood in. The English and the Portuguese had ships of war there, and they afforded to their countrymen, a refuge, both for their persons and property. Our trade with Para, which exceeds that, we believe, of any other nation, and the lives of our citizens, were not thought worthy of similar protection. The result will be read, in the annexed details:

REVOLUTION AT PARA, AND MASSACRE OF THE INHABITANTS.—We learn from Capt. Tuttle, from Para, arrived yesterday afternoon, that the Tapulians, (Natives) made an attack on Para on the night of the 14th of August, succeeded in taking it on the 23d, and made a general massacre of all the white inhabitants they could get at, the majority of which had taken boats on the first alarm. The American Consul got on board of the brig *Mercator*, which sailed 7 days before for this city, having lost all his effects, and happy to escape with his life. The brig was compelled to leave all her papers. Com. Morris of the Brazilian Navy, having in command 2 frigates, 2 corvettes, 1 brig, and 1 schooner of war, together with a Portuguese vessel of war and one English men of war, assisted the President in repelling the Natives, but without success, and dropped down to Cape Antonio on the 24th, having on board 3000 inhabitants who had escaped.

Landing the females and children at the Island of Mirago under the care of a guard, the men he had organized for the purpose of re-taking the place if possible. Com. Taylor had declared the city of Para under blockade. The brig *Mercator*, with the American Consul, C. J. Smith Esq. passenger on board, has arrived since we received the account of the Revolution at Para by Capt. Tuttle. We learn from her the following additional particulars. The President having taken no precautionary measures against this attack, which was daily expected, and of which he had been repeatedly advised both by deserters and by letters, by the Chief of the Rebels, (Antonio Vinagre) who had threatened to fall upon the city, unless his brother, Pedro, who was then a prisoner on board the Mexican ships of war, was released. The foreigners and native residents had confided in the strength and wisdom of the Provincial Government, and of the efficiency of the Marine Department for protection, that they postponed embarking until absolutely surrounded by the natives, not allowing themselves time to save their clothing or valuable effects, and some not even a shift of clothing. Our countryman, Mr. Upton, had barely time to flee on board, leaving his books in his counting house, which were thrown into the street and destroyed.

The Indians were seen firing from the windows of the American Consul's house at the English marines stationed at Mr. Campbell's opposite, and the U. S. flag was torn up.

It was supposed the slaughter must have been immense as the motto of the Indians has been "extermination of the whites," and a more complete sack of any city probably never took place, than in this instance.

The brigs Malta and George were bound for Maranhem full of passengers. The Br. sloop of war *Race Horse*, with all the English merchants on board was bound for the same place in a few days.

The Indians had about 150 to 200 armed men.—The President had 300 men under him, ready for service, and several pieces of artillery which were left unspiked, and were fired from by the natives, at the whites in their retreat. The British and Portuguese vessels of war, each landed from 90 to 100 men to assist the authorities, but seeing their pusillanimity, they embarked again for their vessels.

NINE DAYS LATER FROM EUROPE.

ENGLAND.

[From the Morning Chronicle of the 19th.]

The Lords made great strides last night in the further demolition of the Municipal Reform Bill, all the clauses of which (with the exception of those postponed and the schedules) have gone through the Committee. When the Bill as amended is printed, it will hardly have one feature in common with that sent up from the Commons. In an early part of the evening Lord Melbourne declared that "so much had been done to render the bill inefficient, that he would not make any strenuous opposition to the amendment then under discussion (for continuing the present justices of peace in boroughs,) nor would he to any amendment that might hereafter be made, seeing that it was almost useless.—But when these amendments were adopted, it would then become a matter for serious consideration, whether, in the circumstances, it would be well to go on farther with the measure."

We will not fatigue our readers by a minute notice of the various alterations made last night. It would be a libel on the Commons to suppose that they will sanction alterations which have completely changed the character of the measure. The Lords have been feeling the pulse of the nation and of the Commons. They have, as usual, been laboring under a strange infatuation with regard to the indifference of the country to good government. Indeed, what can be expected from men who have no fellowship with the people, and are the dupes of every silly tale that is told them by their creatures. For instance, what could be more silly than the statement of the Earl of Galloway last night, that Mr. Douglas, lately a candidate for the representation of Glasgow, had made seditious speeches with the red cap of liberty on his head? Mr. Douglas was suddenly called on to speak from an inn window at a small town in the south of Scotland in the month of January, and he happened to have his travelling cap on. No man, but one ignorant and utterly unacquainted with the character and habits of the people of Scotland would have swallowed such an absurdity. Lord Galloway may be taken for a sample of his order. But the Lords will soon be undeceived. However, we will not anticipate the proceedings of the eventful days on which we are about to enter. We leave the Lords to the Representatives of the empire in full confidence that they and the ministers will do their duty.

LONDON, August, 21, 1835.—The Municipal Corporation Bill can no longer be said to be the measure which passed the House of Commons; and that the house will not of course acknowledge it. The Report is to be brought up on Tuesday next, when Lord Melbourne will no doubt state the intentions of Ministers with regard to the further progress of the measure.

Nothing is more striking than the change in the language adopted at public meetings with regard to the Peers which has taken place within a year or two. The Tory Lords have completely succeeded in impressing the people with the belief that till a reform takes place in the Lords, no benefit will be derived from the reform of the Commons.

MONEY MARKET.—London, August 22.—The improvement in the English Funds, which became manifest after the notice at the bank exhibited yesterday, of the intention to make advances upon stock, was continued this morning, and Consols, both for money and account, were done at 90, and annuity at 3 premium; towards the close of the day, however, they recurred to the last prices of yesterday, and left off, the former at 80 3/4 to 7/8 the latter at 2 3/4 to 7/8. Exchequer Bills and India Bonds have suffered no change; Bank Stock and India Stock have each advanced 1/8 per cent.

For a time the foreign market evinced a tendency to improvement; Portuguese Bonds were done at 89 3/4 and 56 3/4; Spanish Cortes Bonds at 43 3/4, and Scrip at a discount of 15 3/4; but this amelioration was not permanent, they all declined rapidly in the latter part of the day, and the final

quotations, as compared with those of yesterday, showed a depreciation in Portuguese Bonds of 1/2 per cent, in Spanish Cortes Bonds and Scrip of 1 1/2 per cent, and in Passive and Deferred Stock of 3/4 per cent.

FRANCE.

Our usual express has brought us the Paris papers of 20th. The Chamber continued on Wednesday to be occupied with the new laws on the press and the jury, but we have not room for the debate.

An amendment was proposed by M. Teste, to the effect that when a condemnation should be pronounced only by a simple majority, the capital punishment it might involve should be converted into perpetual imprisonment, or the galleys for life.—This amendment was rejected.

The Secret Vote next occupied the Chamber.—As the jury are allowed to deliberate among themselves, it is thought that real secrecy cannot be obtained. On the question of transportation being discussed, M. O'Dillon Barrot described with great eloquence the cruelty and injustice of combining the two punishments of incarceration and banishment, which the law had hitherto always separated. This brought up M. Duchatel, who pointing significantly towards the Opposition, said that the proof of the efficacy of this punishment was, that it was capable of frightening the enemies of the Government. At this outrageous allusion a part of the Chamber rose en masse, a deafening tumult ensued, and M. Duchatel was obliged to explain his expressions.

Fieschi, it is said, has solicited Mons. Claux d'Est Ange, one of the most celebrated barristers of France, to undertake his defence.

We received, at a late hour this morning, the Paris papers of Tuesday. They bring us an account of the first debate on the New Jury Law. Some amendments were proposed. Monsieur Hebert wished that the Court of Assizes should, as in 1831, be called upon to decide between the majority and the minority of the jury, when the majority should not exceed seven. M. Jolivet proposed that that court should be empowered to annul the sentence of the jury—in cases only of condemnation—when it should appear unjust; in which event the cause should be referred to another session of assizes. M. Vatout said that he shrank from the thought that one single man might henceforth send a man to the scaffold. During the discussion the centres kept a continual buzz, which made the debates almost inaudible. The Ministerial orators were hardly applauded; the Opposition speakers could scarcely get a hearing at all. The amendment of M. Hebert may probably be carried, for the question will then be readily abandoned to the judges, and the court will virtually pronounce the verdict. The amendment of M. Jolivet has no chance of being adopted.

The Court of Peers yesterday pronounced sentence on 24 of the prisoners of April, declared to be contumacious. Three of these were acquitted; one condemned to transportation; and the rest to various periods of imprisonment, varying from 10 to 20 years.

BOURSE.—PARIS, Thursday, August 20.—Half past Three.—The market has been again depressed, with, at times, somewhat more business than yesterday. For Money, the Five per Cents. have declined 30c., and the Three per Cents. 15c. For the Account, the depression has been a shade more in the Three per Cents.—opened at 78f. 85c., they rapidly went down to 78f. 79c., and fluctuated 5c. for some time, and then giving way, they closed at 78f. 60c.; at one period the money price was higher than for the account, viz. 78f. 70c. against 78f. 65c.

The continuation of accounts of the risings in Spain, demanding of the Government more energetic measures against the Carlists, has tended to further lower the Spanish Securities.

SPAIN.

The following extract from the Journal du Commerce of Valencia, of the 7th instant, gives further details of the late disturbances in that city. "On Wednesday evening the report spread that the factions had entered Villa Real, and committed unheard-of atrocities on the Urban Militia of that city.—Nothing could exceed the pride and insolence of the Carlists. They outraged the Liberals in every manner they could think of. The patience of the inhabitants of Valencia was at last exhausted. The Urban Militia were called to arms. It was easy to see that the object of this was to chastise the Carlists, who, taking advantage of a scanda-

lous impunity, would have proceeded to still greater excesses. There were then in the prisons a multitude of prisoners whose crimes demanded prompt punishment. That this should be inflicted the Urban Militia demanded in a manner at the same time respectful and energetic. The Commandant, the Count D' Almodovar, promised to take this demand into consideration, and also to adopt other popular measures, such as the dismissal of suspected servants of the Government, and the suppression of convents. For the greater security, the Militia took upon itself the responsibility of guarding the prisoners from the prisons of Cuarte, Serranos, St. Narcisca, and the ecclesiastical places of captivity. They were accordingly conducted, to the number of more than one hundred, to the guard-house of the market place. The judicial authorities expeditiously tried the most criminal, and at four o'clock Portambec, Palmeroles, the Canon Astolosa, Father P. Lopez, two of the assassins of Paniagua, and another well known for his crimes, were shot in the square of the old custom-house. The others were conducted to Grao, to be embarked and transported to Centa. The last words of Portambec, uttered with a loud voice, at the very moment of his execution, were—'Vive Charles V!'—Death to the factious.' Two of the prisoners, declared innocent, were restored to their families."

Letters from Madrid, dated the 14th inst., say that disturbances similar to those at Barcelona, Saragossa, and Valencia, had broken out at Cadix, but had immediately been suppressed by the firmness of the authorities of that town.

The Madrid Gazette, of the 10th, says that an extraordinary courier had been despatched to Lisbon in order to hasten the entry of the Portuguese auxiliaries into Spain.

The Journal de Paris has the following:—"Don Carlos marched on the 15th towards Vittoria.—Cordova who is at Logrono, observes all his movements. Three battalions of Carlists arrived on the 12th inst. at Ayoa. Their intention seems to be to enter Arragon; but Iriarte, who arrived the same day from Pampeluna with his division, and Guereza, who is at Araxona also with a force, are in readiness to prevent this movement. The same journal informs us of an arrangement for the pacification of Spain, attributed to Las Amarillas, and which it is said the Queen and Count Torono have approved of. This project is to be laid by France before the Congress of Toplitz, to receive the concurrence of the sovereigns of the north, and their intervention, which its execution will make necessary. The following are the terms to be proposed:—1st. Isabella II. is to marry the eldest son of Charles V. 2. Don Carlos is to abdicate in favor of his eldest son. 3. This abdication will cause the law of exclusion against Don Carlos and his family to be annulled. 4. The three sons of Don Carlos are immediately to enter Spain, escorted by 25,000 French, and a single regiment of English. The eldest son is to take the name of Louis II., and will be proclaimed King of Spain conjointly with his consort. 5. All the powers of Europe are to recognize his Government. 6. A pension of five millions of reals is to be granted to Don Carlos. 7. The Queen is to have three millions of reals, but must live at fifty leagues distance from the Court. 8. The Estatuo is to be maintained. 9. The privileges of the Basque provinces and of Navarre are to be preserved and guaranteed by France and England. 10. An amnesty for all political offences to be proclaimed. 11. A general liquidation of debts contracted at all periods, even the loans raised by Don Carlos included, to take place. 12. All special measures respecting the army and administration are to be adopted immediately by Louis II. 13. English and French troops are to remain in Spain as long as Louis II may judge it necessary. 14. The Cortes are to be assembled as soon as the Government shall think fit, in order to recognize the new Government, and take the oath of allegiance.

"Bilboa," adds the same correspondence, "is observed as far as Portuguese, by the Carlist troops under the orders of Saroza; and St. Sebastian by the division of Miguel Gomez, who has his head quarters at Urnista." There is a report which has been taken up by one of the French papers that the republic has been proclaimed at Saragosa; that all the authorities have been expelled from the town, and that the whole surrounding country has submitted to the government of a republican junta.

The Indicateur de Bordeaux of the 15th does not confirm the intelligence it contained the preceding day, of the rising of the four provinces, Catalo-

nia, Arragon, Valencia, and Murcia, with the declaration of their independence of the Queen's Government. The Republic has not, it says, been proclaimed, but representations have been addressed to the Queen to demand a more liberal administration. A conspiracy, says the Phare de Bayonne, has been discovered at Carthagena. Its object was to proclaim Don Carlos, and assassinate the Liberals. A letter from the Aid-de-camp of Don Leon Iriarte asserts that the loss of the Carlists in the engagement at the Bridge of Sanguesa on the 6th instant amounted to 80 killed, 100 wounded, and 12 prisoners.

The Journal de Paris informs us that General Coluby, Governor of Tarragona, has taken refuge in France, in consequence of disorders, similar to those at Barcelona, having broken out in his government.

The following is an official account of the disorders which took place at Valencia on the 6th inst. It is dated August 7th:—"The people of Valencia—excited by the momentary advantage which a band of factious men, commanded by Quillet and Serrader, had gained over a column of 500 men, who were in pursuit of them—rushed in a mass to the prisons occupied by some persons detained there for political offences, and having, with the help of the Urban militia, got them out, conducted them to the central guard house, and demanded that the Military Commission should summarily judge their cause. The Captain General immediately hurried to the spot to appease the tumult, but he was not listened to, and the disorder continued to increase, in spite of the efforts of the authorities and the presence of 300 artillerymen. The Captain-General then assembled the battalions of the militia, although they were not complete, many of the privates of that service being among the anarchists, and those who were present to act against their comrades, if the justice demanded, were not promptly accorded.—The tumult went on increasing, and the country people flocked together to enter the city, and take part in it. In the midst of this conflict, the military commission, some chiefs of the militia, and other influential persons, met together at the house of the Captain General; and after vain attempts to appease the people, and to gain over the militia, determined to try at once three individuals accused of a crime which is subject to a sentence of death. This resolution was not deemed sufficient by the mob. The anarchists insisted that four others also should be tried at the same time. They threatened to kill the prisoners, who were very numerous, if their demand was not granted. This menace, which might have been put into execution without hindrance, decided the fate of the seven prisoners; they were shot, and the others transferred to another prison. The Urban militia then submitted to the authorities, and order was re-established.

Private letters from Bayonne inform us that Don Carlos had arrived on the 10th of August at Puenta Larra, with six battalions and four squadrons of lancers, and was expected to be joined by three additional squadrons. These forces passed the Ebro on the morning of the 10th, for the purpose of attacking the Christians under the orders of Bedoya, in the environs of Pancorbo. The movements of the Carlists towards Castile are watched narrowly by Cordova, who is in march with his whole force towards Haro. The Brigadier General Giurque, four battalions of Navarrese, three of Castilians, two strong guerrillas, and a squadron of lancers, were operating to enter into Arragon.

Another insurrection (says the same correspondence) broke out at Saragossa on the 10th. The news arrived at Bayonne by express, on the evening of the 14th. The Governor is reported to have been assassinated; the troops expelled from the town; the Constitution of 1812 proclaimed; and popular authorities substituted for those of the Queen.

LATER FROM EUROPE.—The *Napoleon*, packet from Liverpool of the 24th ult., furnishes us London dates to the 23d, and Paris of the 20th.

In England the municipal corporation bill absorbed all interest. It had been so modified by the House of Lords, where it was still under discussion, that it is no longer the same bill, and it is confidently said the Commons will not accept such a mutilated thing. Great excitement prevailed in the kingdom, and of course, against the Lords, who are supposed to be thwarting the popular branch.

In France the *gag-laws*—outrageous any where, and especially outrageous in a country with a written charter, guaranteeing the liberty of the press—were under discussion in the Chamber of Deputies. All material amendments are repelled, and there seems little reason to doubt, that the bills will pass as proposed by ministers.

The affairs of Spain seem no nearer any peaceful issue. The forces of Carlos do not quail before those of the Queen, augmented though they be, by foreign auxiliaries.

[From the *Atlas*.]

THE TWO DEAF GENTLEMEN. TRANSLATED FROM THE FRENCH.

"Sir, your dinner is served up!"
"Well—but I do not wish to dine alone—can't you find some other traveller in the hotel?"

"We have only one—and I will invite him if you wish; but I forewarn you that he is as deaf as an adder."

"No matter, I will halloo."
And the boy who had improvised this piece of pleasantry—which the reader will, according to his taste, think either good or bad—went to invite the traveller. "A stranger," said he, "desires to have your company at dinner, but I consider it my duty to inform you that he is so deaf that he wouldn't hear thunder strike at his side."

"No matter, I will halloo."
The two gentlemen greeted each other with a silent bow, took their places and commenced an insignificant conversation on the rain and the fine weather, upon the object of their travels, and other common matters. The first speaker began by singing out pretty loud; the other answered in a still louder tone; the reply waxed louder, like the ascension of the gamut, and so the rejoinder, always *crescendo*.

I have seen in the course of my sea-voyage, two unfortunate youngers, guilty of some petty larceny, on whom their superiors inflicted a novel punishment. They had been condemned to whip each other reciprocally, first one striking and then the other, a blow with the cat-o'-nine-tails. The one who began struck only a light blow; his comrade felt it however, and struck in his turn, still feebly, but with a little more force. The third lick was laid on without hesitation, the fourth with a spirit of vengeance, the fifth with fury, and the two little unfortunate devils, ended by beating one another as hard as they could lay it on, crying as loud as they could bellow.

So did our travellers; at each reply the voice increasing its tone, they began at last to yell with open mouths, and would have used speaking trumpets could they have had them at their command.

One of them at last said:
"Sir, were you deaf born or by accident?"
"What do you call deaf? Deaf yourself, and with a witness."

"Ah! good heavens! you are so very deaf that our conversation will destroy my voice for six weeks, at least."

"Poor man, you believe that all the world is afflicted with your infirmity."

"Ah, Sir! I pity you sincerely; but do not insult me by trying to throw a bundle on me, of which I cannot relieve you."

The boy perceived that the conversation was about taking a serious turn. He spoke some words in a low voice which both the deaf gentlemen heard wonderfully well—and which let them into the secret. They had the good sense to laugh at the joke—but some difficulty, during the remainder of the dinner, to descend to an ordinary diapason, after the vocal efforts they had made.

[From the *National Gazette*.]

LAMARTINE'S PILGRIMAGE.—M. de Lamartine, the French poet, has won all suffrages by his *Pilgrimage to the Holy Land*, of which four European editions have already appeared. The author before he left Paris, had prepared his readers for the kind of work they were all to expect on his return from that glorious country, to which his thoughts had so often wandered. "I go," were his words, "to seek for individual inspiration on that great theatre of the religious and political events of the ancient world. I think not of writing; but I go to read, before I die, some of the brightest pages of the book of nature. And if poetry shall find there

any images, or new and fruitful themes of inspiration, I shall content myself with treasuring them in the silence of my bosom, to color the brief literary future which may be in store for me." Probably no work in the French language contains a passage of greater ardor, or nobler eloquence, or deeper sensibility. The pilgrim carries the reader along with him through all his wanderings in the land of miracles, where the burning sun, the rushing eagle, the barren fig tree—all the poetry and all the pictures of the bible are visible; where, in his passionate words, "every name unfolds a mystery, every cave speaks of the future, every hill responds with the warning of a prophet; where the dried-up torrents, the cleaved rocks, the open graves, attest the supreme power of the deity, and the wilderness itself seems dumb with terror, as though afraid of breaking the silence which hung over it since the voice of the Almighty first resounded within its borders." Chateaubriand, if not eclipsed, has at least found a rival in this new poet-traveller, whose work is justly regarded as one of the most remarkable, valuable and curious.

We learn that it is now partly in type in this country and will be issued immediately in Waldie's Select Circulating Library, a vehicle which, from the great extent of its subscription, is calculated to afford gratification in the perusal which a mere small book edition could not give. The work is an expensive one in Europe, but we suppose will be reduced on the Waldie principle to a moiety of a dollar.

NAVAL.—The U. S. schooner *Grampus*, Captain Ritchie, arrived at Pensacola, on the 27th ult. The *Grampus* sailed on the 9th August, bound to Matamoros, Galveston, &c. in Mexico, and when in lat. 27 32, long. 94 40, experienced one of the hurricanes which are so common in the Gulf of Mexico at this season; it lasted 48 hours, during which time the *Grampus* sustained much damage—the hammock nettings stove in, main jib boom carried away, sails and rigging much injured, and the officers and crew suffered considerably. On the 19th inst. discovered a wrecked sail to windward. The Captain stood for the wreck, which proved to be the schr. *Watchman*, Capt. Murray, four days from Rio Grande, bound to New Orleans, with \$100,000 on board, many passengers, among whom were the ex-vice President and family of Mexico. Capt. Murray of the *Watchman* made his distressed situation (as the *W.* was dismantled and without masts, sails, boats, &c.) known to the commander of the *Grampus*, who furnished him with spars, sail, &c., and safely landed him at the S. W. Pass of the Mississippi river on the night of the 25th.

[From the *New Haven Herald of Wednesday*.]
The steamboat *Boston*, from New York for Providence, was run into by a schooner under full sail, and showing no lights, on Monday night, and was so much damaged as to be obliged to put into Huntington harbor for repairs. She sailed again and arrived at Providence next day. The imprudence of vessels running in the sound at night without hoisting a light, is so apparent, that it cannot be justified. Penal enactments should oblige every shipmaster under sail to give fair warning of his position and approach.

From Charleston, by the *Steamboat*, we have papers of Saturday evening.

The annexed is the only item of interest:
CHARLESTON, Saturday Afternoon.—*Effects of the Gale*.—A gale of wind commenced on Tuesday last from N. E. to E. which continued from that quarter until yesterday noon, when it suddenly shifted to S. E. thence to S. S. E. and blew with great violence. Little or no damage was done to the shipping, owing to the greatest violence of the gale being from S. The Spanish brig *Isabella* the 2d, lying for several days in the stream opposite Magwood's wharf, was driven into Fraser & Co's. wharf, after parting her cable and dragging her anchors, destroying her boat, and losing one man overboard, in what manner is not known. The packet ship *Saluda* was driven high up the dock at Boyce & Co's. wharf, where she is aground.—The sloop *Martha* and *Jane*, lying at Williams's wharf, had her larboard side stove in and sunk. A wood schooner was also sunk at Mey's wharf. A schooner called the *Farmer*, lying in Ashley River, was driven ashore on the east side, a little above the bridge, where she is aground. The Steam Packet *Edwan* lost her figure head and a few stunchions.

The South pier of Chiniquet's wharf received com-

siderable damage, also a small pier at Vanderhorst's wharf. Gibbs's wharf is likewise badly injured, and some damage has been sustained at Williams's wharf, the south side of which is gone. Gadsden's North wharf has received considerable damage, the head being swept entirely away, as has also Norton & Carroll's wharf.

The Bathing House on East Bay, which has stood sixteen years, is so much injured as to be beyond repair.

We have heard of no injury in the city, with the exception of some fences and trees blown down.

We learn from several persons who visited Sullivan's Island this morning that no damage whatever was sustained there. The tide did not rise higher than an ordinary Spring tide.

Much damage has no doubt been done to the Rice and Cotton Crops, at points exposed to the influence of the gale.—[Southern Patriot.]

SHIPWRECK.—Captain Norris, of the brig *Crusader*, from Neuviatas, informs us that when coming down the river, he was boarded by Capt. Hoskins, of the schooner *Sophia & Eliza*, of Hartford, 17 days from Edenton, for Kingston, Ja., with staves, &c. who stated that his vessel was totally lost on the 18th ult. at half-past twelve at night, about 6 miles east of Neuviatas Bay, having mistaken the land for St. Domingo, in consequence of passing the Leeward Islands without seeing the land while lying in a hurricane on the 15th. The crew, with Dr. M. E. Sawyer, of Edenton, a passenger, all saved. The natives began plundering the vessel, and the captain was going in a government boat to take off the crew, and save what part of the cargo he could.

FROM ANTIGUA.—The Wilmington People's Press has received Antigua papers to the 18th ult. The hurricane of the 12th was terrific in that Island. It began at 4 o'clock, P. M. and continued till midnight. When it was passed, "the town presented a painful scene of wreck and ruin, in a wide waving havoc and a confused intermixture of fragments of houses, trees, inclosures, &c. Accounts from the country state that buildings, sugar works, and fields of the plantations, present an equally frightful picture. The loss is estimated at nearly half a million of dollars. 20 schooners and 2 brigs were driven on shore. Several blacks were killed on the plantations, by the falling in of the houses, &c."—[Jour. of Com.]

OUTRAGE AT STATE PRISON.—On Saturday last, after dinner, Harvey Griswold, a convict, became disobedient, and refused to leave his cell with the other prisoners, to go to his work. Information of his conduct having been conveyed to Capt. Pillsbury, the Warden, he, with Mr. Coolidge, the assistant warden, repaired to his cell, to ascertain the cause. After a little conversation, Griswold told them he did not feel disposed to work, and that he should not leave his cell; Capt. Pillsbury stepped in, and took him by the collar, when a scuffle ensued, during which Griswold drew a knife he had concealed in his coat sleeve, and struck at Capt. P.'s head or throat; the blade entered the Captain's left shoulder partly on the back, to the depth of one and a half or two inches, and about four inches long. Mr. Coolidge in the meantime seized him, and soon received a dangerous cut on the wrist, which bled so profusely that he was compelled to go immediately to the Hospital for aid. In the meantime, Capt. Pillsbury was engaged unarmed, with the assassin, and received another severe wound from his knife in the thigh. What appears very remarkable is, that Capt. P., although he felt something like a shock of electricity, when Griswold struck the first blow, did not know that he was wounded until he had forced Griswold half way to his work. Feeling the blood trickle down his back, and discovering his wound in his thigh, the convict was immediately remanded to his cell, where he will remain until the next session of Court, to be tried for the offence.

We are pleased to learn, that although both officers were severely wounded, they are considered out of danger.—[Hartford Times.]

MORE CRIME.—A black man was killed in the Swamp, on Sunday night. The act was perpetrated by a white woman, in a negro hovel. She alleges it was to protect herself from the most offensive violence, to which her character, most probably, induced the attempt. The circumstances of the case, favor this conclusion.—She is in prison for trial.—[Cincinnati Gazette.]

[From the Cincinnati Gazette.]

RETRIBUTION.—Mr. Joshua Trotter, of

Springborough, Warren county, Ohio, has been absent from his family for about two weeks. His absence was to them wholly inexplicable and excited great apprehension. On Sunday, Sept. 13, he came to this city on his return home, and gave the following account of his absence.

He came to Cincinnati, Saturday, August 29, where he transacted some business and received a small sum of money. On Sunday morning, Aug. 30, after breakfast, he set out for home, on horseback. On the hill road to Carthage, between four and five miles from Cincinnati, at a convenient place for instantly secreting him, he was suddenly dragged from his horse by two footmen whom he had just passed. His horse was turned loose, and himself blindfolded, and silence enforced by threats of instant death. His money, about 150 dollars, was taken from him, with inquiries indicating that a mistake had been made in the person seized and in the amount of his money. He was detained all day blindfolded, and at night conducted, in the same condition, to the river, where he was put on board a boat, so fitted that he was confined in an apartment where he could make no observation of what was passing around him. In this way he was carried down the Ohio river to a point below the Yellow Banks, where, on Wednesday night, September 10, he was taken up a high bluff to a distance from the river, and set at liberty. He came to Cincinnati on his return, as stated, and was accompanied to the scene of the robbery by some friends. Upon inquiry, his horse, saddle and bridle were recovered, having been taken up almost directly after his capture. Mr. Trotter is represented to be a respectable man, worthy of belief. The solution of his story would seem to be this: that arrangements had been made to rob and kidnap some person, and after seizing him, the alternative was to murder him or to proceed. He was captured and blindfolded so suddenly, that he has no distinct knowledge of the physiognomy of the persons that seized him.

THE REGATTA.—A more beautiful afternoon never graced a public exhibition than that of Monday last. Our glorious bay was studded with boats—some steaming, some sailing, and some rowing—the battery, in its whole length—the neighboring wharves—and the Castle of the garden—were alive with spectators, anxious to witness the friendly rivalry of the Amateur Clubs. The result is well, told by the Gazette, the respectable senior Editor of which, awarded the prizes.

The boats took their places on starting in the order previously arranged, and, according to the report of the judges, arrived as follows:

1. Wave—time 34 minutes.
2. Eagle—time not noted.
3. Dolphin, do.
4. Neptune, do.
5. Wakona, do. (4 oars)
6. Atlantic, do.
7. Jersey, do. (4 oars)

The distance performed was 5 1-2 miles.

Four splendid silver pitchers were then presented to the members of the successful clubs by the judges, the senior of whom prefaced his remarks with the following address.

My young friends,—By your kindness and politeness I have been appointed one of the Judges of this afternoon's exhibition, the first of the kind ever presented to an American public, for which I beg leave to thank you. To you, gentlemen, belongs the credit of giving origin to such manly exercise, which tends to promote health, strength and longevity. If it be said that you are imitating the Lords and gentlemen of England in their Regattas, the most fastidious moralist cannot complain, while you devote no hours for rational exercise but those on which your various occupations have no claim.

—Your early rising, and a tug at the oar, give a zest to your daily business, and prepare you for the acquiescence of the evening, accompanied by your mothers, sisters, and sweet-hearts, the witnessing of which has often almost induced me to wish that I were young again. Proud as I feel on this occasion, I have yet to perform the most gratifying part of my duty; and now gentlemen of the *Wave*, I feel honored in presenting you a pitcher composed of one of the most precious metals, as a small tribute of reward for amateur superiority. In doing this, it delights me, and it must be equally gratifying to those around you, to find among your young aquatic companions, that not one evinces an ex-

pression of countenance that is not in unison with your own.

You have, gentlemen, this day set a noble example to the young men of this great and growing city—and while you continue to act within the rules of strict propriety, your Regattas will not only not be opposed but patronized by the best members of the community.

May you live long, be prosperous and happy.

The several members of the Clubs replied in an appropriate manner, after which, with a large number of guests, they partook of a repast appropriate and splendid.

THE ROWING MATCH between the officers of the *Pique* and the *Quebec Amateurs*, and a second one between the seamen of that frigate and the boatmen of the Quarter-Master General's department, will come off to-morrow, at 11 o'clock in the forenoon; distances, three miles for the first, and four miles for the second, marked off before the town. The *Pique's* boat is a gig, named the *Cat and the Fiddle*, 30 feet in length, and the town gig the *Water Witch*, 35 feet, both four-oared.—[Quebec Gazette.]

THE BALLOON ASCENSION.—Wednesday afternoon, Mr. Lauriat made an ascension from Castle Garden, in the presence of many thousand spectators, not however with his daughter, as was anticipated, by reason of the deficiency of gas. They both seated themselves in the car, but before it had ascended above the railings of the Garden, it was dashed against them with much violence, and serious consequences must have followed but for the prompt assistance received at the precarious moment by those persons who were nearest them. Instead of being intimidated by this accident in the outset, the intrepid aeronaut and his fair companion still expressed a desire to persevere; when, the car being adjusted, those who held the cords, let go, but with no better success than attended the first effort, for although all the disposable ballast was instantly thrown out, there was not enough power to carry them further than the promenade on the Battery, outside of which the balloon descended, and was secured. After this second abortive attempt, it was evident to all that the balloon was not sufficiently inflated to ascend with both passengers, and the lady was induced to abandon her intended trip, which she did reluctantly, and we are happy to add, without having received serious injury.

After being thus lightened, Mr. Lauriat ascended, amidst the cheers and plaudits of the spectators. The balloon passed over the eastern part of the city, in the direction of Williamsburg, Long Island.—[Mercantile.]

We have been furnished by a friend with the following census of the Eighth Ward:—[Evening Post.]

Allowing an average estimate for families yet out of town, the population of the Eighth Ward is about 27,500. The excess of females is about 2500. The rate of the Eighth Ward, for the last few years, has been about one tenth of the whole city rate; it is therefore reasonable to suppose the population to be in the same ratio, which will make the inhabitants of this city amount to at least 275,000. In 1830, the 8th ward contained 20,729 people, and the city 203,000.

SHIP CANAL.—The corps of United States Engineers who for the last five months have been engaged in surveying several routes for a ship canal around the Falls of Niagara, through this county, have at length finished the work intrusted to them. The result of their labors will be submitted to Congress at an early day. In the mean time we would state, for public information, that the proposed canal is considered quite practicable, and that too, at a cost far less than the great importance of the work would warrant. We trust, therefore, that no efforts will be spared to induce Congress to order the construction of this important link in the navigation of the great lakes.—[Niagara Courier.]

CANAL TOLLS.—The tolls on the New York Canals for the two first weeks in Sept. amount to the sum of \$101,080 22. This exceeds the receipts for the corresponding two weeks in 1834 by the sum of \$24,750 41; and it exceeds the receipts for the same time in 1833, when the tolls on merchandise were 25 per cent higher than now, by the sum of \$14,731 21.

The whole tolls from the opening of navigation to the 14th Sept., amount to the sum of \$963,310 22; being an increase, from last year, up to the same time, of \$172,750.—[Albany Argus.]

The Commercial Agent of the United States at Antigua, writes to the Secretary of State that the Governor of that Island has opened the port for six months from the 14th August, for the importation in vessels of all nations, duty and tonnage free, of the following articles, viz:—Flour, corn, and pulse of every description; corn meal; salted, dried, and pickled fish; salted pork and beef, mill timber, and lumber of all kinds; staves, shingles, and wood hoops.

The following Poem, by Lord Bacon, is now just published for the first time, in a new life of the author:—

The world's a bubble, and the life of man
 Is his conception wretched, from the womb,
 Curs'd from the cradle, and brought up to years,
 Who then to frail mortality shall trust,
 But limbes the water, or but writes in dust.
 Yet since with sorrow here we live oppress'd:
 Courts are but only superficial echoes
 The rural parts are turn'd into a den
 And where's a city from all vice so free,
 Domestic cares afflict the husband's bed,
 Those that live single take it for a curse,
 Some would have children, those that have them, none,
 What is it then to have or have no wife,
 Our own affections still at home to please,
 To cross the sea to any foreign soyle
 Warres with their noyse affright vs: when they cease,
 What then remains? but that we still should cry,
 Not to be borne, or being borne to dye."

CIRCULAR. To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

RAILROAD IRON.

300 tons of Railroad Iron of the T. pattern, just imported and for sale by HOWLAND & ASPINWALL, 55 South street.

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Rail Road between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skilful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting. MONCURE ROBINSON, C. E. Philadelphia, Sept. 2, 1835.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads.

R-1y 1614

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-1f

AUBURN AND SYRACUSE RAILROAD.

NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road. Individuals desirous to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

EDWIN P. JOHNSON, Chief Engineer & Agent A. & S. R. R. Company. Auburn, Aug. 25, 1835. 37-150

AMES' CELEBRATED SHOVELS,

SPADES, &c. 500 dozens Ames' back-strap and plain Shovels, 75 do do round-pointed do 150 do do cast steel Shovels and Spades, 100 do do Bucket Shovels and Spades, 150 do do steel plated Spades, Together with Pick Axes, Churn Drills, and Crow Bars, steel plated, made from Salisbury refined Iron. For sale by his Agents,

WITHERELL, AMES & CO. 3 Liberty street, New-York. BACKUS, AMES & CO. 8 State street, Albany. 34-ytf

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices. Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention. Paterson, Aug. 19, 1835. 34-1y

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad, No. 234 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J35tf

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS. Also, Flange Tires turned complete. J8 ROGERS, KETCHUM & GROSVENOR

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. HENRY BURDEN, Agent.

Troy, N. Y. July, 1831. Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 329 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. H. BURDEN. J32tam

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-4f

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMASTURNER, at the Factory, Troy, N. Y. sept.18-1y

RAILWAY IRON.

200 tons of 1 inch by 1 inch, Flat Bars in lengths of 14 to 15 feet, counter sunk holes, end cut at an angle of 45 degrees, with splitting plates and nails to suit. soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 30, 32, 34, and 36 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d11meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG, Mathematical Instrument Maker, No. 9 Duck st., Philadelphia. The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a rever sing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend, JAMES F. STABLER, Supt of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

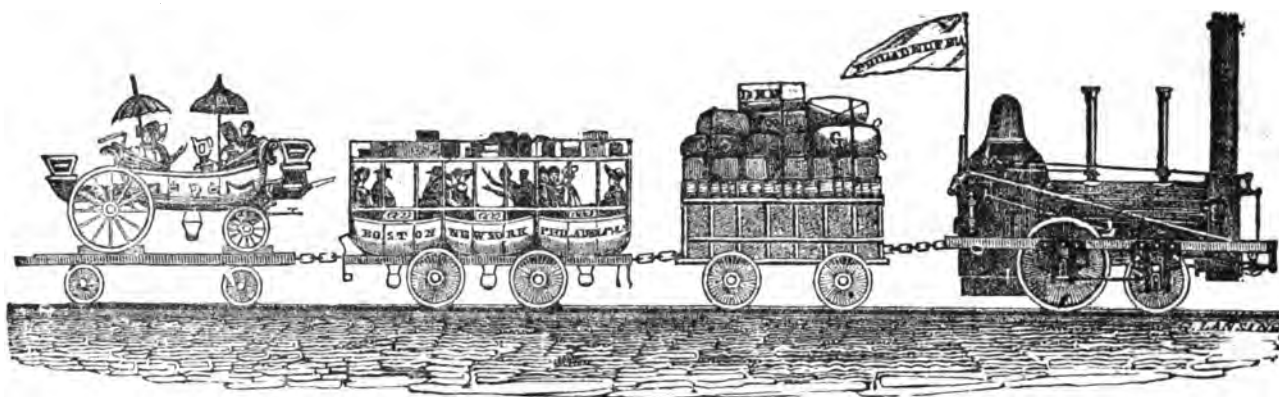
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer. Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germantown and Norristown Railroad. ml 1y



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, OCTOBER 3, 1835.

[VOLUME IV.—No. 39.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, OCTOBER 3, 1835.

✂ We continue in this number, the Essay of Mr. STIMPSON, which was commenced in our last; and we ask for it a candid perusal—which, by the by, is more than we have been able, in consequence of ill health, to give it.

RAILROAD AXLES.—We have in our possession the model of a Railroad Axle, which, in our estimation, will be found an important improvement upon those now in use.

It has frequently occurred to us, that much difficulty and expense must be encountered in repairing the *journals* of railroad carriage, and locomotive, axles. So great is the burthen and speed to which they are subjected, under present arrangements, on our *short* roads—and these will both be increased when the business is better understood—that we apprehend serious difficulty in keeping the journals of a uniform size, and much expense in repairing them when they shall have, as they certainly must in time, become worn by constant use.

In order to repair a journal when worn, either in ridges from any hard particle which may find its way into the box, or out of round, from any inequality in the texture of the material of which the journal is made, the axle must be taken from the carriage, the wheels knocked off, and the journal overlaid, with an additional quantity of iron or steel, in order to restore it to its original size. This is no small matter—as it will require much time and labor, in addition to

which, is the risk of obtaining a journal free from flaws.

The *improved* axle, which has been patented by Mr. Force, of Baltimore, may be used—if made of good materials, and of sufficient strength not to *break*—to wear out many pair of wheels; or indeed, *any number* of years without any other repair than what may be made by the engineer, in a few minutes, *on the road*, without removing the axle, or the load from the car, or carriage. The improvement consists in the application of a *thin steel ferrule*, or *thimble*, which is made to fit close to, and to remain *fast on*, the journal—which is to be of the best wrought iron, about an *eighth* of an inch *smaller* than ordinary journals. This reduction of size, it is believed, may be submitted to without risk, as there is no wear upon it; and it will, therefore, always remain of its original size. The *wear* upon the journal comes upon the *thimble*, which may be renewed at any time, in a few minutes, by raising the carriage frame, so as to come at the journal, to knock off the *worn*, and to put on the *new*, thimble; which may of course be always on hand, fitted and numbered to correspond with each journal, and will not cost over one dollar each; and certainly not over 20 or 30 minutes of time to put it on; whereas, in the other case, it cannot, we should think, cost less than ten dollars, and an entire day's time to repair one axle.

We ask the opinion of practical engineers upon the subject, and desire to have all objections to it stated.

INTERNAL IMPROVEMENT.—At a meeting of the American Institute of the city of New York, held at Clinton Hall on Thursday, the 24th day of September, 1835, the following preamble and resolutions were unanimously adopted.

Whereas, this Institute was incorporated by the Legislature of this State for the purpose of promoting "Agriculture, Commerce, Manufactures and the Arts,"

And whereas, the prosperity of each and every of these departments of industry is greatly dependent on safe, cheap and easy travelling and transportation, especially in respect to our farmers in the interior, also in respect to our manufacturers and artisans, the materials of whose fabrics are to a great extent procured and transported from distant markets and places, and returned again in the manufactured goods. And whereas, the merchant also is deeply interested in internal improvements, as by means of roads and canals production is greatly increased, and the materials embraced by mercantile operations are thereby made more abundant, and the facilities for the purchase and sale of those materials proportionably multiplied.

It was therefore resolved, That the interests of the farmer, merchant, manufacturer and artisan, require that internal improvements should advance, and that no considerations of false economy should be permitted to arrest their progress, but that adequate expenditures ought to be made at once in order to obtain the benefits arising from internal improvements by means of Railroads and Canals, wherever the country will admit, and the wants of the people require such facilities.

Resolved, That these expenditures will be doubly repaid to the state and people; first, in the income received from tolls, and secondly, from increased agricultural production in those fertile sections of this state whose distances from market render the fruits of farms of little value, and in the establishment of extensive manufactories on never failing streams whose waters are now running to waste, and, in extended commercial operations and dealings, and in new and vigorous efforts of industry which the expenditures in improvements will inevitably produce.

Resolved, That in order to enable the friends of internal improvements to act with concert and efficiency, a convention be re-

commended to be held at the city of Utica on Wednesday, the 11th day of November next, at 12 o'clock, M., and that it be continued in existence by adjournment and further election of delegates, until its objects shall be fulfilled.

Resolved, That the several cities, towns, counties, and manufacturing and mechanic incorporations, for the advancement of agriculture, commerce, manufactures and the mechanic arts, in this State, be respectively and respectfully invited to send delegates to meet in the aforesaid convention, to be selected from the most able and best informed of our fellow citizens.

Resolved, That the foregoing preamble and resolutions be published, and that the publication thereof be and the same is hereby declared to be an invitation to our fellow citizens, included in the above description of persons, to appoint and send delegates accordingly.

EDWIN WILLIAMS, Res. Sec'y.

P. S. Editors of papers friendly to internal improvements, are requested to publish the foregoing.

[From the Maine Farmer.]

CANAL MEETING.—In compliance with a public notice, a large number of the citizens of the several towns of Farmington, Chesterville, Livermore, Fayette, Wayne and Gardiner, assembled in Fayette on the 3d inst.

The meeting was called to order by E. SMITH, and the object of it stated. MOSES HUBBARD, of Fayette, was chosen Chairman, and ENOCH SMITH, of Fayette, Secretary.

Voted, That a Committee be appointed to ascertain and cause an immediate survey to be made of the most feasible route for opening a communication by means of Railways and Canals from Winthrop Stream, through Wayne, Fayette, Livermore, and Chesterville, to Sandy River.

Henry W. Owen of Wayne, Ezra Fisk of Fayette, James Wing of Wayne, Capt. Cyrus Foss of Wayne, Josiah Chaney of Chesterville, Dr. H. G. Allen of Wayne, Thomas Haskell of Livermore, Reuben Lowell of Chesterville, Lewis Hunton of Livermore, Daniel Fifield of Fayette, John Morrison and Joseph Ware of Farmington, were chosen a Committee for that purpose.

A statement of a survey from Kennebec River to Wayne Mills was made by Mr. P. Sheldon of Gardiner, and the utility and importance of Internal Improvements warmly urged. Communications were also made by gentlemen from various sections of the contemplated route, and a lively interest manifested in the undertaking.

Resolved, That the proceedings of this meeting be signed by the Chairman and Secretary, and published in the Maine Farmer.

Voted, That this meeting be adjourned to meet at the Baptist Meeting House in Fayette, on Thursday the 22d of Oct. next, at one o'clock in the afternoon. Per order, MOSES HUBBARD, Chairman.

ENOCH SMITH, Secretary.

Fayette, Sept. 3, 1835.

[FOR THE NEW-YORK AMERICAN.]

As the attention of our city authorities seems directed to the subject of paving the streets, it has occurred to me to suggest a mode different from any in use in this country, and which yet seems

more applicable than any other to our city. This is the system of laying flat cut stones, nicely jointed, for the wheels to run on, leaving the rest of the road in its present condition. In Broadway there might be four rail ways—if I might so call them—of this nature; two for carriages ascending, and two for those going in the other direction. The effect of this system would be to keep vehicles to their proper side, more than is now practised, and to obviate those disasters so common in our streets. The wear and tear of horses and carriages that would be saved by this mode of paving, would be immense, and would soon repay the expense of the alteration. If it should be objected that these rail ways, by keeping vehicles in rows following each other, would reduce the whole of drivers to the same gait, it may be answered, that after all, the pavement would be no worse in this respect than it is now; but that, on the contrary, in consequence of the greater order, it would be much easier for fast drivers to turn out. It might, moreover, be advisable to confine loaded vehicles, going at a walk, by law, to a particular portion of the road.

This plan of paving is neither new nor speculative. The streets of Milan are all laid in this way, and those who know that delightful city, will join me in attesting the ease with which they are traveled. In London, moreover, the road from the West India Docks to Wapping has been furnished with a track of this description, by means of which a single horse is able to draw a weight of sugar, which four would not be able to move on the ordinary pavement. X.

CITY AFFAIRS.—Under this head we publish a communication to-day, that appears to us to present some most important views, as to the necessity of immediately improving the streets, and avenues of the upper part of the island.

It is in this way that lots distant from the thickly settled parts of the city, may be put within the reach of mechanics and young beginners, who have their fortunes to make, instead of compelling them, by high rents, to seek dwellings over the rivers that bound us.

A railroad too, that should bring people down into the heart of the city, is now, we are well satisfied, a desirable improvement. We thought otherwise when such a scheme was first proposed, but the impassableness and dangers of Broadway, by reason of the omnibuses and other vehicles, which constantly crowd it, have convinced us, that rail cars, following a given track, from which they cannot deviate, drawn by horses, and announced by bells, as in the sleighing season, would be altogether safer, more convenient, and more advantageous to up-town residents.

[FOR THE NEW-YORK AMERICAN.]

CITY AFFAIRS.—The recess, which the members of the Common Council took during the month of August, has probably enabled many of them to notice the improvements in contemplation, in the different towns and cities in this section of the Union. They could not have failed to observe that the provisions, as compared with their respective present populations, for future increase, every where else, vastly exceed what our own city exhibits. I have not seen the returns of the census now taking, but computing our population according to the number of lots assessed as occupied, it cannot be less than 285,000, or an increase of 40 per cent. since the census of 1830, which gave 202,980. Supposing the population to advance in the same ratio for the next five years, there will be during that period one hundred and twenty thousand new inhabitants. The rule adopted by the Water Commissioners, in making their estimates, was to calculate 9-5 persons for every lot of 30 by 70 feet. As the city advances, the ordinary size of lots is enlarged, and many new houses will require more than one lot. It would probably be fair to suppose that in the present 12th Ward, lots will be at least 25 by 100 feet, and that therefore 12,630 lots will be required for the occupation of 120,000 persons; that is to say, of the next five years' increase. Not only will these be wanted, but, at least, 3000 more for churches, public squares and edifices, including reservations for receiving reservoirs, coal

and lumber yards, &c. &c. It is also to be borne in mind, that, owing to the disputed titles, and the desire of proprietors to take advantage of the enhancement growing out of their neighbors' improvements, a large amount of lots are for years, kept out of the market for all building purposes. There are between 23d and 57th streets, the 1st and 10th avenues, only 18,836* lots, which will exceed the additional number required for the next five years, including the computed provision for public purposes, by scarcely more than 3000 lots. It is, therefore, reasonable to conclude that, even if our commercial prosperity does not advance at an accelerated rate, the neighborhood of 57th street will, in five years, be more densely populated than that of 23d street (where the prices, according to locality, range from \$1500 to \$3000) now is.

What arrangements are made to meet the wants of this new population? The graduation of lots is not legally established above 33d street, and even the adoption of the plans, which have passed one Board, would be but a very partial provision for the growing wants of the city. Some even of the streets below 33d street, and most of those above that line, are as yet unopened by law. Should the corporation now order, as proposed, all streets below 42d street to be opened, judging from the time consumed by the Wooster street and other Commissions, years must elapse, according to the present system, before any thing effectual is done. In many cases, even when the dilatory action of the commissioners has been overcome, no progress has been made towards giving a practical operation to the legal proceedings. Thus, in May, 1833, Union Place was opened by law, and assessments paid by individuals to the amount of a quarter of a million of dollars, yet it was not till the autumn of 1834 that any provision was made by the public, for enclosing and embellishing the square; and though the importunities of individuals have at last been so far successful, as to induce contracts for the necessary coping, &c., to be entered into, there is no prospect that any thing effectual will be done, to point out where the square is, till three years have elapsed from the time that the assessments were actually levied. Even when contracts are formally made, their execution, as in the case of 14th st., and of the paving of Union Place, is allowed to be delayed for months with impunity. It may, indeed, be well for landholders to inquire, whether it is not the duty of the Street Commissioner to impose the stipulated penalty on the contractors, and thus diminish, *pro tanto*, the tax to be levied on the parties liable to be assessed for the improvements, and who are the real sufferers by the delay.

Again: the convenience of the people of Yorkville, and of a large adjacent population, who were obliged to go a mile and a half to a dock at the foot of 54th street, in order to obtain their fuel and other supplies furnished by water, led, several years ago, to the opening of 79th street to the East River. Yet, although the assessments on the adjacent property have been long since paid, there is nothing even now to distinguish that street or road from the neighboring fields.

Let any man visit Brooklyn, or Williamsburgh, (to say nothing of Boston or Philadelphia,) and compare the works there going on, with the perfect inactivity everywhere manifested on this island. The few laborers who are employed, seem to be engaged almost exclusively on the old roads, where their work is in a great measure useless, inasmuch as these irregular lanes are unknown to the legal map of the city, and must be closed on the opening of the Avenues. If complaint is made to the public administrators, by citizens whose whole fortunes are staked on the prosperity of this great commercial emporium, the only reply which is vouchsafed is, that "Brooklyn and Williamsburgh pay higher wages than we do, and therefore take off all the hands." It is obvious that if wages have risen, we must pay as others do, and no one can regret that every class of citizens, should participate in the exuberance of our prosperity. It is infinitely better for the owner of property, by whom in most cases the expense of public improvements is exclusively borne, to contribute a little more than formerly, and have the work promptly done, than it would be to have the streets in front of his lots gratuitously graduated and paved, half a dozen years hence.

* In this calculation, allowance is made for intermediate avenues between the 3d and 4th, 4th and 5th, and 5th and 6th Avenues, two of which have already been partially established by law.

To the prosperity of the city the difference is incalculable.

Much has been said, during the last two or three years, in the Common Council, by the representatives of the upper wards, as to the importance of placing the Custom-house in a more central position, and against increasing the facilities of communication with Brooklyn. The writer of these remarks has always believed that in the great commercial emporium of the United States, provision should be made for the office of government, on a scale of magnificence commensurate with the revenue received here, and the future, as well as present, business of New-York. He has, also, been of opinion, that, while the people of the opposite shores have their places of business within our corporate limits, and derive from this city their means of living, they should be made to contribute proportionably to those expenses, which are incident to the seaport, by which they are sustained.—But so far as regards the bearing of these matters on the prosperity of the city, or of the upper wards in particular, they are insignificant in the extreme, compared with the importance of giving efficiency to the Street Commissioner's department. Where are the lots on this island, the graduation of which is settled, and which are susceptible of immediate occupation, that are within the reach of men of small means, and who wish to put up houses for their own accommodation? Scarcely a lot, on the streets opened by law, and within the range of graduation, can be purchased for less than \$1,500 or \$2,000. Hence, by our own acts, a large portion of our industrious population are driven to the opposite shores, and New York is deprived of citizens, whose future accumulations, though deduced from our unrivalled position, will never contribute to the alleviation of our city taxation, or to the augmentation of the property of those, on whom falls exclusively the burthen of sustaining the commercial emporium.

It is not intended by any thing here said, to derogate from the merits of the present Street Commissioner, who, it is understood, is about to retire from an office, for which he undoubtedly possesses eminent qualifications. But, views of policy and a system of organization, which would suit a town of 60,000 inhabitants, are scarcely adapted to a city of 300,000; and if the officers of the Corporation have not kept pace with the advance of our city and country, they have only erred in common with most of the men of the last century. The time, however, has arrived, when it is necessary for our municipal authorities to arouse from their lethargy, or to acknowledge as sober realities, what we have been accustomed to regard as the visionary dreams of our neighbors—that "the sceptre has already departed from Judah," and New York become a suburb of Brooklyn.

A NEW YORKER.

A Dissertation upon the Running Gears of Railroad Carriages—illustrating some of their most important natural Mechanical Actions, inseparable thereto; and also describing a remedy for the evils set forth in the Dissertation, embracing principles not heretofore known. Also, a concise description of a Turning Platform for Railroad Carriages—a Curvature to turn corners of streets, whorves, &c., and Grooved Rails for the Curvatures, and the general use of the streets. Also, a newly invented Wrought Iron Wheel, for Railroads. By JAMES STIMPSON.

(Concluded from our last number.)

The inclination of loose wheels to gather in at the bottom if conical, and the ill effects resulting therefrom, &c.

Again, wheels that are formed in the least conical upon their treads will incline or gather in towards each other at their points of contact with the rails, in the same manner as a leather belt inclines to the largest part of a pulley, and with a power equal to that of the adhesion of the wheels to the rails. This tendency to run in has no other effect upon wheels made fast upon their axles, when both they and their axles are sufficiently stiff or strong, than to keep them upon a constant strain inwards at their points of contact with the rails, and to bend or

spring the axles upwards; but upon wheels loose upon their axles the effect is almost incredible, the power exerted upon the axles at the exterior edges of the naves is equal to three thousand and six hundred pounds; for in medium sized wheels the leverage power of the periphery over the inside of the nave is as twelve to one, by which if we multiply the estimated power of adhesion of one wheel, or three hundred pounds, we obtain the result aforesaid. It must be evident to any one that such a power constantly exerting itself, or in other words, grinding upon the axles at the exterior edges of the naves, must soon wear them larger outward from their centres each way. It may also be observed that every time the wheels turn round there must be a constant tendency to oblique from a perpendicular line, if there be any loose play between the naves and axles; for the sides or points of the wheels, which were last in contact with the rails, were of course within a plumb line through their centres when compared with the sides or points immediately above—and they must be as much without that plumb line when at top as they were within at bottom—so that in changing from one position to the other they must be constantly obliquing. Now as three feet wheels turn around five hundred and eighty-four times in a mile, the gripping force as before set forth of three thousand and six hundred pounds is constantly acting upon them in addition to the weight of the load, the carriage, and the power necessary to manage and control the wheels—so that no one can be at a loss in accounting for the early and rapid destruction of the naves and axles, when the wheels are left loose, or for that of the collars and washers within which the naves revolve; and more especially when it is considered that all these movements at the naves, besides being under such a stress of power and weight, take place in a situation extremely exposed to the deposit of dust and dirt; for the wheels generally run so fast that the dirt is thrown from their peripheries up against the carriage or covers of the wheels, and even into the air, whence it falls upon the axles, there to mingle with the oil, to work in between the moving surfaces about the naves, and necessarily to impair them very fast. Thus they soon become so very loose upon their axles as to render their passage through a crossing or round a curvature extremely dangerous.

And again, a mere trifle of loose play between the naves and axles, allows considerable variation from a perpendicular at the peripheries of the wheels, and thereby cause their treads, although conical, to lay flat upon the rails: from whence it necessarily follows, that as much as the inside of the tread is larger than the outside, so much the outside has to be slipped along over the rail to a great loss of power and extra wear of both wheel and rail. To obviate these difficulties in part, one wheel has been made fast upon each axle and the others left loose; but practice at once proved that the stress upon the loose wheel was quite doubled, and its destruction made rapid in proportion—and the use of loose wheels has been abandoned on account of the cost of repairs, and their total inability to guide the carriage.

Thus it is manifest that the natural tendencies of loose wheels are to their own rapid destruction, and that therefore they are inapplicable to the use—and the only remedies supposed to be left to obviate some of the principal difficulties that have been enumerated, was to be found in the use of

vibrating axles or small wheels made fast to the axles. It is well known that by a reduction of the size, the stress at the axles would be reduced, and that the risk of breaking them, when it became necessary for any of them to slide, would also be reduced; and this effect was necessarily produced by the change. But they are after all subject to all the extra wear produced by sliding, and to the stress upon the wheels, axles, keys and carriage, which has been already alluded to; that is exactly all that stress in proportion to their size; while at the same time their liability to run off the track is proportionate to the difficulty of changing their line of direction upon the rails at the commencement of a curve.

Vibrating axles—the bad tendency thereof, &c.

I have before said there was an impropriety in using them, and it may be proper here to give the reason. I will first however call attention to the usual and necessary play allowed between the flanches and the inner edges of the rails—this play is about an inch and three quarters, more or less, but the less the better, where the curvatures of the road will admit of it, as from a proper attention to this point alone greatly depends the injury to the road, the carriage, and the liability of running off the road. For example, we will suppose the flanches of the fore and hind wheels, upon the diagonal corners of a carriage, whose axles are confined in a parallel position, to be close up to the rails each way, and that the axles are coupled three feet six inches apart, consequently all the angle across the track that could ever be formed, would be that of one inch and three quarters to forty-two inches; this angle is so slight that when the flanches do touch, their power of action either to injure the flanch or rail, or to spread the rails apart, is of course lessened in proportion to the acuteness of the angle; this position being well understood, that which follows will be fully comprehended. Now with vibrating axles there is need of as much loose play between the rails and the flanches, as is allowed to fix axles, and even twice the distance is allowed; let it be more or less, it is certain that when the axles are allowed to vibrate sufficiently to conform to the plane of the radius of a circle of four hundred feet, and when the fore axle is up to the extreme limits of its vibration on one direction, if the other is exactly square with the frame of the carriage, the angle of the other with the track would be twice as obtuse as the one with fixed axles can be in the same relative position; but if the hind axle was thrown in a contrary direction to the front, which must and often will be the case, even by their own action or the formation of the track, and very often from extraneous causes, such as impediments to motion upon the rails causing a slipping, &c.; then the obtuseness of the angle becomes three-fold, or in other words, it has three times the power to run off the track that the fixed axles have.—Should this position of the axles happen just at a crossing or curve in the tracks, and the curve be across the set of the wheels, then the course of the wheels would be almost at right angles with the line of the road, and the power to run off the rails six times as great as the fixed axles. It also follows that the power to spread open the track is increased in the same proportion, for when the flanch is locked or hard up to one rail, it can go no further in that direction, and the wheels upon the other track act with all their power of adhesion to

force the rails apart; hence the lateral strain upon the boxes, or if friction wheels be used, the lateral pressure will be against their backs, acted upon by the ends of the axles, all of which has a powerful tendency to rack and loosen the joints of the carriage; for whenever one axle runs across the other, a constant slipping of the carriage transversely upon the axles takes place, and the lateral pressure against the shoulders of the axles, if they have any, and sides of the boxes, or against the back of the friction wheels, by the ends of the axles, is far more than can well be imagined until the principles of the action is well understood, or the powerful and destructive effects shown by examining the parts. I have seen many backs broken out of friction wheels from that cause alone, vibration—and the greater the play allowed between the ends of the axles and the backs of the wheels, or the shoulders upon the axles and boxes, the greater will be the damage; for the carriage will slide off and on transversely upon the axles, with all apparent ease, as if it weighed but a single pound.—It must be obvious that the greater distance such heavy weights are allowed to move, the more violent will be the injury here spoken of when bringing up. My joint is a perfect remedy for this evil, as my experience has demonstrated.

There are other considerable objections to the use of vibrating axles, to which it may be proper here to allude. They will keep vibrating almost constantly, and cause a continual chafing of the wheels and rails, which the fixed axles would not, producing a very unpleasant sensation upon the minds of the passengers. This constancy of vibration arises from the obtuse angles or rank shear the carriage wheels obtain across the track; for it is certain that one rank shear cannot be overcome or mended without making another, and this is owing to the fact that they must run up a greater distance upon the cones to overcome the shear than the track itself requires; it therefore turns off not exactly upon the line of the road ahead, but across it, and there it meets with the same difficulties, unless it has passed upon a piece of road favorable to its true adjustment. But should the road be unfavorable to such adjustment, then the vibration, and consequently the difficulty, would be increased double, and often three-fold—this could never take place with fixed axles. In order further to illustrate this position, and to show the true cause of this vibration, which is to be found in the position of the carriage or axles, we will suppose the range of the axles to deviate ten degrees from that of the track, and that both axles are parallel to each other, it necessarily follows that the front wheel which first arrives upon the cone, cannot change the direction of its axle, until it runs far enough to gain upon its fellow sufficiently for that purpose, and also to overcome the obtuse angle the carriage or the hind axle had at the outset; so that the distance the carriage will go ahead before it can turn off is much farther than was necessary to properly adjust it to the true range of the track; that is, when the front wheel had arrived upon that part of the cone proper to run the track, the hind wheels had not, and the front consequently has to run enough farther ahead, still upon an oblique direction, to adjust both points, and thus overreaches its proper position by forming a circuit as it were in making the change; and thus having gone too far, it of course turns off the contrary way, and then ensues the same difficulties as before, and

so on continually. All that can be said in favor of vibrating axles is that in certain situations they will prevent a slipping of the wheels upon the rails; but the extra wear from the more frequent vibrations, the loss of power, and above all the great liability to break the flanges and to run off the tracks when under much speed, will by far outweigh all the benefits they possess. To use vibrating axles with friction wheels is contrary to the generally received and common understanding of mechanical principles, at least so far as I comprehend them. Indeed the absurdity to my mind is so great that nothing but having actually seen it in use would have induced me to believe it.

An experiment to prove the transverse inclination of conical wheels.

I am aware we have been told by very learned gentlemen in mechanics that when the axles and wheels are so stiff that they cannot spring or give way in any perceptible degree, that the tendency of the wheels to incline or gather at the bottom could not take place, or the separation of the rails ensue, because, say they, when there is a little or no inward movement, no such effect can be produced. I cannot however see it in that light, for I have applied means, and put myself to some expense to try it in a way that cannot deceive. I will here state the result of my experiment, that others may be the better able to judge. In a horse locomotive which I invented some years since, I had wheels four feet in diameter, cast iron naves, wooden spokes and fellows, their peripheries were turned in a lathe perfectly round and cylindrical, and then tired with rolled iron plates, the flanges bolted upon the sides of the fellows, so as to make them very strong; the hubs were drilled out to fit close upon the axles, and each wheel was revolved upon its axle between collars and a cap: the cap was fixed fast upon the axle, outside of the naves, by a strong key running through it and [the axle, and was made as large as the outside of the nave of the wheel; both were turned true and faced up to each other; within each of these caps were two catches, which acted against rack teeth in the face or end of the nave, to turn the wheel. The power of action being applied to the axles, the catches turned the wheels as fast as the axles, but they could turn faster at all times when necessary. In 1829 and '30 I run it with the peripheries entirely cylindrical, and it went perfectly smooth, still, and free from any lateral movement or pressure. Being so well prepared to carry out or prove my views in regard to the transverse action or conical wheels, I paid Mr. George Reader 25 dollars to turn the tires conical. I put them to work, and the instant they started they inclined inwards at the bottom. They had not revolved fifteen times before they made a jump outwards, (to do which it was necessary to overcome the whole adhesion of the wheels to the rails,) and so continued to act as long as I used them; that is the wheels would run in towards each other at the bottoms until the strength of the spokes and rims could no longer yield, and they would then spring outwards to a vertical position. I could perceive there was an easement to forward motion the instant the wheels were upright by the movement of the car, much the same as is observable in steamboats by the engines passing their dead centres. The retardation of the car arose from the outside of the wheels being smallest, and of course having to be slipped upon the rail, while they touched upon the whole width of it, as much as the outside

of the wheels were smaller than the inside. As soon as the wheels were upright the greater part of the resistance was removed, as the bearing surface was contracted.—The powerful effect of this action inwards, pressing the naves of the wheels against the collars and washers, was such that I found it necessary to put in washers an eighth of an inch thick nearly every ten days of use, to prevent the wheels from falling in between the rails. Mr. Washington, of the firm of Majors & Washington, made the washers, and he saw and knew the cause of the destruction: I mention his name that he may be applied to if desired. I am well convinced that the damage at the nave and upon the axles, collars, &c. of loose wheels, is so great, (unless their diameters be very small,) that the advantage of their not slipping cannot compensate for the additional cost caused by their speedy destruction, and more especially if the treads be in the least conical.

Let us next inquire why they run in when conical, and not, when cylindrical: The naves being six inches long, drilled out straight in a chuck lathe, and the weight of the carriage, with two horses, and three to fifteen persons, one would think, resting upon the inside of the naves, would certainly have some tendency to keep the wheels upright; for when out of plumb, the bearing, if there were any loose play in the naves at all, must be upon the extreme inner edge of the hub, requiring some power surely to raise it in that position; at the same time the naves were placed between the cap and collars, and keyed up as close to each other, when first in operation, as they could be. Their running in notwithstanding shows that there is a natural mechanical tendency to run in, whether the strength of the wheels and axles yield to it or not, especially when it had to overcome a very great opposition, at the very instant it commenced.

I should prefer to have all that part of the wheels outside of the cone entirely cylindrical, there being but one part of the road where they can be injurious, and that but a small portion of it, and even there it may be remedied by a proper mode of forming the iron plates; the portion of the tracks to which I allude, is the inside rail of a circle. When a cylindrical wheel turns upon a flat horizontal rail the bearing in contact will extend across the whole width of the rail, the outer edge of the inner wheel must therefore be retrograding, or twisting, as it rolls around the curves, nearly as much as the outer edge of the rail is shorter than the inside; but if the inside rails were rolled with an elliptical face, or made thickest on the inner edge, then the bearings might be contracted as much as it might be desired. Under this mode of construction the difficulty would be removed. Should the rails become worn down flat, the cones would also by the same time wear away the inner edge of the outer rails; the rails would then only require to be changed, one for the other, so as to restate them nearly as at first.

A reference to common coaches, so as to understand the use of the joint, &c.

Having described the nature of some of the most remarkable and important difficulties that exist in the operations of wheels as now used upon railroad carriages, which it is the object of my improvement to obviate, it may be proper to make a few remarks upon its utility and easement to motion, in order to make its merits obvious and familiar to those who may not have had an op-

portunity of becoming acquainted with the operations of railroad carriages: and I will illustrate the subject by reference to the operations of common coaches. In these it is well known, that the pole at the fore axle is the means by which all the wheels are guided, that all the wheels are loose upon their axles, and that when going in a curved line or direction, the hind wheels follow nearly in the track of the fore ones. Now it will be easily comprehended, that when turning a curve, the wheels upon the outside of the curve must necessarily turn round faster than those upon the inside, because they have to run a greater distance. But suppose the wheels upon the hind axle were made fast; in that case, the wheel upon the outside of the curve, instead of rolling faster, would be dragged along as much as the distance described by the wheel on the outside exceeds that described by the wheel upon the inside of the curve, or if this does not take place, the inner wheel must slide back: for one or the other must necessarily slide, and in either case the stress upon the naves and axle will be the same, and the necessary extra power to turn them, just equal to that of slipping the wheel.

We will now apply the same facts to wheels on a railroad carriage geared according to my improvement, and consider the cones upon the fore wheels, both of which are to be made fast to their axle, as the pole of the coach, and the joint in the centre of the hind axle, as a substitute for the loose wheels on the coach; and it will be readily perceived that the carriage will then turn a curve with the greatest ease; for the joint in the hind axle permits the hind wheels to act independently of each other, and thus enables one to describe a greater space in the same moment of time; thus preventing the necessity of any dragging or sliding of the hind wheels, and thereby leaving the cone of the fore wheel in possession of full power to guide the carriage in the direction of the track: which it will be able to accomplish with as much ease and certainty, as a coach is guided by means of the pole. With this joint the cone of the fore wheel will be much more efficient in guiding the carriage than it would be, if, instead of the joint in the axle, the hind wheels were left loose upon their axle—for when the wheels are made fast, the axle, although it have a joint in its centre, turns with the wheels as if it had no joint, and the bearings of the axle are but two inches in diameter: but when the wheels are left loose, the diameters of the bearings of the axles within the naves of the wheels are required to be nearly three inches, which, by increasing the amount of surface in contact, increases the resistance to the revolutions of the wheels in the same ratio—to which should be added the friction at the end of the naves, against the collars and washers, and the gripping or grinding power of the naves upon the axles, produced by the inclination of the wheels to run in at their points of contact with the rails, as before stated, together with the effect produced by the weight of the load and carriage. It will then be clearly perceived by comparing the two modes, that the hind wheels will much more readily conform to the movements and guidance of the cones upon the fore wheels, when they are made fast upon an axle with a joint in its centre, than when they are left loose upon an axle without a joint—for at the joint there is no friction of importance produced by the superincumbent weight. Indeed the hind part of the carriage by means of the joint will yield to the action of the cones as easily as if centred upon a pivot.

It is also worthy of remark, that the joint is two feet and nine inches from the centre of the wheels at their naves, so that it possesses a leverage power, proportionate to that distance, to hold the wheels in an upright, steady and firm position, and save itself from being cut by its own slight movements.

What then can be more simple, safe and consistent in its practical operation and effects, than this joint, to consummate that grand object for the attainment of which such a multitude of changes in the mode of gearing wheels have been made both in Europe and America since the first introduction of railroads—and without it, those changes would necessarily continue to go on; for it has been abundantly evident, that when the durable nature of the materials made use of is taken into consideration, a sufficient remuneration in their increased duration has not been realized. But on the contrary it has been manifest, that there existed some hidden cause of destruction, far exceeding that to which carriage operations upon common roads are comparatively liable.

I have thus endeavored to point out as distinctly and concisely as possible the difficulties necessarily attendant upon the operations of the wheels of railroad carriages as now geared and used; and I am satisfied that the remedy I have provided will be amply sufficient to accomplish the object for which it is intended, and that when carried into operation, it will prove entirely satisfactory and become the standard in future operations. I flatter myself that no further alteration or amendment will be requisite, for nothing can surpass it in simplicity and efficiency. For a period of more than four years, I have been engaged more or less in testing its utility in practice, and I am certain that I cannot be laboring under any delusion or mistake as to what I have stated in relation thereto. I have forborne to give publicity to this improvement hitherto from a desire to prove its utility and practical efficiency to my complete satisfaction at my own leisure and expense, as well as to give time to others to try their different projects, that they might perceive how difficult, and yet how important it was to provide a remedy for the difficulties which they have been laboring under, in hopes that when made known they would be the better able and the more willing to appreciate its value when understood and realized.

Formation of Wheels, &c.

Before closing my remarks I will observe that the peripheries of the wheels should be made perfectly cylindrical or horizontal as to all that portion thereof designated and known as the tread, and that the inclination and breadth of the conical part of the peripheries should vary according to the radii of the curves in the tracks on which the wheels are intended to run—and the distance between the foot of the cones on each side of the carriage, when it is standing centrally upon the rails, must be a trifle less than the distance between the inner edges of the rail plates; so that running on a straight line of road no portion of the conical part of the peripheries of the wheels shall come in contact with the rails.

My reasons for preferring this form of wheels are, that when running upon their treads or cylindrical faces, which they will always do when the road is straight and both rails are equally level, they will have no tendency to run in towards each other at their points of contact with the rails; and that therefore the naves and axles will be relieved from the stress upon them, pro-

duced by that tendency when the wheels are conical—and that while running upon a curve, the cone, by the relief or easement to motion afforded by the application and use of the joint, will follow its own natural course upon the track, and thus all lateral strain will be obviated; and in no part of the operations will there be any sliding, if the wheels be made after the proposed form. When the treads are entirely cylindrical the top of the inner rail should be elliptical to prevent chafing. But particular care should be taken to have the size of the treads of the two wheels, which are to be fastened upon the fore axle, which has no joint, exactly alike as to circumference as it is possible to make them—for if they be unequal the smaller will be thrown upon the foot of its cone as much as will be required to equalize the circumferences of the two wheels, and thereby wear away or indent the face of the cone and leave in it an abrupt shoulder. No caution of this kind will be necessary with respect to the wheels upon the hind axle which has a joint, as the joint alone obviates all the difficulty. This circumstance affords a choice, for equality of size, of two out of every four wheels, to fasten upon the fore axle.

From all these circumstances the liability of breaking the axles or wheels, or of working them loose, will be reduced to a mere trifle. Indeed the hind wheels may be sufficiently secured upon their axle without the use of either keys or pins, by merely staking them up upon the outside of their naves, if the holes within the naves be made to receive the axle, and the axle itself be made a little tapering, that is, smallest at the outside. Even the breaks will produce no stress upon the axle or the naves of the wheels upon the hind axle; as a break can have no influence upon the wheel opposite to that to which it is applied.

I have left several minor points unnoticed, not feeling myself competent to do full justice to the subject; but have submitted to the task thus far from the necessity of setting forth the causes which called for my improvement; and have contented myself with touching upon the most important points, in hopes that the so doing would lead to a full development of the subject by those more competent than myself.

Description of the Joint.

The joint alluded to in the foregoing observations may be constructed in the following manner: The axle intended for the after part of the carriage should be made in two parts, to meet in the centre between the wheels, their ends upset sufficiently to form a flanch, in the finish, say one quarter of an inch larger all round than the axle, and about the same in thickness; they should be turned exactly of a size, as well as the axles outside the flanch, as far as the coupling box is intended to reach, and their ends made somewhat concave below, or a little within the base of the flanches, to prevent any leverage over the centres of the axles, to press them apart. The coupling box should fit the axles exactly, and have a groove turned into its centre sufficiently deep, and wide, to receive the flanches when placed close up to each other. The coupling box may be closed over the axles by screw bolts, and nuts; or hoops may be shrunk upon it, or drove on, and then cut up a little outside of the hoops, to prevent their slipping off, the box being formed a little tapering each way from the centre, with a projecting ring, or rib round, larger than what is turned out of the inside, to receive the flanches of the axles. Care should be taken that the coupling should be so

strong that when fastened upon the axles the strength at the points of junction, shall be equal to any part of the axles. The box should be about one foot long. One axle can thus turn independently of the other, and yet be so well fitted that it shall have no loose play in any direction, except to turn round. It will be seen that when running upon a straight road, if all the wheels were of equal diameters, which, by the by, is very seldom the case, there would be no movement of the axles within the coupling; and when running upon a curve, if the axle was two inches and three quarters in diameters, and the wheels thirty-six, it would there be only in movement, as two and three quarters is to thirty-six, while the distance the coupling is from the wheels, affords so much power over the wheels by leverage, that but a very small degree of stress within the box can be brought to act upon it. Now let us consider the effect of the steering power afforded by the joint: the hind wheels must yield to the slightest impulse, the cones then upon the forward wheels can direct the course of the carriage with nearly as much ease as though they were running by themselves independent of the carriage, thus steering a direct course with the road, and at the same time effecting what was contemplated by the use of vibrating axles, while it avoids the dangers resulting therefrom, and this too, with wheels all made fast to the axles, and the axles themselves kept perfectly parallel to each other, and thereby avoiding all the injury and loss of property resulting from the application of loose wheels, and saves as much of the propelling power in their movements as is necessary to make the wheels slip upon the rails. I have no doubt that one set of wheels with this improvement, will out last two sets, as now used upon roads as serpentine as that of the Susquehanna, or Baltimore and Ohio. No article so trifling in itself in use at the present day upon railroads, can in any way compare with it in usefulness. I have used it under all speeds up to thirty-three miles per hour, and could never perceive a difference in its action.

Description of the Turning Platform, &c.

It may be useful and satisfactory to mention that I have also obtained a patent for a turning platform, to turn railroad or other carriages upon. The platform turns upon a ring projecting underneath, resting upon the tops of twelve conical rollers, while the rollers themselves run upon the top of a cast iron ring of the same size, both of which are near to the exterior of the platform, so that there is no liability of its rocking about; and there is no friction worth mentioning, arising from the superincumbent weight of the carriage and load; which is in practice a benefit about the same as to enlarge the centre of a pivot, so as to extend to the exterior without increasing the friction. The main object of my mode of construction, is to secure a permanent level surface with the adjoining track rails with an easy movement which a centre pivot will not long do; for when worn a trifle at the centre it will cause a great deviation at the exterior from a level; and the foundation is far more expensive, and difficult to keep in repair, to insure a perfectly horizontal position, when acted upon by the centre of the platform only. Those laid in the centre of Pratt street in the city of Baltimore are of the kind above described.

I have also two patents for a mode of turning corners of streets, wharves, &c. One of them is for the application of the *flanches* for that purpose. It is effected by the wheels upon the outer track of the curve's

running upon their flanches, while the wheels upon the inner track, run upon their treads, which are about two and three quarters inches less in diameter than the flanches. The other patent is for the railroad plates necessary to form the curvature; and also for *grooved* rails for any parts of the streets, made of wrought or cast iron, so constructed that no description of carriage can be injured in passing in any direction over them. They are indeed a real improvement to the common travel of the streets, at the same time less liable to injury of themselves, than those of any other I have seen.

I have also invented a wheel for locomotive use, and especially for passenger carriages, which is no doubt superior to that of any other known, for the following reasons: From its peculiar formation it may be made lighter by one half; than any other, and at the same time twice as strong. It is composed entirely of wrought iron, excepting the hub, and no bolts or rivets are used in its construction, a desideratum long desired, and sought for. It will unquestionably become the standard for all the purposes where speed and safety are essential.

The daily line of steam packets between *Pittsburgh* and *Louisville*, have, as we learn from the *Pittsburgh Gazette* of 23d inst., resumed their trips—leaving Pittsburgh every day, but Sunday, at 9 o'clock in the morning. The navigation of the Ohio for the smaller class of steamboats, has not, we believe, been suspended at all, this season—though usually in the months of July and August it is.

NAVIGATING THE ATLANTIC BY STEAM.—Our readers will find in our advertising columns this morning, notice of an intended application to our Legislature for the charter of a company to be denominated "*The Atlantic Steam Packet Company*," the object of which is to establish a line of steam packets between this port and Liverpool.

We are happy to hear that Captain Cobb one of our most enterprising packet Captains has charge of this enterprise, and that it is intended to build vessels of about twelve hundred tons burden with two engines each. But little doubt is entertained of accomplishing the passage out in about twelve days and the return passage in about fourteen! We have long been satisfied of the practicability of propelling our packets by steam, and we congratulate the public upon the reasonable prospects of accomplishing this great object in the course of the ensuing summer. —[*Courier and Enquirer*.]

THE TWO BOAT RACES afforded yesterday a warm interest both on land and water. The first contest was easily won by the *Quebec Amateurs'* boat, the *Water Witch*, (Greenock built, by Nicol,) rowed by Messrs. Vaughan, Rogers, Young and Ferguson, and steered by Mr. C. Gettings, beating the *Musicaner*, a gig of the *Pique*, rowed by four Officers and steered by the Master. The boats rowed from the anchorage of the *Pique* to a boat moored on the *Beaufort* shoals, the distance, going and returning, being between four and five miles. The second contest was, however, the one which excited the greatest interest, in which the same boats were rowed by four seamen of the *Pique*, and four of the *Quarter Master General's* boat crew. Both boats kept nearly together in the whole distance, to their rounding the moored boat, when the *Musicaner* of the *Pique* shot ahead, and came in about 100 yards before the *Witch*, which had suffered in the heavy swell and contrary wind, and reached the frigate in a very damaged state.

The *Pique* was filled with citizens, and His Excellency Lord Gosford, Sir George Gipps, and Lady Gipps, together with a large number of military, were also present. The *Pique's* boat was received by hearty cheers as she passed H. M. ships President and Forte, and the whole crew of the *Pique* and all the visitors shouted with joy on her coming in first. The Officer in command had kept boats moving between the King's Wharf and the *Pique* to convey any one wishing to get on board, and the tables were laid in all the rooms,

and an excellent collation and wines were served to them. The visitors were afterwards landed by the boats, all highly delighted with the polite reception they had experienced. —[*Quebec Gazette*.]

The following address to the *Mechanics of Easton, Pa.*, will be found well worthy of a second, eye, of an oft-repeated perusal. It is in a style which every mechanic and every apprentice can understand; and it states facts which it is important for every practical man to know. It refers to individuals who have, by the force of talents, industry, and perseverance, arisen from obscurity and indigence to the most honorable stations in the history of the country and of the world; to men who have conferred benefits upon mankind beyond the power of man to estimate and appreciate; and, what is of more importance, it indicates the path by which they arrived at that station, and, therefore, the course for others to pursue who would become, like Rittenhouse, Fulton, and Evans, the benefactors of mankind.

An Address to the Mechanics of Easton, Pennsylvania, delivered at their request, by JAMES MADISON PORTER, on the 4th of July, 1835.

In comparing man with the rest of the animated part of creation, it will be found that his superiority consists not in his animal powers or capacities. He has neither the strength nor the speed that characterize the greater portion of the brute creation, and enable them successfully to attack or defend. He is, of all animals, the most helpless in infancy, and the least capable of enduring the changes of the seasons and the inclemencies of the elements. His imbecility and incapacity to take care of himself is continued through a long infancy, and even in the maturity and vigor of manhood, his physical powers are of an inferior order. Whence, then, does the superiority of man arise? It is from the mind, the immaterial mind, which enables him to lord it over the rest of creation, and make them subservient to his wants or caprices. Well then might the poet say,

"I would be measured by my soul,
The mind's the standard of the man."

Philosophers have been much divided on the subject of the powers of the mind—whether the mind is a mere capacity for improvement which requires something to evolve it, or whether talents are innate. It matters, however, but little which is right. In either case the improvement of the mental faculties, by reading and study, develops its capacities and enables it to bring its resources into practical use.

In considering the subject to which your attention is now necessarily called, it will be attempted, in some slight degree, to trace the influence of mental development in relation to the mechanic arts—which at this day must be considered the most beneficial, practical illustration of natural philosophy, as applied to the ordinary useful purposes of life.

In the infant ages of mankind, the mechanic arts were little practised. Man's first lot was probably in the mild regions of the equator, where the great luxuriance in the products of nature, and the little occasion there existed for the erection of buildings to shelter him from the inclemency of the weather, or the procur-

ing of much apparel for the same purposes, were illy calculated to elicit the mechanical powers or principles lying like an unsprouted germ in his mind. Necessity has ever been the mother of invention, and thus we see that ere this globe was visited by that deluge which swept all the human family, but the favored household of Noah, from its surface, which had been overspread by wickedness, the necessities, the conveniences, or the curiosity of man, had induced considerable progress in the mechanic arts. We learn from the word of sacred truth, that in a few generations from the great progenitor of mankind, and perhaps even while he yet lived, cities were builded, musical instruments constructed, and mechanism in metals carried on. Cain built the city of Enoch—Jabal was the father of such as dwelt in tents and have cattle—Jubal of such as handled the harp and organ—and Tubal-cain an instructor of artificers in brass and iron.

At the period of the deluge, something over sixteen centuries and a half from the creation, there is no doubt that considerable perfection had been attained in many of the useful and practical branches of mechanism. The ark itself was perhaps one of the best specimens of art for the purpose for which it was intended, that ever was produced, for the great Jehovah himself condescended to be the instructor of its immediate maker; and wherever he has set an example of mechanical skill or arrangement, every thing merely human stands back abashed. Subsequent to the deluge which destroyed the earth that *then was*, and gave man this *new earth* which we now inhabit, and which exhibits so many geological proofs of the existence of that deluge, and the accuracy of the Mosaic account of the creation and early history of the globe, the mechanic arts were practised and extended, as the increase of the human family spread them abroad on the earth, as the extent of light and knowledge, and consequently the refinements of life, prevailed.

It would be out of place here to attempt a history in detail of their progress in the various arts and sciences. Much pains and labor have been bestowed on this subject to unbosom from the monuments or rubbish of ages the claims of nations and of people to the rank of pioneers in the works of art.

The cities of Babylon and Nineveh were built some 250 years before the time at which the best authenticated accounts fix the commencement of the first of the pyramids of Egypt; and the confusion of tongues at the attempted erection of the tower of Babel must have preceded the commencement of the first pyramid between 50 and 100 years.

The erection of the first of these pyramids is ascribed to Apachnes, the third of the race of shepherd Kings of Egypt, about 2,695 years previous to the birth of our Saviour, and some years previous to the time when the patriarch Abraham visited Egypt; and it is evident

from the skill exhibited in their structure, the immense masses of stone of which they were composed, the order and system with which they were planned and executed, as a consequence from which, they have endured, in defiance of time and the elements, until the history of the men and nations that reared them has been nearly lost to the world, and only known by the unravelling of the hieroglyphics which abound in them, that the principles and practice of permanent and durable architecture had then attained to considerable perfection, and that much of mechanical skill must have been used in removing the material from the quarry; in conveying it to and depositing it on the building, and in dressing and finishing each block for its appropriate place.

It was not, however, in architecture alone, that the advance in the mechanic arts was exhibited. From the rude coverings of skins, the first garments worn by the ante-diluvian world, subsequent to the expulsion, the ingenuity of mankind had invented the construction of fabrics as well for garments as for tents. Subsequent to the deluge, and as far back as 1850 odd years before the Christian era, when Eliezer of Damascus was sent by Abraham to the land of his brethren to obtain a wife for his son Isaac, he takes with him golden earrings and bracelets, as presents for the intended bride, and we find them having pitchers and other utensils of convenience in housekeeping—and the bride, when she met her future husband, was veiled.

The making of bricks, we have authentic accounts, was in use more than 2000 years before the Christian era. The erections of the buildings before mentioned—of the ark by the Israelites in their journey—of the various heathen temples of Egypt, Greece, and Rome—the splendid temple by Solomon—and the Colossus at Rhodes, with other instances among other nations, until the overthrow of the Roman Republic, and the establishment of the Empire, show, that at and before the Christian era, great progress had been made in various arts, tending to minister to the necessities and luxuries of mankind.

The Grecian models of architecture have never been excelled in elegance. The Greeks understood the laws of proportion in the construction of their edifices, in an especial manner. Yet there were many principles in natural philosophy little, if at all, known to them. The principles of hydraulics, which are not yet fully known, were then even less perfectly understood. They knew not that water would rise to its own level; and hence, instead of the simple modern resort to conduit pipes, they incurred immense expenses in rearing arch piled upon arch, to construct their aqueducts to carry large supplies of water over depressed spots of ground.*

Archimedes flourished about 260 years

* Pliny informs us that water can be raised by tubes of lead, and the excavations at Pompeii would show that, at and before the reign of the Emperor

before the birth of our Saviour. What ever might have been known in practice previously, there was little of the theory of mechanics philosophically understood. He has the credit of discovering the exact operation and power of the screw, the inclined plane, the pulley, and the lever—of the latter of which he was so enamored as to say to the second Hiero, King of Syracuse, "Give me a place to stand on, and I will move the world." And yet it would seem that these, or some at least of these powers, must have been in use among the Egyptians some fifteen to eighteen hundred years before, or how could the immense masses of granite and other stone forming the walls, the columns, the colossal figures, and other monuments of ancient Memphis, Abydos, Antæopolis, and Thebes, ever have been raised from their natural beds, and transported to the temples, the grottos, the sepulchres and other edifices which they, in part, composed or decorated?

From the days of Archimedes onward, the science of mechanics was taught in the schools. The philosopher and mathematician searched further into the theory, whilst the result of their investigations was put in use by practical artisans, and submitted to the unerring test of experience. In the dark ages, which succeeded, as the Roman Empire declined and fell, and ignorance and superstition wrapped the world in their sable habiliments, there was little of improvement in the mechanical branches of science, and little of practice, except in the branch of architecture, and those domestic arts with which the world could not dispense.

It was not until towards the close of the 16th century that the rapid development of the physical sciences commenced; and there is not perhaps on record in history any more extraordinary contrast than that of the slow and limited progress of those sciences, from the early ages of mankind up to that time, and the rapidity with which they have since been enlarged and spread abroad.

Until the art of printing was discovered and put in practice, the additions to the stock of knowledge on all subjects were few and far between. The mass of mankind were little interested in them, and if the observations made and the knowledge acquired by a few enquiring minds in any age were not lost in oblivion, they were not spread abroad. It seemed to be a part of the philosophy of the ancient and the monastic school to keep their knowledge wrapped up in learned mystery, as a thing too sacred for common observation. It was not then supposed that the sciences could exist in, and be illustrated by, common objects, and have a place in the Mechanic Arts. But, no doubt, many a bold and adventurous mind did push its enquiries beyond the ordinary routine, and taking its flight into the regions of speculation, made

Tubs, baths and fountains were thus supplied. But even among the Romans they knew no material of sufficient tenacity for large supplies of water, if they could suppose that conduit pipes could be used on so large a scale.

valuable observations, which failed to benefit mankind, because they perished without a record. Towards the middle of the 16th century, this art of printing, of all others the most valuable to mankind, was discovered, and by the commencement of the 16th century, had come into pretty general use, and enabled every one to make his ideas known to the world. On this subject it has been well said: "The moment it took place, the sparks of information, from time to time, struck out, instead of glimmering for a moment and dying away in oblivion, began to accumulate into a genial grow, and the flame was at length kindled which was speedily to acquire the strength and rapid spread of a conflagration. There was an universal excitement in the minds of men throughout Europe produced by the first outbreak of modern science, but even the most sanguine anticipators could scarcely have looked forward to that steady, unintermitted progress which it has since maintained, nor to that succession of great discoveries which has kept up the interest of the first impulse still vigorous and undiminished. It may truly be said, that there is scarcely a single branch of physical enquiry which is either stationary or which has not been for many years past in a constant state of advance, and in which the progress is not at this moment going on with accelerated rapidity."

There is an active principle in the human mind which is elicited by excitement, but which, unmoved, is inert. As in water, so in mind. The stagnant pool soon becomes putrescent. The turbid and agitated ocean is healthful and pure. 'Tis the action of the waters that secures their purity. The diffusion of knowledge has tended to the increase of civilization and wealth. These, in turn, have given opportunity to the diffusion of taste for intellectual pursuits; and to the increased and enlarged opportunities afforded from the 16th century to the present time, we must mainly attribute the great extension of knowledge in every thing connected with science and the useful arts. Mind has been brought into competition and collision with mind. Scientific truths have been developed and tested, and brought to bear on the common affairs and business of life.

These results have been attained in all the arts and business of man. The age in which we live may emphatically, beyond all others, be said to be the age of mechanics; and much as we have progressed, we must not flatter ourselves that we have attained perfection in any of them. As much as we are beyond those who preceded us, in all probability, we shall fall behind those who succeed us. The impulse is given: the mind of man is pursuing the investigation of the useful—the knowledge of one age is transmitted to the next, and so we may increase upon increase until, the command will go forth that "Time shall be no more." Nor will the increase and development of our faculties then cease.

Adam Smith, in his "Wealth of Na-

tions," describes a philosopher as a person whose trade it is to do nothing, and speculate on every thing. If Adam Smith had lived at this day, he probably would reverse this definition; for the great, vast, and most beneficial results which have been attained, in increasing the wealth of nations, of which he wrote much and perhaps knew but little, have been thus attained by the labors of philosophers, systematically applying the principles of true science to the improvement of the Mechanic Arts. It is principles which are the objects of enquiry to the natural philosopher, and the elucidation of a truth may be completely accomplished by the most familiar and common-place facts. In truth, philosophy in modern days has descended from its stilts, and mixing in the common affairs and business of life, is, by the elucidation of its principles in a familiar manner, become the common acquaintance of all who reflect. The observation of the fall of an apple, led the immortal Newton to the discovery of gravitation, and other things, equally common and apparently trivial, have led to other important results. To the natural philosopher there is no natural object unimportant. From the last of Nature's works, the greatest lessons may be learned. The scientific mind applies principles readily to every incident as it occurs, and finds improvement and delight in the pursuit. He finds

"Tongues in trees—books in the running brooks—
Sermons in stones, and good in every thing."

"Accustomed," says an able writer, "to trace the operations of general causes and the exemplification of general laws, in circumstances where the unformed and unenquiring eye perceives neither novelty nor beauty, he walks in the midst of wonders. Every object which falls in his way elucidates some principle—affords some instruction, and impresses him with a sense of harmony and order. Nor is it a mere passive pleasure that is thus communicated. A thousand questions are continually arising in his mind—a thousand subjects of enquiry presenting themselves which keep his faculties in constant exercise, and his thoughts perpetually on the wing, so that lassitude is excluded from his life; and that craving after artificial excitement and dissipation of mind, which leads so many into frivolous, unworthy, and destructive pursuits, is altogether eradicated from his bosom."

It may be asked, "What has all this to do with the present occasion?" The answer is, that every mechanic art is the reduction to practice of scientific principles. The carpenter or mason who lays out his building by the use of the base 6, the perpendicular 8, and the hypotenuse 10, or corresponding numbers, has the demonstration that he is laying out the building at right angles, in the 47th proposition of the first book of Euclid's elements;—the sum of the squares of the base and perpendicular being equal to the square of the hypotenuse. They, too, will more fully understand how to spring their arches and truss their girders,

by understanding the principles upon which the means used accomplish the ends intended, than in the mere copying, without reflection, the work of others. For although a theorist, without practice, would, in all probability, erect but a sorry edifice, yet where a knowledge of principles is combined with practice, the advantage is apparent to all. The tanner, in preparing his leather, is a chemist in practice—so, too, the saddler and shoemaker, even in the preparation of their wax ends, in giving proper consistency and tenacity to the materials used, independent of the philosophical principles in the shapes and forms of their work, and its adaptation to its intended purposes.

It were endless, however, to enumerate all the examples of this truth in the trades and occupations here assembled. It exists in them all, and the instances I have cited are perhaps the least striking of any that might be given.

What was it that raised David Rittenhouse, a native of Pennsylvania, above the ordinary clockmakers of the country in which he lived, and placed his name high among the learned of the world? What was it that raised Brindley, from an apprentice to a Derbyshire millwright, to one of the greatest engineers and mechanics which the world ever produced? Neither of these great men originally received more than the rudiments of an English education. It was the application of their giant minds to the study of principles that placed the one at the head of the philosophers and astronomers of his time, and made the other the companion and the adviser of the King, Lords and Commons of his native land, so that scarcely any public work was entered upon without his superintendence and advice.

And what too placed Fulton, another son of Pennsylvania, so high in the estimation of the world?—It was not his birth. It was not this world's wealth. It was the cultivation of his mighty intellect, which, but for his *reading* and *reflection*, like the diamond in the mine, might have lain obscure, unnoticed and unknown.

Oliver Evans, of Philadelphia, in his day, and that too within the recollection of him who now addresses you, was esteemed a crack-brained enthusiast, when he avowed that the child was then born, who by the force of steam should travel from Washington to New-York in a day.

His language was, "People will travel in stages moved by steam from one city to another, almost as fast as birds fly—fifteen or twenty miles an hour." "A carriage will set out from Washington in the morning, the passengers will breakfast at Baltimore, dine at Philadelphia, and sup at New-York; the same day."

The first of these assertions has been accomplished, and the second will be, before we are three years older. Yet this man, when in 1787, he petitioned the legislature of Pennsylvania for encouragement and assistance, to test the possibility of using steam as a motive power for wagons or carriages, was considered insane.

(To be concluded in our next.)

AGRICULTURE, &c.

There is no species of stock of greater importance to the agricultural interest than the hog. His flesh is the most important item in animal food; he is far more prolific than any other large domestic animal; he arrives at maturity in less time than any other, except the sheep; with half the expense, in proportion to his value; and is much less liable to disease, indeed he can scarcely be considered liable at all. And if we cannot ride him as we do the horse, milk him like the cow, or wear his clothing as we do that of the sheep, still every part of him is valuable; and the short period of his life returns us the pay for his keeping at shorter credit than any other large domestic animal. And yet there is no other animal so completely neglected. In many parts of the country, a stranger to our customs would suppose, from the treatment they receive, that they were wild animals, and that the people were at considerable expense to maintain dogs, not merely to guard against them, but to worry and destroy them. To any person of a cultivated mind, and who knows the value of the swine, it would be difficult to tell which feeling would be strongest, disgust to see the lean, raw-boned, slab-sided, and long-legged specimens, with long lop ears, which infest our streets, seeking something to keep them from starving; or abhorrence of the cruelty they suffer, in having their ears torn from their heads, by dogs trained to the business; and from whose teeth they are scarcely ever a moment secure.

I cannot help thinking the man, who sets the example of reforming this horrid neglect and ill treatment of so valuable an animal, not only by improving all its improveable points, and thereby greatly enhancing its value, but by so doing, rescuing the poor suffering animal from a state of incessant torment during the short period it is permitted to live, deserves at least the thanks of every person, who loves profit and good eating, or who hates cruelty.

Having been long and deeply impressed with such a view of the subject, it has given me extreme pleasure to examine Mr. Bement's pigs, referred to in the following communication, as I think he has arrived at, or very near, the *ne plus ultra* of improvement. Their form is improved in every point. They are small eaters, their growth is rapid, and their appearance shows that their pork must be delicious. I am confident no agriculturist, who has any pretensions to common sense, could see them without being anxious to obtain the breed.

S. BLYDENBURGH.



[From the Cultivator.]

IMPROVED CHINA HOGS.—Mr. Buel, Sir: Having had frequent applications, by letter, for a description of my improved breed of China hogs, I know of no better method of conveying a correct idea, unless by personal inspection, than by a likeness, which I have procured, and accompanies this.

The drawing was taken from a young sow, 9 months old, when in high condition.

This superior breed of swine, as I have observed in a former communication, was first introduced here by the late Christopher

Dunn, Esq. Some ten or twelve years since, when passing through Princeton or New-Brunswick, N. J., in the stage, his sagacious eye was attracted by a beautiful sow, with her litter of pigs, running in the street. Delighted with their appearance, he was determined to possess some of them if possible. He accordingly applied to the driver of the stage to procure a pair of them for him. As an inducement, and to insure success, he offered him the liberal price of twenty dollars, for a male and female, although only eight weeks old, on their delivery to a certain house in New-York. They were of course procured and delivered, and from these two have sprung my "Improved China Hogs."

Their color is various, some white, black and white spotted, and others blue and white. They are longer in body than the pure China breed. Upright or mouse-eared, small head and legs, broad on the back, round bodied, and hams well let down. Skin thin—flesh delicate and fine flavored.

They are easy keepers, and of course small consumers, quiet and peaceable in disposition, seldom roaming or committing depredations; keep in good condition on grass only.

They are not remarkable for size, seldom attaining more than 200 to 250 pounds, although instances have occurred where they have been made to reach 350! Therefore, they cannot, in their pure state, be called the "farmer's hog," but their great value is in crossing with the common hog of the country. A very good hog may be obtained by a cross with your *land shads*,—your long legged, long nosed, big-boned, thin backed, slab-sided, hungry, ravenous, roaming tormentors, that will run squeaking about the yard with an ear of corn in their mouths.

To give you some idea in what estimation they are held by persons who have procured them of me, I have taken the liberty of making the following extracts from some of their letters.

"My Chinas, the true Bement breed, exceed all praise; you never saw their equals. I have a young boar in the pen, nine months old, that I will show against the United States, out of the boar and sow I had of you, both of which I still keep. Nothing can compare with them in this country, and I honestly assure you, I never saw their equals any where, for all needful qualities in the hog."

"Dear sir—I have the satisfaction of saying to you, that I got my little Berkshire and China home in good order, and doing finely, and are much admired by every person who sees them. Should I meet with success in rearing from this pair, shall not be able to furnish any thing like the quantity spoken for."

In another letter a valuable correspondent says—"The hogs I had of you have done admirably, and I am getting a fine stock of them; but on the whole, I like the full bred improved China better than the cross, and I am getting back into the pure blood. The young sows, of which I have three from the white (Hosack) boar you had, have had pigs from the old boar, but they are not true enough in blood, appearance, and shape, to suit me; whereas the mother, who is the true China, brings the pigs from the old boar, both in color, shape, size and every thing, as if they were cast in the same mould,—and that is what I like,—uniformity of appearance, even in hogs, and this boar, let me tell you, has the admiration of all who have seen him, as the best and most perfect hog in the country. These hogs, 'tis true, are not large, they are indeed rather small; but they are the easiest kept of any according to their size, that I ever saw, and so far as I have yet seen, I prefer them,

even to the Bedfords, or any I know. The Bedfords are good, but they are too heavy headed, long legged, and great eaters, to suit me altogether. The quiet, peaceable dispositions of the Chinas, like that of the short horn cattle, is a great item, I assure you, in a farmer's account."

I might fill a page with similar extracts, but I think it unnecessary, for I shall not be able to supply all my orders until next spring.

In the next No. I propose to furnish you with a portrait of one of the Berkshire breed, of which I am now in possession, imported by S. Hawes, in 1832.

C. N. BEMENT.

Albany, Sept. 1, 1835.

[From the Cultivator.]

ON THE UTILITY AND BEST METHOD OF COOKING FOOD FOR DOMESTIC ANIMALS.—This subject has engaged the attention of practical men in Europe and in this country for many years, and it is a branch of rural economy at all times worthy the careful investigation of the farmer. The Highland Society of Scotland have, in a particular manner, directed the public attention to the comparative advantages of feeding farm-stock with prepared or unprepared food, and have, by liberal premiums, induced numerous experiments to be accurately made, and elicited much valuable information. The conclusions which have been drawn from these and other experiments, seem to be,—

1. That a great saving, some say one half or more, is effected by cutting the dry fodder for horses and neat cattle, and feeding it with their provender or grain, in two or three daily messes, in mangers. Not that the food is thereby enhanced in its inherent properties, but that given in this way it all tells—is all consumed, all digested, all converted into nutriment. There is comparatively none wasted, or voided, without having benefitted the animal. In the ordinary mode of feeding in racks, yards, and in open fields at stacks, it is well known that much is lost, from the difficulty of masticating uncut hay, straw and stalks, and from its being trodden under the feet of animals and spoilt. Much labor is besides saved to the animal, as cut food requires less mastication, and the animal enjoys a longer period of rest.

2. That grain and pulse, as cattle food, is enhanced in value by being ground or bruised before it is fed out, so much as to warrant the expense of sending it to mill, and the deduction of toll. Indian corn, oats, rye, and other grain, given to farm animals in a dry, unbroken state, it must have been observed by every one, particularly when the animal is high fed, are often voided in a half or wholly undigested state, and are virtually lost. This does not happen when the grain has been ground.

3. That although roots, as ruta бага, mangel wurzel and potatoes, are improved as fattening materials for neat cattle, by cooking, the advantages hardly counterbalance the extra expense of labor and fuel.

4. That for working horses, cooking the roots we have enumerated, and feeding them with cut hay and straw, is of manifest advantage; and that thus fed, they supersede the necessity of grain.

5. That in fattening hogs, there is decided economy in grinding and cooking the food. The experiments upon this subject are many and conclusive. Some estimate the saving at one half the quantity of food. Taking into account the various materials on a farm, which may thus be turned to account, we are satisfied that one half the cost

of making pork may in this way be saved. Swine are voracious animals, and will eat more than their stomachs can digest, unless assisted by the cooking process. There are upon the farm many refuse matters, as pumpkins, squashes, small potatoes, early and defective apples and apple pomace, which are of little value, except as hog food, but which, if well husbanded, cooked and mixed with ground provender, contribute essentially to cheapen our pork. It has been questioned whether the articles we have enumerated are nutritive to pigs, when given in their raw state; while all admit, who have made the experiment, that they are highly so when cooked. Cooking undoubtedly adds to their nutritive properties, as it does to the nutritive properties of Indian meal.

Before we offer our views of the most economical mode of cooking food for hogs, and of the apparatus to be employed, we beg leave to submit the plan of a hog pen or piggery, which, with some modifications, is the model of one we examined at the Shaker village in Niskeuna.

Fig. 1.

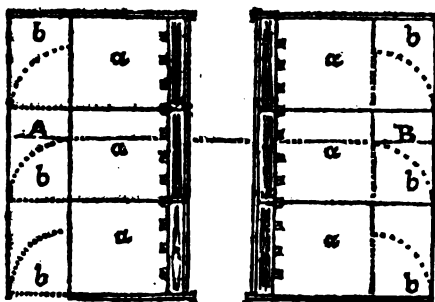


Fig. 1, exhibits a ground plan of the building, showing a gangway in the centre, with a range of pens on each side. The breadth is 26 feet, and the length may be adapted to the convenience of the builder. The pens are six feet broad and ten feet deep, with a cross partition four feet from the rear, and a four feet door, which is used to close the passage between the front department, (a) and the department b, or to extend the partition between the pens. The different uses of the doors are shown on the two sides in the cut. The pens are calculated for four hogs each, and the section here exhibited will therefore accommodate 24. When the pens require to be cleaned, the doors are shut into the cross partitions, as at A, so that the rear presents an uninterrupted passage; the hogs being confined in a; and as soon as the pens are cleaned, these doors are thrown back as at B. The troughs are embraced in the gangway.

Fig. 2, shows a cross section along the dotted line A B. The partitions are three and a half feet high, the posts eleven feet, giving seven feet to the basement, and four to the upper story, below the roof. The position of the feeding troughs is here shown. They are provided with lids, hung with stout hinges above, and may be let down so as to exclude the hogs from the troughs while they are being cleaned or replenished with food, or raised up, at pleasure, as shown in this section. Each lid is provided with an iron bolt, (fig. 4,) which works in staples, and confines the lid in the position required. This section also shows the slope of the floor in b b, so constructed that the urine may drain off. The dotted lines represent the size of the building, when, instead of the apartment b b, it is wished to let the hogs run in an open yard. For small farmeries, a single range of pens and the gangway may suffice. The loft serves as a store room for hog food, &c.

Fig. 2.

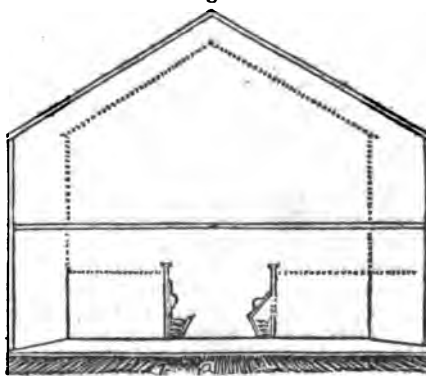


Fig. 3.



Fig. 3, is a section along C D, showing the studs that prevent the interference of the hogs while eating.

The boiling or steaming room is in one end of the building, and communicates with the passage and the loft.

The peculiarities, or rather the advantages of this piggery, consist in the facility which is afforded of cleaning the pens and the troughs, and of depositing the food in the latter, without being incommoded by the hogs, and in preventing the hogs worrying each other.

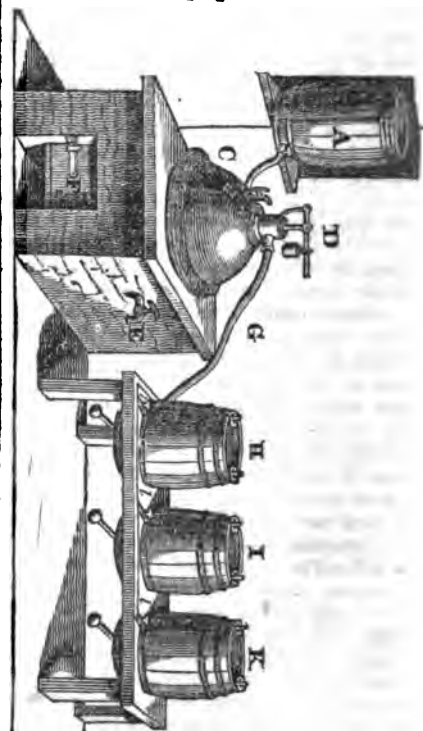
We shall now exhibit the model of a steaming apparatus, calculated for a large establishment. We have shown the plan to an intelligent master in one of our furnaces, who estimates the cost of boiler, pipes, and cocks, at \$50.

"A is a barrel or other vessel for containing water and supplying it to the boiler C. D is a safety valve. At the upper part of the boiler at C are placed two tubes, with stop cocks. One of these tubes terminates near the bottom of the boiler. Upon the stop cock being turned, water should always issue from this tube. When, therefore, steam issues from it, and not water, this indicates that the water is too much boiled away, and consequently that there is a deficiency of water in the boiler. The other tube terminates within the boiler, near the top. Upon the stop cock being turned, therefore, steam ought always to issue forth. But should water in place of steam come out, then it will appear that the boiler is too full of water. In this manner the attendant, by turning either stop cock, ascertains whether there is a deficiency or excess of water in the boiler. The quantity of water could indeed be regulated by other means; but that described will be found sufficient in practice. F is the furnace, and E is a pipe with a stop cock communicating with the boiler. When it is wished to obtain hot water, it is obtained by this pipe. A pipe G communicates with the barrels H, I, K, and conveys the steam to them; and in these is placed the food to be steamed. By means of the stop cocks l, l, l, the communication can be cut off with any of the barrels, so that the steam may be admitted to one barrel or two barrels, or three, as may be wished. The barrels in the figure are three, but the number may be extended. Each barrel has a moveable lid, which is kept down by screws, and a sliding board below, by which the food, when ready, is withdrawn. The barrels are raised on a frame, so that a wheel barrow or vat may be placed below, and the food at once emptied into it."

"By means of an apparatus of this kind, roots and other parts of plants may be

steamed in a convenient and economical manner."

[Fig. 5.]



The relative advantages of steaming and boiling will very much depend, we suspect, on the extent of the establishment. We have tried both, though our steamer was imperfect; and have come to the conclusion, that when the number of hogs to be supplied does not exceed 15 or 20, boiling is preferable,—as with a good boiler, of the capacity of 30 gallons, from 12 to 16 barrels of food may be easily cooked in a day. But much depends on the judicious setting of the boiler, so that it may receive the whole advantage of the fire. For this purpose the brick work should be made to conform to the shape of the kettle, leaving a space of three or four inches between them, until it reaches nearly the top of the kettle, when a tier of brick set edgewise is projected for the flange of the boiler to rest upon; and the bottom of the fire flue should be above the bottom of the kettle, or about parallel with the commencement of the slope which rounds its bottom. By this means, the flame is thrown upon the sides and bottom, and in a manner that the whole boiler is collapsed with it on its passage to the smoke flue; and the brick work being heated constantly refracts back its heat upon the boiler. A tight cover should be laid over the cooking food, to prevent the free escape of the steam, by partially confining which, the cooking process is greatly facilitated.

There should be appended to the hog house an open yard, for straw, litter, weeds, &c., which the hogs, during summer, will work into manure, and into which the dung is thrown from the pen.

Hogs are subject to various diseases, particularly if shut up in a close pen, during the time of fattening, which are often suddenly fatal. Prevention is here easier than cure; and many farmers prefer giving their hogs yard room, where they can root in the earth, which is deemed a preventive. Others give them occasionally rotten wood, charcoal, sulphur, antimony or madder, all which are considered as aperients, cleansers or alteratives, and consequently as conducing to health. Salt is all important, and should be habitually blended with their cooked food.

NEW-YORK, AMERICAN.

SEPTEMBER 26—OCTOBER 2, 1836.

LITERARY NOTICES.

THE GIFT, a Christmas and New Years' present, 1836, edited by Miss LESLIE: Philadelphia, E. L. CAREY & A. HART.—A new Annual, very prettily got up, as the phrase is, in externals and about an average in intellects. The "unpretending Mr. Hudson," by Miss Sedgewick, is very good. The Serenade, by the Editor, very so-so. The sketch of an unwritten drama, of Lord Byron's, communicated by Washington Irving, is worth copying.

AN UNWRITTEN DRAMA OF LORD BYRON.

By Washington Irving.

The reading world has, I apprehend, by this time, become possessed of nearly every scrap of poetry and romance written by Lord Byron. It may be pleasant, however, to know something of a dramatic poem, which he did not write, but which he projected—and this is the story.

The hero, whom we will call Alfonso, is a Spanish nobleman, just entering upon the career of life. His passions, from early and unrestrained indulgence, here become impetuous and ungovernable, and he follows their impulse with a wild and heedless disregard of consequences.

Soon after his entrance into the world, he finds himself followed, occasionally, in public places, by a person masked and muffled up, so as to conceal both countenance and figure. He at first pays but little attention to the circumstance, considering the stranger some idle or impertinent lounge about society. By degrees, however, the frequent intrusion of this silent and observant follower, becomes extremely irksome. The mystery, too, which envelops him, heightens the annoyance. Alfonso is unable to identify him with any of his acquaintance, his name, his country, his place of abode, is all unknown, and it is impossible even to conjecture his motives, for his singular espionage. It is carried, by degrees, to such lengths, that he becomes, as it were, Alfonso's shadow, his second self. Not only the private actions of the latter passed under the scrutiny of this officious monitor, but his most secret thoughts seem known to him. Speak of him, he stands by his side; think of him, he feels his presence, though invisible, weigh upon his spirits, like a troubled atmosphere, waking or sleeping, Alfonso has him in thought or in view. He crosses his path at every turn; like the demon in Faust, he intrudes on his solitude. He follows him in the crowded street, or in the brilliant saloon; thwarting his schemes, and marring all his intrigues of love or ambition. In the giddy mazes of the dance, in which Alfonso is addressing his fair partner with the honeyed words of seduction, he sees the stranger pass like a shadow before him—a voice, like the voice of his own soul, whispers in his ear—the words of seduction die from his lips—he no longer hears the music of the dance.

The hero of the drama becomes abstracted and gloomy. Youth, health, power, wealth, all that promised to give zest to life, have lost their charm. The sweetest cup of pleasure becomes poison to him; existence is a burthen. To add to his despair, he doubts the fidelity of the fair, but frail object of his affection, and suspects the unknown to have supplanted him in her thoughts.

Alfonso now thirsts only for vengeance, but the mysterious stranger eludes his pursuit, and his emissaries in vain endeavor to discover his retreat. At length he succeeds in tracing him to the house of his mistress, and attacks him with the fury of frantic jealousy, taxes him with his wrongs, and demands satisfaction. They fight, his rival scarcely defends himself, at the first thrust, he receives the sword of Alfonso in his bosom; and in falling exclaims, "are you satisfied?"

The mask and mantle of the unknown drop off, and Alfonso discovers his own image,—the spectre of himself,—he dies with horror.

The spectre is an allegorical being, the personification of conscience, or the passions.

Such was the general plan of a poem which Lord Byron had in mind several years since; and which he communicated, in conversation to Captain Medwin, from whom I received it nearly in the foregoing words. The idea was taken from a Spanish play, called the Embozado, or Encapotado, which

signifies a person muffled or disguised, and was furnished to Byron by Shelley, as his Lordship did not understand Spanish. The foregoing plan is evidently vague and immature, and would doubtless have undergone many modifications in the progress of being brought out. Lord Byron intended to treat it in the genuine spirit of Goethe, as displayed in his wild and extraordinary drama of Faust, and expected to make it very effective. It certainly afforded ample scope for the mystic, the misanthropic, the metaphysical and the romantic, in which he so much delighted, and would have given him an opportunity of interweaving much of his own peculiar feelings and experience.

How far the plan he had in view agreed with the Spanish original, I have not been able to ascertain. The latter was said to be by Calderon; but it is not to be found in any edition of his works that I have ever seen. My curiosity being awakened on the subject, I made diligent inquiry, while in Spain, for the play in question, but it was not to be met with, in any of the public libraries, or private collections; nor could the booksellers give me any information about it. Some of the most learned and indefatigable collectors of Spanish literature informed me that a play of that kind, called the Embozado of Cordova, was somewhere in existence, but that they had never seen it. The foregoing sketch of the plot may hereafter suggest a rich theme to a poet or dramatist of the Byron school.

PARLEY'S MAGAZINE, vols. 1 and 2, and parts 9 and 10: Boston, SAMUEL COLMAN, successor to Lilly, Wak & Co. N. Y: COLLINS & HANNAY, and J.P. CALLENDER.—We have here a new edition revised and improved of this amusing and instructive miscellany for children. It is now published in numbers very prettily put up, which together make an annual volume of which the cost is only one dollar! Among the recent improvements is that of introducing short pieces of music, furnished for the work by Messrs. Mason & Webb, professors in the Boston Academy of Music.

The general aim of this Magazine, by previous notices, our readers are apprised, is to make a miscellany for children, which shall be attractive at once, instructive and useful—avoiding controversial subjects, and relying as much as possible on original matter.

The wood-cuts are very well done—one, which is the frontispiece of part 10, struck us particularly. It represents blind children making baskets—and is very natural and spirited. We copy, as a fair specimen of the manner in which subjects generally are treated, the notice referring to this cut.

SCHOOL FOR THE BLIND.—Perhaps some of my readers do not even know that there is an Institution for the Blind in Boston. If there are any such, I think they will be very glad to hear about it. It is situated in Pearl street. The buildings was formerly a dwellinghouse; and was given by the owner, on purpose for a schoolhouse and workhouse for the blind. On the side of it towards the street, you may see, in large letters, the following:

INSTITUTION
FOR THE BLIND.
THIS EDIFICE
PRESENTED BY
THOMAS H. PERKINS
MDCCCXXXIII.

The school was first opened in 1832, in Pleasant Street, with only six pupils. The next year Mr. Perkins having made them a present of his house, and large sums of money having also been given them in many of our cities and towns, the school was removed to Pearl Street, where it now is.—In 1834, they had 34 pupils. In 1835—this year—the number had increased to more than 40; and a great many more would be glad to attend, if they had room for them. I understand they are about to enlarge the building, for this very purpose.

The pupils are not all of them boys; there are nearly as many girls as there are boys. You would be amused to visit them, and see what they could do. Why, they learn to spell, and read, and write, and sing, and work. They print too: that is, they print their own books. I suppose you will wonder how they can read, when they are blind.

The letters are made, not with ink, but by pressing the paper, while it is wet, so that the letters stand up in ridges, very large; and they can tell what they are, by passing their fingers across the lines. Some pupils who have been in the Institution a long time, will read almost as fast as you or I can. They have maps, too, and learn geography. The mountains are raised in ridges, and the rivers are hollowed or depressed lines. The towns are square, or lots.

But what sort of work can they do? you will ask. A great many sorts. The girls can sew, knit, braid, and set the types for printing; and the boys can make door-mats cushions, mattresses, and willow baskets. Some of their door-mats are woven.—You may almost always, when you go there, see one blind man weaving. The grass—Manilla grass, they call it—which he uses, is of various colors; and yet he will arrange the different colors so as to have the mat checkered the proper manner, nearly as well as if he could see. Not that he can tell different colors by feeling—except red, which he says feels more harsh than other colors; but he has a particular box or shelf on which grass of each different color is laid, and he seldom makes a mistake.

You would be surprised to see how happy they are, especially the boys who make baskets. But you may see how they look, when at this sort of work, by noticing the picture on the preceding page; which was drawn by one of our best artists, after being on the spot and seeing them for himself.

In the next number, or next but one, I shall say more about the Institution, for it is one of the most interesting in the whole city of Boston. They have an exhibition once a fortnight. There will be one in a few days; and I shall attend it; and afterwards tell you what they do.

MEMOIRS OF GREAT COMMANDERS: by G. P. R. JAMES, author of Richelieu, &c., 2 vols. Philadelphia: E. L. CAREY and A. HART.—Mr. James has collected and embodied very interesting lives of some very interesting men; though, so far as we have glanced at some of the biographies, their details seem mostly those already known. The notices are, however, well put together, and sufficiently copious to enable readers to form a right judgment of each commander. The writer does not withhold his own opinion of the character of those whose actions he commemorates, and of Gen. Monk, whose biography is one of the best executed in these volumes, he thus speaks:

The violent parties which were born of the civil wars, viewed the conduct of Monk in the most opposite aspects; nor was it alone those two factions, which would have excluded the King, or shackled his return with unworthy conditions, which either misrepresented General Monk's actions or imputed to him evil motives, or depreciated his talents.

Those persons who had concurred in the Restoration, hated him who had effected it with the virulence of rivalry, strove to invalidate his claims, in order to enhance their own, and envied him the rewards which they had neither merited nor obtained. Thus the disappointed Cavalier, the thwarted Presbyterian, the crushed Republican, are alike found slighting Monk's abilities and denying his merit. Bishop Burnet himself, with the violent party-feeling which overcame in him sometimes both an excellent judgment and a strong love of truth, has spoken lightly of Monk's understanding. But in the very writings of the men who would condemn him, we find the highest tribute to his character. If we take but the facts which they state, and put aside the prejudices with which they comment on them, we shall perceive that Monk distinguished himself highly in early life, and won the esteem of both parties in the State, when both were prolific in men of great and extraordinary genius. We shall find that he was eminently successful against the greatest officer the Dutch ever produced—that in his command in Scotland he reduced a turbulent, dissatisfied, and irritated population, to quietude and order; and did so by means which at once compelled their obedience, obtained their respect, and won their love—that in a most difficult and extraordinary time he acted with consummate prudence, skill, and firmness, repressed insurrections, guided the obstinate, governed the unruly, intimidated the fierce, overawed the bold, and without the effusion

of a drop of blood, conducted a total revolution in thoughts, feelings, policy, and government, to a safe and speedy termination.

A man may perchance gain one victory, or more—increase his wealth, or raise himself in station, by a mere concatenation of fortunate circumstances; but a man cannot go through a long and complicated enterprise, where many are opposed to him, and all are jealous of him, where he has frequently to change his conduct without changing his object, where he has to take advantage of some circumstances and create others, without many of those qualities of mind which constitute a great man.

Monk did so, and he was a great man. Nor can it be said that he was ungenerous, though the rewards which he obtained made many envious, and the wealth he acquired offered a fair excuse for party accusation. His admission of the King, without making any terms for himself, was either an act of noble feeling or of policy. If of noble feeling it speaks for itself; and if of policy, it was that of generous policy which none could conceive or appreciate but a generous heart. Taken by itself, it was a fine and magnificent action, and as such will be remembered when the politics of those times are forgotten, and prejudices are no more.

THE EARLY NAVAL HISTORY OF ENGLAND, by ROBERT SOUTHEY, LL.D., Poet Laureate. 1 vol. Philadelphia, Carey, Lea & Blanchard.—The most vigorous, accurate, and copious prose writer of the age, here puts his hand to a work which—written in the spirit that pervades it—will both improve and instruct.

They who have read "the Life of Nelson," from the same pen, will not need any other inducement, to turn to this volume on a somewhat cognate theme, and the rather, as here, there is less temptation to gloss over moral obliquities, than in writing the life of one, then scarcely eclipsed from the scene of his splendor—and some of whose acts, especially the murder of *Caraccioli* in the bay of Naples, became so identified with the impassioned politics of the day, as to render calm and impartial judgment very difficult.

This history begins with the invasion of Britain by *Julius Cæsar*, and is brought down to the close of the fourteenth century—a period embracing much that will necessarily interest all inquirers into the commencements and early feats, of the greatest naval Power the world has yet seen.

We shall still further tempt readers, we think, by copying entire the author's own exposition of the object of his work. Here it is:

According to the Welsh Triads, the earliest name by which Britain was known was *Clas Merdin*, the sea-defended green spot. Such an appellation may seem to have been prophetic. But the sea defends no people who cannot defend themselves; and it was with this feeling that Wordsworth, the great poet of his age, poured forth a lofty strain, when, looking from a valley near Dover towards the coast of France, and "the span of waters" which separated us from that then most formidable neighbor (for it was while Buonaparte was in the plenitude of his power,) he said—

"Even so doth God protect us, if we be
Virtuous and wise! Winds blow, and waters roll,
Strength to the brave, and Power, and Deity;
Yet in themselves are nothing! One decree
Spoke laws to them, and said, that by the soul
Only, the nation shall be great and free."

With all the ports of the continent in his possession, and all its natives at his command, that narrow channel was found impassable by the most ambitious, the most powerful, the most enterprising, and the most inveterate enemy with whom this nation ever was engaged in war; for Great Britain had manfully won and victoriously maintained the dominion of the sea. It will be neither an unworthy nor a useless task for an Englishman who loves his country, and who, in doing his duty towards it in his station, trusts that he may deserve to be held in remembrance by posterity, to record the actions of those brave men by whom that dominion was acquired: and a series of their lives ("wherein," to use the words of a wise and good man, "I intend to do them right with the truth thereof, and myself with the freedom") will be the most convenient form for a compendious naval history of England.

It is, however, no wish of the writer that the work he has thus undertaken should be the cause of inducing any hopeful youth, who otherwise might not have been so inclined, to enter the naval service; the ways of that service are as little ways of pleasantness as its paths are paths of peace; and rather would he that his right hand should forget its cunning than that his writings should produce such an effect. Nevertheless, as for that profession, with all its deterrents and its moral dangers, adventurers never will be wanting, so long as, in the order of Providence, such means of national defence are needful,—it is good that they should be provided with a manual of this kind, wherein, as in a chart, they may discern what they are to seek and what to shun, by perceiving what things in the conduct of their predecessors ought to be regarded as warnings, and what as examples. And as every way of life, from the highest to the humblest, has its besetting sins, so, let it be remembered, each may and ought to have its appropriate virtues; and those which the seamen is called upon to practise are of a high order. He lives in a course of privations, self-denial, and strict obedience, always in insecurity, often in danger, not seldom in the face of death. Through such discipline no man can pass unchanged; he must be brutalised by it, or exalted; it will either call forth the noble qualities of his nature, or worsen a bad disposition, and harden an evil heart. The more necessary is it, therefore, that he should be taught where to look for examples, and where for assistance and support: the former are afforded him by history, which is always most useful when it is related with most fidelity; for the latter he must look to that Heavenly Father who has created and preserved him, and in His infinite mercy has given him the means of grace.

Sailors are taught in their part of our incomparable Liturgy to pray that they may be a safeguard to the sovereign and dominions, and a security to such as pass on the seas upon their lawful occasions. They are required, before a battle, to call upon the Lord, and entreat Him "who sitteth on the throne, judging right," to "take the cause into his own hand, and judge between them and their enemies;" and they are enjoined, after the victory has been given them, to acknowledge that He has been their strength, and to pray that "the mercies which they have received at His hands may be improved to his glory, to the advancement of His gospel, the honor of their sovereign, and, as far as in them lieth, to the good of all mankind." Thus solemnly are they instructed; and it is not presumptuous to believe, that while the service is carried on in this spirit, and in this faith, the protection which has hitherto been vouchsafed it, and which is thus implored, will never be withdrawn.

THE AMERICAN QUARTERLY REVIEW, No. XXXV., new series, September. Philadelphia, L. R. BAILEY. New York, G. & C. CARVILL & Co.—There are papers in this number of great ability. We would instance that on "the Documentary History of the American Revolution," albeit it is sadly calculated to shake one's faith in the truth of History—and that on National Defence, which should be generally read. We shall hereafter make extracts from this latter paper.—To-day we devote all the space we can spare to extracts from the paper on *Audubon*—which vindicates, in a becoming strain, the character, veracity, ability, and perseverance of this enthusiastic man of genius.

We make these extracts without much connection, and leave them to speak for themselves:

Passing by for the present the names of a galaxy of worthies who have long rested with the glorious dead, we may confidently refer, as a living example, to him, the titles of whose works stand at the head of this article; who, for untiring zeal, singleness of purpose, and devotedness of heart, has never been surpassed by any devotee of that goddess who disclaims all cabinet courtship, and who may be wooed with success only at the foot of those altars sacred to her own cause.

The name of *Audubon*, already enrolled in the records of imperishable fame, will descend unsullied to the remotest posterity; will live and flourish when the insignificant few of his contemporaries, whose jealousies urged them to reckless efforts to despoil him of his dearly purchased honors, shall

long have been consigned to the oblivion of things that never were. Our readers are, most of them doubtless, familiar with the first volumes of both of his univalued works, the "Birds of America," and the interesting letter press entitled "Ornithological Biography." It is the object of the following pages to introduce to our author's compatriots the second volumes of those works. We enter upon this subject fully impressed with the difficulty of the task, aware that trans-Atlantic arbiters of taste and science have already wielded abler pens in the same cause. On opening his volumes of Ornithological Biography, the reader is charmed with the vein of active benevolence displayed towards the objects of his research, whom our author is ever disposed to view with a partial eye, as the companions of his early youth, and as friends of maturer age: not less striking in the fervent piety which breathes through all his pages, together with a keen sensibility to favors conferred, evinced in his frequent and liberal acknowledgements to his early patrons.

The volume before us, like its predecessor, is by no means confined to the dry details of the scientific descriptions of the objects so beautifully depicted in his great work; each species being presented in a style so familiar, easy and accurate, as to bring the reader into the actual presence of, and render him personally acquainted with the most attractive portion of the animal creation; thus furnishing a feast of reason adapted equally to the taste of the uninitiated and to the most profound. Each consecutive number, consisting of five plates, is followed by an episode, containing novel and interesting views of the manners and customs of the thinly settled portions of our country, liberally interspersed with curious anecdotes, derived from his intercourse with semi-civilized man, and occasional representations of natural scenery, unsurpassed in beauty in the dreams of romance. These little histories, which were originally introduced into his volumes of text with the view of relieving the monotony of scientific details, or for the amusement of the general reader, have now become important scraps of our author's Biography, and are perused with pleasure and profit by all descriptions of persons; they are in fact replete with information of a most important nature in several departments of science, besides enabling us to estimate at their true value the labors and almost unparalleled exertions of a successful and enthusiastic devotee in science.

From what has already been stated, it will be perceived that our animated author is seldom caught in the croaking mood; he nevertheless opens the second volume with the description of the *Reven*—a bird sacred to fabulous history, and possessing no very amiable character; he loses nothing, certainly, in sitting for his portrait before a master hand. We now recognise in him, dispositions and habits as respectable as they are venerable, and which fully entitle him to the honor here reserved for him. But the limited space to which our observations are necessarily restricted, will not permit us to enlarge on the many remarkable beauties and curious features which present themselves in this department of the work; nor do we deem it necessary to adhere very closely to any particular order or arrangement. We may safely refer to his description of the Turkey-buzzard, as peculiarly graphic, and in many points highly important in a physiological view.

Mr. Audubon has been highly censured for some original observations on the power of smelling in this species, and published formerly in the Transactions of the Royal Society of Edinburgh. There were not wanting some closet naturalists, who, wedded to old prejudices, boldly impugned the veracity of his statements. The entire correctness, however, and strict unison with nature, has been subsequently proved beyond the possibility of contradiction, by the institution of a series of labored and careful experiments, performed under the auspices of disinterested persons, and witnessed by many of the most eminent men of science, and most of the professors in the Medical School of Charleston, S.C. Every one whose mind is open to conviction, is now satisfied of the fact first announced by Mr. Audubon, that the turkey-buzzard is directed to his food by the power of vision, and not by the faculty of smelling, which exists indeed in rather an inferior degree in these animals;—thus casting back upon its source the foul aspersions of ignorance or malice.

But, to return to our author—whose reasonings have always facts and observations for a basis.—His accurate, and, we may say, *personal* acquaintance with the feathered tribes, we have enjoyed frequent and various opportunities of testing.—Sometimes at great distances, by their mode of flight; again, when nearer, yet out of sight, “by the tones of their voice,” or the melody of their song, were the various species recognised.

But the case of the *white headed eagle* furnishes a striking instance of his critical acumen, and must convince the most skeptical. At page 163 we have the following remarks on this bird:

“I have no doubt that in a state of confinement this species sometimes requires a long series of years before it obtains the full adult plumage, by which it is so distinctly characterized. There is now one living in the suburbs of Philadelphia, which was eight years in coming to its state of maturity. Almost every person who saw it in its brown dress, called it either a new species or a Golden Eagle! Nay, some said that it must be the pretended *Bird of Washington*! A friend took me to see it; I felt assured as to the species, and told him that his head and bill would become white and that its size, which was rather larger than common, was not such as to indicate a new species.”

This fine specimen, which is still living at Mr. M’Aran’s garden, has been actually described as a new species by a naturalist of Philadelphia. Yet we are assured by those who witnessed the experiment, that the unerring *aquiline eye* of our author detected the species, and pronounced, with the certainty of brotherly recognition, that an old acquaintance stood before him, ere he had approached within several feet of the object; and although at the time not the least indication of a coming change of plumage was apparent, he asserted that it could not be long before the usual characters would be developed. In less than two years his predictions were verified.

But amidst the universal peans which resound far and near, to the merits of lofty genius and well tried talents, “what notes of discord are those which disturb the general joy, and silence the acclamations of victory? They are the notes of *John Hook*, hoarsely bawling through the *American camp*, beef! beef! beef!” (*Vid. Wirt’s Life of Patrick Henry*, p. 374.)

‘Tis true, the unassuming, confiding and modest historian of nature has his enemies, and perhaps there is no one whose brilliant productions are more calculated to excite *envy*; but fortunately, the intellectual force of our author’s opponents falls far short of the activity and zeal which they have brought to bear in so unjust a cause. Otherwise we should have experienced a degree of mortification in confessing that these opponents are chiefly limited to Mr. Audubon’s native countrymen. As it is, their vain efforts would be calculated to excite amusement, were it not for the malice by which in most instances they are characterized. In alluding to some of their unfounded charges, we shall assume the forbearance of Mr. Audubon, who has at all times abstained from mentioning the names of those who have so unjustly persecuted and reviled him. In this respect he has not only displayed a Christian virtue, but may find his account in having thus deprived those names of the only chance which they ever possessed of descending to posterity along with his imperishable works.

It is not requisite now to enter into any disquisitions to refute long exploded errors: in every instance it will be found, on close examination, that all the specified charges put forth to fix the stigma of mendacity to the name of our author, or to convict him of the base attempt to palm upon the public the spurious productions of a vitiated imagination, for grave truths in natural history, have invariably arisen out of the ignorance or malice of the accusers.

Thus the extraordinary and curious facts in the physiology and habits of the turkey-buzzard, so faithfully observed and accurately detailed by Mr. Audubon, were not only received with disdain, by his opponents, but were publicly cited as sufficient evidence of the ignorance and presumption of our author. At the present time, after the repeated and satisfactory experiments, instituted expressly to determine the disputed points, by numerous and highly reputable and disinterested witnesses, no one who entertains the least regard for his own reputation or honor, would presume to express a doubt. Not less satisfactory have prov-

ed the results of subsequent investigations, by competent observers, on the “habit of climbing of the rattle-snake,” together with the occasional disposition of this animal to enter the water to swim—both of which facts had been repeatedly cited to reflect on the veracity of our author—and were even urged during a successful canvass for the election of Mr. Audubon as a member of the American Philosophical Society, as sufficient reasons for excluding him from its honors; but the mere positive assertions of inexperience and prejudice, failed before the published testimony of such observers as Gen. Jessup, Gen. Gibson, Col. Abert, Lieutenant Swift, &c. of the United States Army.

This active little band of brotherly censors have not confined their exertions to our own country; and they have found a most faithful correspondent and ally in the person of a Yorkshire “Wanderer,” who has passed the greater portion of his life in fruitless efforts to run away from his own shadow. He has published a work in England, on “Wandering,” in the preface of which he assures us, that “Sir Joseph Banks predicted that he would write a book,” which would “improve and extend materially the bounds of natural science.” We have waded through its pages, in vain, to discover the fruition of this prophecy. At page 37, we meet, in his own language, expressions admirably well calculated to enable the reader to estimate, at their true value, these abortive pages.—“Ludicrous extravagances! pleasing to those fond of the marvelous; and excellent matter for a distempered brain!” This able and active little censor, having of course nothing but the advancement of science at heart, and desirous to purify the pages of *Natural History* from the baneful *fables* which too frequently disfigure it, commenced an early warfare, ay! “war to the knife,” with the Author of the “*Ornithological Biography*,” whom he appears to have viewed from the commencement as a poacher on the manor which he considered peculiarly his own! He appears to be well supplied with materials for detraction, which will not appear strange, when it is known that one of the American band of censors has feasted at Walton Hall? How utterly fruitless would be the effort to deceive him, and save him from the effects of the hallucination under which he labors as regards the true character of Mr. Audubon, is well exemplified by a confession of his own, occurring at page 101 of his book, viz.: “When you once fancy that the thing you are looking at is really what you take it for, the more you look at it the more you are convinced that it is so.”

THE UNVEILED HEART.—A simple story by the author of early impressions. 1 vol. Boston. JOHN ALLEN & Co. For sale in New-York by WILEY & LONG.—The preface tells us, this prettily printed volume has no pretension to pass for a *novel*—and, certainly, so far as inspiring interest is one of the characteristics of a novel, it lacks that. It is a simple story, meant to unveil the heart, by a series of scenes such as may occur in real life—the design strikes us as better than the execution.

THE LITTLE SCHOLAR LEARNING TO TALK. JOHN ALLEN & Co.—A clever design cleverly executed. This is a picture book, which having first attracted the eye of childhood, is then made the vehicle of explanatory instruction, conveyed throughout in the tone and manner of a mother conversing with her children—and illustrated in each instance by a picture. It is quite worth buying.

VISIT TO WORDSWORTH.—The following extract is from one of the most recent of Mr. Brooke’s letters from England.

We wound up the slope of the hill to present our letter of introduction to Mr. Wordsworth. My friend, to whom the letter especially belonged, rapped at the door of the Poet,—and I sat down on a neighboring ledge, and took out my writing materials, to note some of the peculiarities of this new scene. Before I had gone far with this, Mr. Wordsworth himself came out, and his cordial unaffected welcome, soon relieved me from all embarrassments. Among all the great men on the two sides of the ocean, whom it has been my fortune to see, he is

the only one whose real self, embodied the man whom my fancy had drawn. He dwelt too in some such place as I should suppose a poet to dwell. A lover of nature, he had sought the loveliest spot he could find; and he had found what ought to be, and what seems as if it were made to be, the very spot for such a man. He took us into his library, among his books, busts, and paintings,—and though there was nothing remarkable in such a study, yet it is pleasant to have been in the study, from which so much of beautiful poetry has come. He then walked with us over his grounds. Back of his dwelling is a mountain of some considerable height, on the side of which the house seems to stand. In front, on a little elevation, an artificial mound, called Rydal Mount (the name of his seat) he showed us a charming view of Windermere in the distance. Here with a poet’s soul, he dwelt upon the beauty of the spot,—with no affectation, no display of words, but in that calm and quiet narration ever the offspring of natural feeling. “I live,” said he, “on other peoples’ prospects. I have the finest view of Windermere, and yet it costs me nothing.” Here you see is what is gained by living over other peoples’ heads. I have all their prospects, and my own too:—and I thought it was no bad speculation even for a Poet, to make such a purchase, as I saw in the glen below him, some pretty vales, and the little church with its Gothic tower just peeping through the trees. He took us next from this wide view, to Rydal water, a little lake, or pond as we should call it, at the base of the mountain—and as we went through a bower of burrs, with logs for seats, our eyes fell upon this lovely spot. No wonder, thought I, that you can write poetry in such a place, I even feel it in my own veins. We moved along through various walks that wound around the hill—now in wood, now in gardens, now in field, now on the slope of the hill, now on plain, and now on precipice almost—and then we returned to the cottage itself, all inwreathed in shrubbery and flowers. “The eye,” said he, “must study landscape scenery before it can properly love it. It needs training for this as it does for the proper perception of all the beauties of a great painting. An impression may be made—but the intense delight that a true lover of nature feels, in looking at a beautiful prospect, comes of education in part,—and I could well see that the maker and adorning of the clapping spot, had studied nature as other people study books, not even forgetting the humblest blade of grass.

The poet with an earnest hospitality, pressed us to partake of his dinner, which was already upon the table, some three or four hours earlier than a London dinner. There was no escaping such an invitation thus given, though there is nothing I dislike so much, as eating dinners on a letter of introduction—but as this was no dinner purposely prepared for guests, the objection was softened much. The conversation ran upon our country, and its resources, and its probable destiny. “Heaven grant,” said Mr. Wordsworth, “that your experiment may succeed. It is a bold and great one—and if it meets success, lifts men upward one further step—but I do not believe it will. There are too many in the world that will seize that splendid prize of yours—the chief magistracy, I mean—honestly if they can, but at any rate they will seize it, if they have to do it, even as Caesar did. I cannot believe,” he added, “your States will hold together. You count too much upon the moderation and virtue of all mankind—for one man who will demagogue much, can do infinite mischief, where he can act upon a whole people, who are in fact the whole government of the State.” I told him of our checks and balances, and all those bulwarks upon which we rely. The conversation then ran upon, what he termed, the utility of an aristocracy, that should in some degree concentrate wealth for the purpose of patronizing genius, and rearing up a society in which men of intellect and learning should live and flourish. I told him we must rely upon our mercantile wealth for all this—and then I pressed the question, of which was the better in the scale of human happiness, that the mass should flourish as with us, or the few as in Britain. The mass he contended were happy here, and had enough to eat and wear.—“The aristocracy and gentry provided for all the poor.” I shook my head, and only added that the mass seemed made for other purposes than to eat, drink, and wear. The conversation changed.—Thus do Englishmen and Americans differ. An Englishman has no idea of what a popular government, by ever impelling and exciting the mass to improvement, can do in elevating their minds and

characters, to say nothing of that lower object, the acquisition of property,—and what renders them doubtful of the principles of the mass, is its ferocity when excited here in England, and Ireland.—We have no such mobs unless it be in New York, which is getting to be a European city, that some chance or other has dropped on our side of the water.

After dinner, when we were introduced to the family of Wordsworth, who, received us with a hospitality as kind and as unembarrassing as his, he generously offered to conduct us to some of the scenery around, which we expressed some interest in seeing, as they were spots which his poetry has made known in America, as well as in England. I felt much reluctance in troubling such a guide,—but yet how pleasant it is, to have the Poet himself, in his own person, pointing out the vale and mountain, and lake, that his own pen has peopled with the beings of his own fancy! And how delightful this idea of consecrating one's own home, through all coming time, by throwing around it the enchantment of poetic fancy,—giving the hills that shall never die, and the waters that shall never cease to flow, trumpet-tongues that for all ages shall speak the poet's name—making them by his genius the monuments of his own glory—lotter Mausoleums too than man can pile together,—and as everlasting as earth itself. The pyramids of Egypt are no such monuments as Langdale Pikes,—and as long as they stand, Wordsworth's name will dwell with them, and thus long the traveller will view them with an interest, that the scenery itself wild as it is, can never create.—Wordsworth showed us all, and wandered with us some three or four miles more. He took us to the grounds of Captain Hamilton (of men and manners memory, whose book by the way has done us infinite mischief in England, for all the intelligent people look upon him as a man of talent and character, while Mrs. Trollope's is every where viewed as an amusing caricature)—and, as he was not now at home, he showed his house and grounds. His house is on but a narrow piece of ground,—and yet the ground has been so laid out, with such a seizure of prospect, and such an improvement even of the ledge of rocks near which it is, that it is made a charming spot. I do not know but that this turning of ill to good, is one of the finest achievements of English taste, I have ever seen. Even the little cliff is made an ornament.—The water-view in front is fine. And then the flowers and shrubbery, they so adorn the house as to make it seem a fairy bower. But Lady —, somebody whom Hamilton is to marry, or has married, will remove him from this, to a larger place, where more friends can be accommodated. Mr. Wordsworth next escorted us over the grounds of Lady Is Fleming—Rydal Hall, as it is called. "To have an idea, said he, of the manner in which property is preserved under our laws, and in a single family, you must remember that this estate has been in the family (of Norman descent), ever since the days of Henry VI." I remember by the way, a good discussing this law of Primogeniture, with an Englishman in London, who, at least gave me a new, if not a good argument in its behalf. "Our law, said he, makes but one poor devil in the family, the eldest son—yours make many, for it throws wealth into the hands of all. The younger sons with us must look out for themselves. Yours are looked out for!" Mr. Wordsworth pointed out to us a beautiful cascade on the estate of Rydal Hall, near which was built a rustic seat to give a front view,—and then from these garden scenes, we began a ramble over the rougher hills. The poet took his umbrella, for here there is a shower every other hour,—and though he was obliged to handle this, and watch his straw hat that the wind played roughly with, yet, sixty-five years old, as he told us he was, he would clamber up and down the cliffs, with as sprightly a foot as we could. He guided us to Loughrigg Mount, where we had a view of the Grasmere Lake, and clambering over a wall, where the poet lost his hat, for which we had a race,—and then sitting on the brow of the mount, we had a view of a little paradise below—mountains all around, a little lake—with a narrow valley highly cultivated—flocks grazing on the brows of the hills—a church in the distance—the village of Grasmere—a well made road winding around the water—nature and labor doing so much—indeed it is one of the most beautiful views I ever had of such a character! On we went, then, to yet wilder spots, till we came to a lone house amid the hills, where poverty plainly dwelt, which Wordsworth

entering, brought the good woman to the door, whom he addressed in almost another language, (the Cumberland dialect) and after inquiring about her health and that of her family in the kindest and most familiar manner, solicited for us the guide of her son. This was yet the best display of Wordsworth's character I had seen, so much of simplicity was there—so free from ostentation—such a benevolence,—and then so much of respect and affection from the old woman, to one who had evidently done her a thousand generous services. I shall always love the man and his poetry the better for such a scene. While the guide was adjusting his dress, we sat down upon some rocks, and Wordsworth pointed out the scene of his "Excursion," and some of his minor poems. He then dwelt upon the critics who had assailed him in his early life, and made his poetry unpopular. They may have affected my fortunes, he said, and thus my enjoyments and my means of doing good,—but they have never wounded my feelings—for I never wrote for popular applause,—I felt that the time would come, when justice would be done,—and now I have that justice—now when the reward is most sweet, as I am about to end my days. "I have it in such an interest as you and others like you, just beginning life, and from the most distant parts of the world, have expressed in my behalf." Indeed he has. His morn was dark and cloudy.—The noon of his life had none of the midday light. But his sun is setting in one unbroken stream of lustre. All are awarding him praise. Tardy justice has come at last, with triple honors. Even the sole and proud position of Milton is in danger. But I believe all this is but the beginning of his fame, for his is a school that stands the test of time, the school of Nature.

Our guide having at length arrived, Wordsworth marked out our route on a slip of paper, with all the views of interest for miles, over all of which he had wandered, and which he had studied for years and years. I could not avoid expressing warmly a wish that he could visit America, and there find a wilderness of scenery worthy of such a pen,—immortalizing our mountains and our vales, as he had those of his own home. "I shall never see America," he said.—"I might if I were younger—but I shall never cease to have an interest in all its history." I took out my pen, ink and paper, and asked for his autograph. "Langdale Pikes in front of us. June 20th, 1835," with "Mr. Wordsworth," was on mine, and "Vive, valeque" on that of my friend. I bade him adieu with tears in my eyes. How painful it is to part thus forever from such a man!

In these details of an interview with Mr. Wordsworth, I hope my friends will not think that I violate any of the civilities of life by a publication. I feel that I have done nothing of which he would complain, occupying the position in the world that he does, and this must be my acquittal; for of all unpleasant offices, that of reporting a private conversation upon matters where secrecy is tacitly expected, I should avoid the quickest. It is ever dangerous ground to tread I know, and a great discrimination is to be used. And he who expects such kindness from many literary Englishmen, professing no more liberality toward the American government than Wordsworth's political principles can allow him to have, will expect in vain. Beware, I tell my countrymen, of wasting admiration upon certain men, radicals though they be, and great admirers though, of radicalism on paper, but aristocrats and fops in fact. A courtier of the mob here, on paper, is often a Lord-hunter in person. I have been told—I do not know, for I have not seen him but in his seat in the House of Commons, and do not wish to see him elsewhere, after what I have heard—that a certain novelist, whose talent and whose power, all Americans show their taste in extolling high, is but the person whom I have described, and that the incense we burn at his altar, is but snuffed at, as the offering of some brute beast. As a fact, it is stated, that the kindness which is shown to Americans by Sir Robert Peel, whose political prospects depend upon stopping the progress of American principles, is much more remarkable than that of the radical who writes so much in their favor.

[From Mephistophiles in England.]

TAGLIONI.—Between the acts the curtain rose for a divertimento in which the incomparable Taglioni made her appearance. She was greeted with the loudest demonstrations of popularity from

her numerous patrons, which she acknowledged by several graceful courtesies.

"Behold!" said Mephistophiles, directing my attention to the evolutions of the dancer, "the progress of civilization. If all this were not so graceful, it would be indecent: and that such an exhibition has a moral tendency, is more than doubtful. Look at that young girl in the pit! she has seen sufficient to crimson her face, neck, and shoulders, with a blush of shame; and she hides her head from a sight which has shocked her sense of decency. There is no affectation there. She is an innocent girl, fresh from the country, who never saw a ballet in her life. Yet all the rest, man woman and child, gaze on delighted. Every glass is raised, the more closely to watch the motions of the figurante. Look! she makes a succession of vaults; and her scanty drapery, flying above her hips, discloses to her enraptured admirers the beauty of her limbs. A thousand hands beat each other in approbation. Now she pirouettes, and observe the tumult of applause which follows. See! she stands on her left foot on the point of her great toe nail, extending her right leg till the top of her foot is in a parallel line with the crown of her head. In this position she bends, with an appearance of the greatest ease, till her body nearly touches the ground; and then gradually rises, with the same infinite grace, amid enthusiastic bravos and ecstatic applause. Now on her tip toe, her right leg still extended, she moves slowly round, liberally extending to all her patrons in sight the most favorable opportunity of scrutinizing the graces of her figure, while the whole household testify their infinite gratification at the sight by every species of applause. Again she comes from the back of the stage, turning round and round with the speed of a tetotum, but with an indescribable and fascinating grace that seems to turn the head of every young man in the theatre. During the storm of approbation which ensues, she stands near the footlights, smiling, courtesying, and looking as modest as an angel. Then comes Perrot, who is as much the idol of the ladies as Taglioni is the goddess of the gentlemen. He leaps about as if his feet were made of India rubber, and spins round as if he intended to bore a hole with his toe in the floor of the stage. Then a little pantomime love business takes place between the danseur and the danseuse: they twirl away, and glide along, and hold eloquent discourse with their pliant limbs; and the affair ends by the gentleman clasping the lady round her delicate waist, whilst he, bending his body in the most graceful attitude, so that his head shall come under her left arm, looks up in apparent ecstasy into her smiling face, as the lady, raised high above him on the extreme point of her left foot, extends her right limb at right angles with her body, and looks down admiringly upon her companion. Thus grouped the curtain drops, and every one cries 'bravo,' thumps the floor with his stick, or beats his palms together, till such a din is raised as is absolutely deafening."

"She is a charming dancer," I observed. "Yes!" replied he, "she understands the philosophy of her art better than any of her contemporaries: it is to throw around sensuality such a coloring of refinement as will divest it of its grossness. For this she is paid a hundred pounds a night, and is allowed two benefits in the season, which generally averages a thousand pounds each. While you are thus liberal to a dancer, some of the worthiest of your ministers of religion receive about fifty pounds per annum, for wearing out their lives for the good of your souls; and many of your most exalted men of genius are left to starve. Such is the consistency of human nature!"

INFLUENCE OF PROFESSION ON MORTALITY.—There are some curious facts respecting the influence of professions on mortality, collected by Dr. Casper, of Berlin, from which it appears that "hard work is more injurious than bodily labor; but that the combination of the two is the most wearing." A sedentary life, free from all excesses, is on the contrary, the condition most favorable to life." Of all professions, that of a physician, according to Dr. Casper, is the most life-wearing; while that of the divine occupies the other extreme of the scale. Of 100 divines, 42 reached 70 years of age and upward—of 100 physicians, 24 only attained to that age. Of 1000 deaths, between the ages of 23 and 62 inclusive, the years of greatest professional activity, there were—of physicians, 610—of divines, 345.

AVERAGE DURATION OF LIFE.—Upon the value of the average duration of life, is determining

the relative prosperity of nations, M. Quetelet has some excellent remarks: "It may be said, that nation is increasing in prosperity when it produces fewer citizens, but preserves them longer. This condition is entirely to the advantage of the population; for if the numbers born are smaller, the useful subjects are more abundant, and generations are not so frequently renewed, to the injury of the state. Man, in his early years, lives at the expense of society. He contracts a debt, to be repaid at a future day; and if he does not live to discharge it, his existence has been a burden to his country. To estimate this expense, it is sufficient to state, that a child, from its birth, till it attains to twelve or sixteen years, costs, in the hospitals of the Low Countries, 1,110 francs; say, however, only 1,000 francs. Every individual, then, who survives infancy, contracts a sort of debt, which cannot, at least, be less than 1000 francs—the sum thus paid by society for each infant, when abandoned to its charity. In France the annual births amount to 960,000, of which, 8-30ths die before attaining to a serviceable maturity. These 430,000 unfortunates may be considered as so many strangers, who, without fortune or industry, take a part in the general consumption, and depart without leaving any other trace of their passage, save eternal regret.—The expense of their maintenance, without reckoning the time they have pre-occupied, represents the enormous sum of 432 millions of francs. If we consider, on the other hand, the grief that such losses must occasion, which no human sacrifice can compensate, it will be perceived how important a subject they afford to the consideration of the legislator and philosopher. It cannot be too often repeated, that the prosperity of States consists less in the multiplication than in the preservation of their component numbers." This reflection gives a new item in the long account between mankind and their governors, on the score of useless wars, by which so many are cut off at a moment of their incipient utility, and the greatest possible waste is occasioned of the national resources.

THE MOVING PLANT.—The following interesting notice of the Moving Plant appears in No. 122 of Maund's Botanic Garden, a work replete with information on such subjects: "This plant was, formerly, called *Hedysarum gyrans*; and the peculiar property of continual motion which its ternate leaves possess has interested naturalists ever since it was noticed by the younger Linnaeus. In a letter to his friend Mutis, he says, 'I have raised a very wonderful plant this year in my garden. It is a new species of *Hedysarum* from Bengal. This plant has a spontaneous motion in its foliage, which seems almost voluntary. You are aware that various parts of the vegetable body, especially those subservient to impregnation, can be so stimulated by the touch as to exhibit some kind of movement. You know also the motions of some kinds of *Mimosa* and *Oxalis*, as well as of the *Dionea muscipula*, arising from the touch of any extraneous body, or from agitation of the wind. But the plant in question is not affected by either of these causes. Whether in the open air or in a close room, it spontaneously moves its leaflets, now one way, now another, one, two, or more at a time; not all at once, nor all in one direction; and this takes place whether the air be serene or rainy. It has not yet flowered, but I expect that event in the course of the autumn. The plant requires great heat." Instances of incomprehensible action like this can but awaken the attention of the most apathetic.—We will give a figure and particulars of this plant in the fifth page of the Florist Register. The irritability of such plants is better known, especially that of *mimosa pudica*, or humble plant, whose leaves shrink from the touch, the culture of which may be recommended to the curious amongst our young friends. Seeds are easily obtained, and an efficient hot bed during summer, in which the plants should be constantly kept, will sufficiently mature them for the purpose of showing their sensitive peculiarities. This is a property which advances the vegetable towards the animal kingdom, just as instinct advances the brute towards the human species.

THE RIVER.—On last Friday night it commenced raining, and has continued to rain; with occasional intermissions, from that time to the present. The river has in consequence risen considerably; there is now water enough for middle sized boats, and the river is still rising. The Tempest, a handsome new boat, departed this morning, and several

other boats are taking in freight.—[Pittsburg Gaz. of 21st.]

WHEELING, Sep. 1.—It rained through the whole of Saturday. The river will doubtless rise to-day or to-morrow and continue navigable for steamboats until closed by ice. The past season has been a remarkable one. The water has not been so low as to prevent the departure of steamboats down the river daily, and there have been but eight or ten days in which they could not ascend to Pittsburg. One class of our enterprising navigators has been greatly disappointed, and consequently suffered much loss—we mean the owners of keelboats. The year may be said to have been lost to them—like the farmers, who from the operation of contrary causes, lose a crop by the suspension of the rains.

CHOLERA.—The last Milan (Huron county, Ohio) Times mentions, that no other cases of Cholera had occurred in that vicinity subsequent to those stated to have taken place in the family of Anson Merry, a few weeks since.

HEALTH OF NEW ORLEANS.—The True American of the 10th instant, states that the number of deaths in N. Orleans during the previous week, had amounted to about one-third more than the usual number. The increased mortality was attributed to the hot weather of that week. The temperature had become more agreeable at that date,—there having been a refreshing shower of rain on the day before—and it was expected the city would regain its accustomed degree of health.

The Boston papers, of yesterday, announce the demise of the venerable Jacob Kuhn, at the age of more than four score years, more extensively known, perhaps, than any other individual in New England, from the office he held. Mr. K. was chosen under the colonial government, messenger, or sergeant-at-arms, to the House of Representatives in Massachusetts, which he held for more than half a century, and like his prototypes William Cooper, town clerk of Boston, and Abraham Newland, cashier of the bank of England, was never absent a day from his official duties, during that long period of time, each considering his respective avocation paramount to every pleasure or other pursuit in life. No better proof of his integrity and talents can be adduced than that he was annually re-elected without opposition, amidst party strife and political calms, never having an opponent.

IMPORTANT NOTICE.—Section 5.—No auctioneer on the same day and at the same place where his public auction shall be held, nor any other person, at the same time and place, shall sell at private sale any goods liable to auction duties, under penalty of forfeiting their price.—[Vide Auction Laws S. N. Y.]

THE BANK OF THE U. S. is closing up its concerns, as speedily we presume, as comports with public convenience, and that of the debtors of the Bank. We find in the Boston Atlas the following statement:

The Bank has twenty-five branches. Eight of them are sold, or nearly wound up. These sales have been effected at one, two, three and four years' credit. In two instances the instalments have been extended to five years. Two other branches will be sold, probably, in a few days. A negotiation for them is in progress. The eight branches above alluded to, are Portsmouth, Hartford, Utica, Buffalo, Louisville, Lexington, Charleston, and Baltimore. The two under negotiation, are Fayetteville and Nashville.

BANK OF MASSILLON.—At a meeting of the Board of Directors of the Bank of Massillon, on the 5th inst., Parker Handy, Esq. was elected Cashier, and A. G. Hammond, Esq. appointed Teller, in the room of J. D. W. and T. J. Calder, Esqs. resigned.

The number of inhabitants in the territory of Arkansas, with the exception of two counties, which have not yet been heard from, is 51,809.

ATROCIOUS ROBBERY BY A LANDLORD.—We learn by the Kingston (U. C.) Gazette, that a most infamous crime was perpetrated in that city, the week before last, by William Carroll, keeper of the Canal Coffee House. The sufferer is a Mr. Wilson, an English gentleman, who arrived at Quebec, in July last, in the Mary, from London, and whose object in visiting this country was to purchase lands. On arriving at Kingston, Mr. Wilson took up his abode at Carroll's and entrusted to him, for

safe keeping, a heavy square box, covered with matting and corded. The box contained Spanish dollars, and must have been worth at least \$600.—The wretch, Carroll, took advantage of the absence of Mr. Wilson, who had gone to Toronto on business, and on Wednesday evening, the 26th ult., he suddenly disappeared, carrying the box with him. It is said that he is gone to the United States by the way of Oswego.

AN ALTERNATIVE TO BE THOUGHT OF.—At the Anniversary Dinner of the public Schools in Boston, on Wednesday, the following toast was given by Edward Everett:

Education.—A better safeguard for Liberty than a standing army. If we retrench the wages of the schoolmaster, we must raise the wages of the recruiting Sergeant.

[From the Evening Post.]

(In imitation of the Ode in the 8d Canto of Don Juan, beginning with "The Isles of Greece! the Isles of Greece!")

MY NATIVE LAND.

I.
My native land! My native land!
A land with every gift replete,
All perfect from its Maker's hand,
An Empire's glorious seat!
And far removed from thrones and slaves,
There freedom's banner proudly waves.

II.
The frigid and the torrid clime,
The temperate and the genial beam,
The vale, the mountain top sublime,
The arid plain, the swelling stream,
There linked in Union's golden chain,
Bear witness to her vast domain.

III.
Her mountains look o'er realms serene,
O'er waving fields and cities free;
And mightier rivers roll between,
And bear her wealth from sea to sea;
While o'er old ocean's farthest deep
Her banner'd navies proudly sweep.

IV.
On Plymouth's Rock the Pilgrim lands,
His comrades few, and faint with toil;
While warring tribes in countless bands,
Roam lawless o'er the uncultured soil.
A few brief years have rolled away,
And those dark warriors—where are they?

V.
And where are those, th' heroic few,
That landed on that rocky shore?
Their voice still rings—their spirit too
Still breathes—and will forever more!
For in their sons still burn those fires
That freedom kindled in their sires.

VI.
'Tis something—though it be not fame—
To know we spring from noble race,
To feel no secret blush of shame
For those we love, suffice our face.
Then let us to our sons transmit
A land and name unsullied yet.

VII.
To us was left in sacred trust,
A realm redeem'd, a glorious name,
The ashes of the brave and just,
Fair freedom and immortal fame!
And in our hearts the spirit dwells
Which power defies, and force repels.

VIII.
We've not to weep o'er glory fled—
We've not to brood o'er servile woe—
We call not on the illustrious dead
To shield us from a living foe;
And should our pride be o'er o'thrown,
'T will be by native swords alone.

IX.
The standard which our sires unfurled,
And which through peril's path they bore,
Still floats o'er half the western world—
Still waves on many a distant shore—
And long shall wave, triumphant, free,
O'er dome and tower, o'er land and sea!

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. Post Office, New-York, postage paid, and they will be promptly attended to. May-4

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 800 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.

New-Lisbon, Ohio, Sept. 17, 1845.

LOCK GATES, FOR CANALS.

DAVID WILKINSON, of Cohoes, Albany county, State of New-York, has obtained Letters Patent for the United States for an improvement in Lock Gates, &c., invites the attention of engineers and constructors to his invention, the result of thirty years' practical experience. The chief feature of his invention is the self-adjusting valve gate, which is opened in a great degree by the force of the water, and is closed by the weight of the valve gate, rods and screws, and kept secure and close by a pall; the improvement requiring very little force, in aid of the power of the water, to raise the valve gate. The Lock Gate is kept perfectly tight, or free from sagging, by the method of adjusting the anti-friction roller upon the quadrant or circular railway. By means of a thimble on the capstan, the chain for moving the gate can never become tangled or ride on the capstan, and by means of a pall in the head of the capstan, it can never be turned the wrong way, thus effectually guarding against much danger.

There is a lock in operation at Hogansburgh, New-York, where the experiment has been fully tested, to the satisfaction of all scientific men who have viewed it, and which has a self-adjusting valve gate, opening an aperture five feet in length, by 18 inches in width, under a pressure of 2½ feet lift.

Having transferred the Letters Patent to Mr. JOHN L. WILKINSON, canal contractor, rights to construct under the same, may be obtained from him by applications addressed to COBURN P. O. Competent workmen to construct the gates and put them into operation, will be supplied, if desirable, either by the inventor or the assignee.

The following letter, from Judge WRIGHT, of New-York, one of the most experienced engineers in the United States, is conclusive with respect to the character of this gate:

"Moultonette, (U. Canada,) Aug. 14, 1835.

"DEAR SIR: I have been witness of a trial of a new paddle gate invented by David Wilkinson, Esq., for Locks, to be introduced into the gates. It is 5 feet long, by 18 inches wide; and I am certain it is the best improvement of the kind which has been tried in this country. I think it will not get out of order, and is so simple, that a 12 years' old boy will open it; and there is no danger of throwing persons into the lock, from the operation, as nothing of the kind can happen.

"I think you will be much pleased with it. It applies its use to any head which can be used in locks, and is more particularly superior in the gates of the lock, to fill and empty rapidly, as easy as you please.

"I am, very respectfully, dear sir, your obedient servant,

"BENJ. WRIGHT.

"To EDWARD P. GAY, Esq.,

"Civil Engineer, Lancaster, Pa."

To which is added the testimonial of J. B. MILLS, Esq., Engineer, who has been associated with the greatest works of internal improvement in the Union:

"Mr. Wilkinson has recently invented a valve for Lock Gates, which is undoubtedly of great value, and readily applied. Mr. W. has the contract for constructing the Lock Gates upon the St. Lawrence Canal, (which is the largest upon this continent,) where it is determined to adopt his valve, and his manner of working the same. Having the utmost confidence in Mr. W.'s valve, having seen it applied, I most confidently commend it to all those interested in the construction of Canal Locks.

"J. B. MILLS,

"Engineer St. Lawrence Canal.

"Cornwall, (U. C.), Aug. 21, 1835."

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry of about sixteen miles of the Railroad between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skillful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting. MONCURE ROBINSON, C. E.

Philadelphia, Sept. 2, 1835. 623awt019

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Graduation and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,

Chief Engineer N. O. & N. Railroad. Engineer Office, N. O. & N. Railroad, Aug. 26, 1835. 37

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by HOWLAND & ASPINWALL, 36 10t 55 South street.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

AUBURN AND SYRACUSE RAILROAD.

NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road.

Individuals disposed to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

EDWIN F. JOHNSON, Chief Engineer & Agent A. & S. R. E. Company. Auburn, Aug. 23, 1835. 37—150

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels, 75 do do round-pointed do 150 do do cast steel Shovels and Spades, 100 do do Socket Shovels and Spades, 150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO. 9 Liberty street, New-York. BACKUS, AMES & CO. 8 State street, Albany.

34—ytf

RAILROAD IRON WORK.

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention. Paterson, Aug. 19, 1835. 34—1y

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad, No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J36 tf

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1835.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 233 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

H. BURDEN.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Men will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New-York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvanian, will please copy this, and send their bill to the Railroad Company, 14 Wall street, New-York. 23—tf

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. EBASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-1y

RAILWAY IRON.

255 tons of 1 inch by 1 inch Flat Bars in lengths 300 do. 1½ do. do. 14 to 16 feet, counter sunk 40 do. 1½ do. do. holes, ends cut at an angle 800 do. 2 do. do. of 45 degrees, with splitting plates and nails to suit 800 do. 2½ do. do. soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 32, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 30, 32, 34, and 36 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON, 9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. 471meowr

SURVEYOR'S INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 st

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accident to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

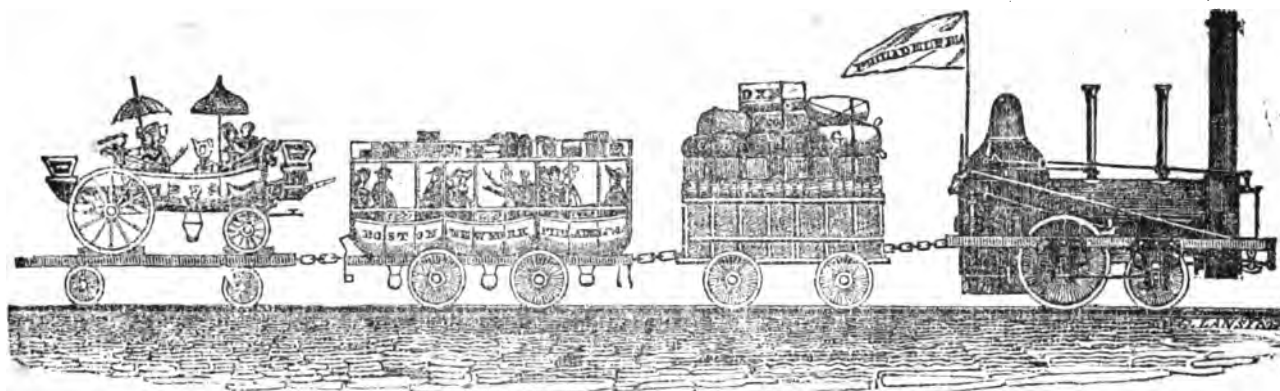
E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad. Germantown, and Norristown Railroad. 31 ly



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, OCTOBER 10, 1835.

[VOLUME IV.—No. 40.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, OCTOBER 10, 1835.

RAILROAD from the Banks of the Ohio, opposite Cincinnati, to the tide waters of the Carolinas and Georgia.—We have received a pamphlet containing a Report from a committee in relation to this subject—but have not been able, from ill health, to give it, and several other interesting documents, received within the last three weeks, an examination. We shall refer to it again as soon as we are able.

We take the following brief statement from the first number of the New-Orleans "Union," which shows the deep interest felt, and the active measures taking, by New-Orleans, and the State of Louisiana, in the progress of Internal Improvements.

It certainly evinces a wise forecast, and a thorough conviction of the benefits to be derived from such a course of policy—and we have the utmost confidence that their fullest expectations will be more than realized.

RAILROADS.—Three railroad companies were chartered by the last Legislature, whose importance to this city are superior to any other corporate institutions in this state: we allude to the New-Orleans and Nashville Railroads; the Atchafalaya Railroad and Banking Company; and the New-Orleans and Carrollton Railroad and Banking Company. The capital of these three companies amounts to 11 millions of dollars. The Nashville has a capital of

six millions. The Atchafalaya of two millions, and the Carrollton of three millions. We, in common with many of our fellow citizens, were inclined to the belief that the construction of a railroad from this city to Nashville was agitated at too early a day, and that sufficient confidence could not be obtained to procure subscriptions for the capital. But a closer examination of the question has removed all doubts, and the practicability of the work; its immense advantage to the prosperity of New-Orleans, are manifest to all who have enquired into the subject. The best evidence of this change in the public opinion, and what the sentiments of capitalists are as regards this company, is to be drawn from the fact that all the stock has been subscribed for, with the exception of the shares reserved for the other states, and that a premium of nearly two dollars can be readily obtained for one dollar paid in. We have been promised by a person fully acquainted with the transactions of the company to this date, an accurate account of their operations, and the progress made towards the commencement of breaking the ground for this great undertaking; at an early opportunity we shall present the same to our readers.

The Atchafalaya Railroad and Banking Company was chartered to construct a road from a point on the bank of the river Mississippi in the parish of Point Coupee to a point at or near the Court-house in the parish of Saint Landry. This company has already commenced its labors, and we trust that its completion may not be far distant. This road passes over one of the finest cotton regions of our country, and will be the means of bringing into cultivation an immense quantity of valuable lands, besides connecting sections of the country which will be greatly benefited.

The Carrollton Railroad and Banking Company are bound to construct a road from this city to Bayou Sarah, and as the Atchafalaya Railroad will come in nearly opposite to Bayou Sarah, the Carrollton Railroad will form the last link to connect this city directly with the interior of the western part of our state. The immense quantity of cotton received from Bayou Sarah and the intermediate ports—the sugar made along the line of the road—the continual increasing travelling between those places and this city, will render the stock of this company of immense value, independent of the banking privileges which

they possess. On another occasion we shall resume this subject—we make these passing remarks at this time to call the attention of our citizens to the three great works of internal improvement about to be commenced within the limits of our own state.

We have received the first number of a new daily evening paper from New-Orleans, called the *New-Orleans Union*. It is a large, and well filled sheet, and is to be published for the public, and not for a party—like most of the newspapers of the day.

We give the following extracts from the Editor's (Mr. J. F. Carter) introductory address, which it is to be hoped will be rigidly adhered to, and a similar course adopted by others. We bid him "God speed," and send him a file of the Journal for the last year.

*** The editor regrets that he cannot comply with the wishes of those who may desire that his paper should have a partizan character. We have already too many political parties and too many political papers. There is a superabundance of patriotic editors under whose over zealous treatment it may happen that our liberties may be endangered.

We want a newspaper which shall serve as a neutral ground for all politicians, and where sentiments of patriotism and of devotion to the happiness and prospects of our common country may be recorded by the friends of any of the aspirants of public favor.

The subject of internal improvements is one which will occupy the special attention of the editor; convinced that railroads and canals form the strong bonds of our union. On this all important subject no inhabitant of New-Orleans or of Louisiana can feel indifferent—situated at the extremity of the United States, we are from our position most interested in the construction of those works which may connect us more closely with the other parts of our country. The immense quantity of valuable lands in this state fit for the culture of the great staple of the south, offers an additional reason to render us zealous in behalf of those railroads, already commenced or projected within the limits of the state.

Requiring an extra outlay of capital, over and above the other route, to make an equally perfect communication of \$2,740,000, or nearly three millions of dollars! This, in the present depressed condition of the finances of the State, when there are so many, and increasing demands upon its treasury for the construction of lateral canals and railroads, is an important item—and assumes still greater importance, when we consider that a resort to taxation has been seriously contemplated, as necessary to supply deficiencies either already existing or anticipated.

There is another view to be taken of this subject—no one can reasonably doubt, that should the Erie Canal be enlarged to Buffalo, the growing trade of Lake Ontario will require the immediate opening of a communication of the same size to connect with that Lake at Oswego. This result will follow with as much certainty as the construction of the present Oswego Canal has already followed that of the Erie Canal. It is impossible, under an enlarged view of the subject, to doubt that the result will be as stated—neither will it be doubted, that the time is not distant, when the State of New-York, (even should the Erie Canal be enlarged to Buffalo,) will find it not only expedient, but necessary, to open a communication, from Lake Erie to Lake Ontario, within her own borders. This will be done by the State, if she is not anticipated, (which is not improbable, should there be a much longer delay,) by the opening of a similar channel, through private means. I present this view of the subject, to show that nothing will in reality be hazarded, while the probability is that much may be saved, by opening at the present time the Ontario route.

The question, of the relative cost of transportation, which I now propose to investigate, is one of some difficulty, not so much so, however, but that it can be satisfactorily determined, within certain limits.

The view which, in my report, I took of this subject, was based principally, as therein stated, upon "a printed tariff of prices, established by companies engaged in transportation for the year 1834; and since the reduction of tolls," by these prices, a great difference was shown in favour of navigation by wind and steam, upon the larger waters, compared with a canal. These being the rates publicly advertised, it was presumed they were such as could be relied upon, for a safe business, and although, perhaps, exceeding the cost at which particular articles were conveyed in many instances, they were still accurate in the most important point, in affording a correct relative view of the cost by the different mediums of communication. There has been the present year, as I understand, some reduction, not, however, affecting very materially the relative of the prices as exhibited in the last year's tariff.

In the document under consideration, there is a statement of cost of transportation *exclusive of tolls* upon the canal, obtained partly from the tariff of 1834, partly from a "recent tariff," and for the heavy freight one article only is mentioned, viz. flour, and the authority not given. Flour is estimated as being near the average of all the freight, and assumed as such. It is rated exclusive of tolls at 8.9 mills per ton per mile on canal, and on the Hudson River by steam tow-boats, it is 8 mills. The rate for merchandize is 21.5 mills per ton per mile on the canal, and on the Hudson River by steam tow-boats 15.1 mills. There are few articles that are transported in boats at a less rate than flour, and as merchandize is so much higher, there is reason to believe that the price for flour is below the average. The general rates for heavy goods, by the recent tariff, are omitted, and this is to be regretted, as they are the most important for our purpose.

In the document referred to, a comparison is instituted between the cost of transportation, on the two routes from Buffalo to Albany, as follows:

By Schooners—

Buffalo to Lewiston, 30 miles, canal, at 15½ mills, -	\$0 46½
Lewiston to Oswego, 146 miles, lake, at 10.9 mills, -	59
Oswego to Albany, 202 miles, canal, at 15½ mills, -	3 13

By Canal Boat—

Buffalo to Albany, 363 miles, canal, at 11 mills, -	\$5 16½
Transshipment at Buffalo, -	3 99
	25
	\$4 24

Difference in favour of Erie Canal route, - - - 94

The above comparison is faulty, because,
1st, The cost of transportation on the canal, exclusive of toll, is rated too low.

2d, Too great a reduction is anticipated, in the future tolls upon the canal.

3dly, The rates per schooner on the canal and lake are too high.

4thly, The extent of canal between Buffalo and Lewiston is 9 miles instead of 30.

Assuming flour to be, as stated in the "document," at 8.9 mills per ton per mile, exclusive of tolls, the average of the transportation upon the canal cannot be safely rated at less than 11 mills. It is supposed in the document that about 40 per cent. will be saved on the enlarged canal. The reasons for this, so far as they are given in the document appended to the report of the Canal Committee, are not satisfactory, since all the circumstances, which have a practical bearing upon the case, seem not to have been considered. The principal advantage contemplated from the enlargement of the canal, is not so much a saving in the cost of navigating, as the increase, it will give to its capacity.—The necessity of making further provisions for the increase in trade, may be considered the chief object of, and to have alone dictated, the proposed improvements.

Instead of 40 per cent., from 25 to 30 is the most that can safely be relied upon as likely to be saved, on the large canal, making the cost per ton per mile 8 mills. More may indeed be saved, but in a work of so great magnitude, involving so large an expenditure, it would not be prudent to anticipate a greater reduction.

In relation to the tolls, the estimate in the document is made on the supposition of a reduction of 50 per cent., one half the present rates. The tolls as they now stand will rather exceed 1 cent per ton per mile, viz.

For flour 9 mills, -	constitutional limit, 8.92 mills.
Do. Merchandize 18 mills, -	do. - - - 17.94 mills.

Ten mills per ton per mile will rather fall short than exceed a fair average. That this will be materially reduced, is, to say the least, extremely doubtful. In the first place, the tolls as exhibited above are now down to within a very small fraction of the constitutional limit. A farther reduction will hardly be required, for securing the western trade, particularly if as great a saving is made, as is anticipated, in the cost of transportation on the enlarged canal. And should the State conclude to expend nine millions of dollars in enlarging the Erie Canal from Albany to Buffalo—another million to connect with Lake Ontario—another for the Niagara Canal—another for the Black River Canal—two millions for the Rochester and Olean Canal—two more to complete the Chenango Canal, with a fourth of a million annually to keep the three last in navigable order, together with whatever shall be required, for the various other projects in embryo, and she will hardly be able to make any material reduction in tolls for some time to come.

Considering all the various demands that are likely to be made upon the treasury, the State will scarcely be disposed to make any farther reduction, unless absolutely required for the security of trade, which is not probable—any calculations, therefore, which are founded on such anticipated reductions, cannot, and, in an improvement of so great magnitude as the one proposed, ought not, to be relied upon. Indeed, as already stated, the tolls are now down to the constitutional limit, and cannot be farther reduced, but by an appeal to the people, and such an appeal, made under a threat of taxation, can never succeed.

The allowance proper to be made, therefore, for the cost per ton per mile upon the canal, is for transportation, exclusive of tolls, - - - 8 mills.
For tolls, - - - - - 10 mills.

Total, - - - - - 18 do.

The cost by the Erie Canal, as enlarged to the size proposed, will therefore be as follows—

Buffalo to Albany, 363 miles, canal, at 18 mills, - - \$6 54
Transshipment, at Buffalo, same as given in the document, 25

\$6 79

To present the comparison in the fairest manner, by making the two cases as nearly *parallel* as possible, I will suppose that schooners are employed from Lake Erie to Oswego, and that a transshipment takes place at Oswego; the conveyance from thence to Albany, being by canal boat, the same as from Buffalo to Albany. It is stated in the document, "that Mr. Johnson, in his report, provides for a larger vessel than can pass the locks on the Welland Canal. We presume that a link in so important a chain of navigation would not be left in the control of neighbors, who are proverbial for taking care of themselves; we, therefore, proceed on the presumption, that a canal for lake vessels will probably be required from somewhere near Buffalo or Black Rock to Lewiston, in order to perfect the scheme." To show the necessity for so much presumption, I will quote what I did say, as follows: "My views of this, (the Ontario route,) are in a great measure predicated upon the supposition of a more complete communication than now exists between Lakes Erie and Ontario. It is only by a work of this description, formed within our own bor-

ders, that the full benefit of the Ontario route can be attained," and I alluded, likewise, to the Welland Canal, and to the unfavorable circumstance "of that work being within the territory and under the control of a foreign power."

As it regards the policy and economy of opening a communication between Lakes Erie and Ontario, suited to lake vessels, and particularly schooners, and the practicability of conducting the trade of the upper lakes to Oswego, through such a channel, there can be no doubt. This fact is distinctly stated in the document under consideration, as follows: "from Buffalo to Lewiston, (alluding to the Niagara Canal,) there can be no doubt of the superiority of a navigation by schooners." The cost per ton per mile by schooners, as assumed in the document, is believed to be, for a general traffic, much too high. It is rated at 10.9 mills per ton per mile. On the Hudson River, by steam tow boats, it is given at 8 mills. In the report of the Canal Board it is stated, that "the charges by steam tow boats are higher than in sloops," and reasons are assigned for the difference. It will not be improper, therefore, to suppose that the charges on the Hudson River, by sloops or schooners, are less than 8 mills per ton per mile.

Allowing the Ontario route to be a general medium of communication, and possessing the same advantages, as it regards amount of business and competition, as exists upon the Hudson River, it is difficult to perceive why the charge for schooners, on that lake, which is given in the document at 10.9 mills, need be much greater than upon the river. The risk and insurance will, perhaps, be more on the lake; but on the other hand, there will be less delay and detention by contrary winds and calms than upon the river. This view of the subject is, however, too limited. It must be considered that the main object to be attained, is the accommodation of the trade of the upper lakes. The vessels, therefore, which deposit their cargoes at Oswego, will be freighted at the ports west of Buffalo. Say at Cleveland, Detroit, Chicago, and intermediate places. The reduction in price per ton per mile, on lengthened voyages, is very great. This principle was particularly illustrated in my report of the Ontario and Hudson Canal. The distance on the Hudson River, between New-York and Albany, is only 145 miles; from Oswego to Buffalo it is 176 miles; to Cleveland 350 miles; to Detroit 420 miles; to Chicago 1170 miles.

The total charge for transportation, as per tariff of 1834, is the same from Buffalo to any port on Lake Erie, between Erie and Detroit. The difference of distance between these places is 176 miles, the same as from Oswego to Buffalo. The total charge is, likewise, the same from Buffalo to any port on Lake Michigan, embracing a range of 300 miles, being 120 miles greater than from Oswego to Buffalo. So far, therefore, as it regards the trade of the immense region of country west of the port of Erie, there would be little impropriety in considering the total charge for transportation the same, whether the cargoes are delivered at Buffalo or Oswego, if we except the cost of passing the Niagara Canal. In the estimate above quoted, as given in the document, an allowance is made for this last item; and hence the other charge for schooner transportation, from Buffalo to Oswego, should, as it regards the trade west of Erie, have either been stricken out, or very much reduced. This is the proper view of the subject, and being of so much importance, it is rather remarkable that it should have been entirely overlooked.

Although fully justified, from the principles above stated, in omitting the charge by schooner from Buffalo to Oswego, I will rate it at 4 mills per ton per mile.† The cost for transportation by the Ontario route, will then stand thus:

Niagara Canal—9 miles, at 20 mills, -	\$0.18
Niagara river, and Lake Ontario, 166 miles, at 4 mills, -	.66
Transshipment at Oswego same as before, -	.25
Oswego to Albany, 202 miles, at 18 mills, -	3.64
	<hr/> \$4.73

From Buffalo to Albany, by the Erie Canal, as enlarged, the cost, as above found, is - 6.79

Difference in favor of the Ontario route, - \$2.06

Making the cost by the Erie route 50 per cent. greater.

Putting the tolls at 5 mills, as assumed in the document, the charge on the canal will be 13 mills instead of 18, and there will

† Since writing the preceding I have been presented with the following, from a source entitled to credit.

Recent charges from Oswego to Detroit, for salt per ton per mile	41 mills.
" " do. Lewiston, do. " "	6 "
" " Detroit to Oswego, wheat " "	9.9 "
" " Oswego to Cleveland, merchandise, including warehouse charges at Oswego, " "	114 "

The above prices include all expenses of passing the Welland Canal. I am likewise informed that the charge upon salt per ton per mile, from Oswego to Chicago, is but a fraction over 2 mills.

still be a saving on the Ontario route of 30 per cent., as follows:-

Niagara Canal, 9 miles, at 20 mills, -	\$0.18
Niagara river and Lake Ontario, 166 miles, at 4 mills, -	.66
Transshipment at Oswego same as before, -	.25
Oswego to Albany, 202 miles, at 18 mills, -	2.68
	<hr/> \$3.72

Buffalo to Albany, Erie Canal, 363 miles, at 13 mills, - \$4.72

Transshipment at Buffalo same as above, - .25

\$4.97

Difference in favor of the Ontario route, - \$1.25

If the rate per schooners on Lake Ontario is doubled, there will still be a difference of 59 cents per ton in favor of the Ontario route.*

The question as it regards navigating the canal by schooners and steamboats, it will be perceived is of little importance in the choice of routes. The advocates of the Ontario and Hudson Canal have never, as I am aware, contemplated an *exclusive* navigation either by schooners or steamboats. In this light the subject was distinctly presented in my report. They were anxious that the canal should be large enough to accommodate vessels of that class, leaving it to those engaged in transportation to find out and adopt the cheapest method.

If the communication is opened by the way of Lake Ontario, the trade from that Lake will be accommodated in connection with that from Lake Erie and the country west. This very important consideration is overlooked in the document. The importance likewise of being in a situation to avail ourselves of the contemplated improvements between Lakes Ontario and Huron, is likewise overlooked. The advantages to be derived by the interior of the State from an enlarged navigation, suited to steamboats, to be effected by the improvement of Seneca River, and extending to the Onondaga, Cayuga, and Seneca Lakes, is in like manner overlooked. Not a word is said of the great difficulty, not to say impossibility, of enlarging the Erie Canal, to the size proposed, without seriously obstructing the navigation, and nothing is said of the advantages offered by the Ontario route in obviating this difficulty, and of the benefits to be derived from the competition, that will naturally result in the transportation on the two routes. Not a word is said as to the great difference in cost, nearly three millions, which is shown to exist in favor of the Ontario route.

It is seldom that a project for a work of internal improvement, however visionary, is destitute of some redeeming features. In the present instance, not a single consideration is adduced by the authors of the document, in favor of the Ontario route. In their estimation there is every thing to condemn, and nothing to approve. That it has some favorable points, I believe I have substantially proved.

A more complete view of the subject in all its bearings, than I have been able to take, with the limited time and means at command, would perhaps exhibit it in a somewhat different light. I believe, however, that I have said enough to produce conviction of the little reliance that can safely be placed upon the opinions and statements contained in the document. The subject is one of great magnitude, and as such demands a candid and thorough investigation.

I might here close my remarks, in full confidence that I have said enough to convince the public, that the Ontario route possesses advantages, which should have entitled it to a more serious consideration than is bestowed upon it in the document of Messrs. Jervis, Hutchinson and Mills. I cannot, however, in justice to myself, avoid noticing a few of the more glaring errors, and misrepresentations, with which that "document" abounds.

On page 10th, is the following: "Mr. Johnson, after stating that experiments in navigating small canals by steam had hitherto failed, seems to think that it can be successful on large canals." By recurring to page 56 of my Report, it will be seen that I expressed myself as follows: "The experiments which have hitherto been made for navigating the *smaller* canals by steam, have invariably failed. It would seem, therefore, that if this great and growing power in the arts, can be applied at all to artificial navigation, it must be on canals of a *large* size." It will be noticed that, what is *conditionally* expressed on my part, is represented as a *positive* declaration.

* There is another view of the subject, which I have not time or space fully to illustrate. It is an important one, and I mention it because it is omitted in the document. It is that of a comparison in the cost of transportation under a reduced rate of speed from Oswego to Albany, say 2 miles per hour, with the extra cost of conveyance by steamboats upon the Lake, (should the latter be found in excess,) the greater celerity of motion upon the Lake being such as to make up for the deficiency upon the canal, thereby causing a saving perhaps in both time and expense upon the Ontario route.

In expressing my opinion on the use of steam, I was very careful not to excite any undue expectations. The portions of the canal, on which I supposed it might be used to advantage, were distinctly pointed out: they were the two level portions between Utica and Oswego, embracing a distance of nearly 70 miles, more than half of which distance is natural navigation. Notwithstanding this, it is asserted that "the phraseology was such as to leave the preference of the Engineer involved in some degree of ambiguity."

On page 54 of my Report, the average maximum rate of motion, from Oswego to Albany, is estimated at 5 $\frac{1}{2}$ miles per hour. One third, at least, of the whole distance is natural navigation, viz., through the Oneida Lake, and along Fish Creek, and Oneida and Oswego Rivers. How much more may be obtained on the Mohawk and Hudson Rivers, it is impossible to say. The greater velocity will take place on this portion, leaving the rate of motion on the remaining portion only four and a half miles per hour. This is given on the supposition that the whole distance from Buffalo to Albany, is passed under the most favorable circumstances in 62 hours, being less than the time occupied on the Erie Canal route, by 83 hours. I farther state that "this is probably a greater difference than would be proper to assume," and I add, "that if the average is taken of sail-vessels and steamboats upon the lake, with steam upon the canal, the ratio of time will not exceed one half, or at most two thirds, which the Ontario will bear to the Erie route." This would bring the velocity on the part of the route which is actually canal, between two and a half and three miles per hour. With this explanation, the amount of truth and fairness contained in the following, from the document, page 19, will be properly appreciated.

"Mr. Johnson, in making a comparison between this route and the Erie Canal, puts the velocity on the Erie Canal at two and a half miles per hour; and on the proposed steamboat canal at five and a half miles per hour. We suppose he contemplated steam power to enable him to obtain this superiority in speed, which, by the usually received principle of computation, would require nearly five times as much power as a speed of two and a half miles per hour!" and thus the matter is left without any further explanation, permitting it to be inferred that five and a half miles per hour, including lockage, was intended in the confined channel of the canal, and that five times the customary resistance is in consequence to be encountered!

On page 14 of the document is the following: "In speaking of the application of steam power to canal navigation, Mr. Johnson calls it a 'great and growing power of the arts.' This solecism is followed by the remark that the 'ingenuity of scientific and practical mechanicians, have been largely put into requisition to improve this truly noble engine of art,' and that 'the application of this power is made with great simplicity,' and 'they see no reason to believe there is well founded probability of any such improvement in its application to navigation, as will warrant a reliance in laying the foundation of a project that will cost millions,' &c.

We are here given to understand that improvements in the application of steam to navigation, have reached their ultimatum, —and that in a work which is to last for ages, no provision is necessary for any anticipated improvement. The idea is too absurd to need refutation. There never was perhaps in the history of the world, a period when the spirit of improvement was more generally abroad, and more successfully at work than at present: and in no one branch of the arts, is there a greater promise of a favorable result, than in the application of steam to navigation.

With what justice it is asserted that the project is to cost millions, &c., the preceding pages will show. Instead of causing any extra expenditure, it will save to the State an outlay at the present time of from three to three and a half millions of dollars, and afford a communication better suited to the ordinary methods of transportation.

On page 18 it is stated that "the navigation of the canal by schooners, requires the passage from one side of the canal to the other, by a pivot or drawbridges, for public roads, and for the accommodation of farms. Mr. Johnson proposes scows or floats, securely moored in basins formed out of the main range of the canal. He says, between Utica and Rome, there is upwards of 20 farm bridges. Between Utica and Little Falls, there is a fraction over 3 farm bridges per mile, for 22 miles."

The manner in which the word *upwards* is italicised, with the statement which follows, leaves it to be inferred that I had purposely underrated the number, and that there were nearer 45 than 20, the distance from Utica to Rome being 15 miles. Now there is actually in this distance but 21 farm bridges, and this fact could as easily have been ascertained by the authors of the document, as the one they presented!

The declaration that scows or floats were proposed by me as a substitute for road bridges, is wholly without foundation. In the description of the character of the canal, I stated that "farm bridges

were incompatible with the character of the navigation." The plan of scows and floats, was suggested to be used in extreme cases for farms only, where road bridges were not accessible, until "the canal should become a boundary of property." The formation of basins and bridges on the towing-path is no plan of mine, and was neither intimated or contemplated in my report; but is a creature of the imagination of the authors of the document, and is such an one as no intelligent engineer would think of adopting. The fact that scows or floats were suggested as a temporary, and not as a permanent arrangement, was clearly expressed in the report; and had the writers of the document but consulted the estimate, they would have seen that pivot bridges were provided for in every instance for the roads, and not a single item for scows or floats was presented; and that the damages for injury to farms, in consequence of intercepting the transverse communication, were all included in the item of commutation for farm bridges.

I have been more particular on this subject, as the authors of the document, in their disregard of facts, have been the means of leading the Canal Board into error, and causing them to do an act of injustice to myself.

What renders the course taken by the writers of the document still more inexcusable, is the fact that upon either plan of improvement, the system of farm bridges must, in most cases, be abandoned. Aside from any considerations of economy, the idea of bridges of that description, 80 or 90 feet long, and raised 5 or 7 feet higher than the present ones, viz. the surface of the water raised 3 or 4 feet, and 2 or 3 feet added to the height of the bridge, is preposterous.

I repeat again that the probability is, farm bridges must, in most cases, be abandoned; and it would not be surprising if, in many places, where the canal is intersected by roads, none but pivot bridges should be tolerated, and this, too, whether *schooners are allowed to pass upon it or not*.

On page 11 of the document, this assertion is made, that "Mr. Johnson proposes the towing plan on Lake Ontario." It is sufficient to say that I made no such proposition. The statement is devoid of truth, and hence all the deductions from it, (so far as they refer to myself,) possess the same character. It is unpleasant to be compelled to speak thus plainly, but a regard for truth, and my own reputation, requires it.

On the subject of the estimate of cost of the route from Utica to Oswego, no opinions are presented in the document. With sufficient facts before them to have decided whether it appeared to be ample or otherwise, they avoid meeting the subject fairly, and merely state, as a general rule, that "no great reliance can be placed upon cursory surveys." That there is truth, too much truth, in this remark, I will readily grant, but it strikes me as coming with an extremely ill grace, from the particular quarter whence it issues.

The estimate which I presented was intended to be ample, and I do not doubt that it was fully so, on the plan contemplated. There may have been omissions in some instances, and in others the prices may have been underrated, but in the great majority of cases they were intended to be sufficiently liberal to cover all deficiencies. I do not assume to be infallible. The examples which I have witnessed of the errors of others, their pretensions and failures, have led me to distrust, and consequently to scrutinize more closely my own opinions. The survey and report upon the Ontario and Hudson Canal, was accomplished at a season of the year the most unfavorable, and with very limited time and means. The great object in view was to draw the attention of the public to the most effectual means of providing for the prospective increase in trade, between the States and Territories west, and the city of New York. It was the duty of the authors of the document, called upon as they were, formally and officially, to have viewed the subject in the most enlarged and liberal manner. If the details of the plan as presented in my estimate for the Ontario route, were not as perfect as they should have been in any particular, it was their duty to propose others more consonant with their particular views.

They should have confined themselves exclusively to principles, placing the rival projects solely upon their own merits, independently of any statements or opinions which I might have advanced.

Had this course been taken, I should never have troubled myself to pen this communication.

The general character of the document of Messrs. Jervis, Hutchinson and Mills, is, I regret to say, very different from this. It is limited, illiberal, and partial in its views, and deeply fraught with error and misrepresentation. The public will be able, with the preceding explanations, to judge of its merits, and I confidently submit the subject to their decision, believing that they will properly appreciate principles and motives, and that their award will be impartial.

E. F. JOHNSON.

Utica, April, 1835.

THE HAERLEM RAILROAD COMPANY made a visit of examination on Saturday, accompanied by many members of the Senate of the State, now sitting here as a Court of Errors, and of the Corporation—together with other invited guests—to their road.

After examining the whole line of works, completed and to be completed, a handsome dinner was served to the Company and their guests, at the Prospect Hill house, which went off with great spirit.

Not having been able to avail myself of the invitation of the Company to be present on this occasion, we give, from the Gazette, the following particulars respecting the Tunnel, now constructing at the Haerlem heights.

The operations, now in progress in the Haerlem Railroad, are entrusted to the management of Mr. John Rutter, an experienced miner from Cornwall, England, as superintendent, and Mr. John Ewen, Jun. Engineer.

The tunnel commences at the southerly side of 91st-street, and terminates at the northerly side of 94th street, and will be, when completed, 844 feet in length, 24 feet wide and 21 feet high in the centre. This is by far the most extensive work of the kind in this country, and is even more so than that of the tunnel on the Liverpool and Manchester Railroad, which is only about 600 feet long, 22 feet wide, and 16 feet in height. Each end of the tunnel will be finished with a handsome stone facing, so as to give it a conspicuous and pleasing appearance. There are at present about seventy-five men employed on the tunnel and open excavations, who work in gangs of twenty-five each, eight hours at a time, both day and night. The excavation was commenced about two months since, and ninety feet have already been completed, and the whole work will be finished in about eighteen months from the time it was first undertaken. The embankment commences at 100th street and extends to 106th street. This will be a most substantial work, as the whole will be supported by slope walls of dry masonry. At the crossing of the streets there are handsome arched carriage-ways, supported by stone pillars. At the northern termination of the embankment, the bridge commences, extending from 106th to 108th streets.—This bridge will be similar to that of the one now constructing by the New Jersey Railroad Company, over the Hackensack River, and is denominated the Truss Bridge, the invention of Ithiel Town, Esq. It will be 620 feet in length, supported by two stone abutments and two piers, with a span of about 200 feet.

NEW-YORK AND ERIE RAILROAD COMPANY.—A general meeting of the Stockholders of this Institution was holden, under an invitation from the Board of Directors, at their office, on the 29th September, ultimo. The First Annual Report of the Board, setting forth a full statement of the proceedings and prospects of the Company, was read to the stockholders, and is to be published pursuant to their request. We hope to be able to present it to our readers during the coming week, accompanied with the official account of the resolutions adopted by the stockholders on accepting the report.

On the 30th of that month, the President of the Company, in pursuance of the settled policy of the Board in conducting with special regard to the public interest, the great enterprise committed to their charge, addressed the following letter to the Mayor of this city:

NEW-YORK, September 30, 1835.

To his Honor the Mayor of the City of New-York.

SIR,—The Directors of the New-York and Erie Railroad Company, think it right that the Mayor of the city of New-York should, *ex officio*, be a Director of that Company, in order that the right of inspecting their books, and of being intimately acquainted with all their transactions, in which the city of New-York must necessarily be deeply interested, should belong at all times to its Chief Magistrate.

It is not expected nor desired that the Mayor should be a Stockholder in the Company.

I remain, Sir, respectfully yours,

JAMES G. KING,

President of the N. Y. & Erie Railroad Co.

Which was answered as follows:

NEW-YORK, October 1, 1835.

SIR,—I have your letter under date of yesterday, suggesting that the Mayor of the City should be, *ex officio*, a Director of the New-York and Erie Railroad Company.

I think the making the road alluded to vastly important; that it would add greatly to the business, the wealth, and population of our city: and if it is the belief of the Directors, that the Mayor should be *ex officio* a Member of the Board, I shall assent to it; but I concur with you that he should not be a Stockholder. Respectfully your obedient servant,

CORNELIUS W. LAWRENCE.

To JAMES G. KING, Esq.

President of the N. Y. & Erie Railroad Co.

At the election which took place on the subsequent day, James G. King, Peter G. Stuyvesant, Samuel B. Ruggles, John Duer, John G. Coster, Stephen Whitney, Peter Harmony, J. Green Pearson, Pelatiah Perit, Elbert J. Anderson, Michael Burnham, James Boorman, John Rathbone, jun., William Beach Lawrence, and George Griswold, of this city; Jeremiah H. Pierson, of Rockland county, and his Honor Cornelius W. Lawrence, Mayor of the city of New-York, were unanimously elected Directors for the ensuing year. And at a meeting of said Directors, held on the 2d of October, James G. King, and Peter G. Stuyvesant were re-elected President and Vice-President.

STEAMBOAT LAUNCH.—A very fine steamboat of 700 tons, was launched yesterday, from the ship yard of Brown & Bell, about 2 o'clock.

She is called the *Massachusetts*, and belongs to the Transportation Co., of the Sound, where she is to run in connection with the Boston and Providence railroad, at the opening of the next season.

This noble vessel—built of timber heavy enough for a line-of-battle ship, yet modelled, and light to the eye, and buoyant on the water, as a cutter,—is 203 feet long on deck, with 29 feet beam. The grand saloon below is 170 feet long, and she will have accommodations for 400 persons. She will be propelled by two engines of 120 horse power each, with copper boilers—and is to be commanded by the experienced and esteemed Captain WILLIAM COMSTOCK. At her bows, the Indian Chief *Massasoit* frowns over the waters, which those who once knew and ruled, now know no more. Altogether, this is a magnificent specimen of a steamboat.

On the same spot, whence the *Massachusetts* was launched, the keel of the *Rhode Island*, a still larger boat, for the same Company, was immediately laid.

Success to such enterprise!

Enlargement of the Erie Canal.

MEETING AT ROCHESTER.—At an adjourned meeting of the citizens of Rochester, held at the Court House, on the evening of the 21st of September, ult., Gen. Jacob Gould was appointed Chairman, and E. Darwin Smith, Esq., Secretary. The committee of forty, selected at the previous meeting, to whom was referred the contemplated enlargement of the Erie Canal, presented the following memorial and resolutions, which had been reported to that committee by their sub-committee, composed of Myron Holley, Jesse Hawley, David S. Bates, Lyman B. Langworthy and Henry O'Reilly, as their report, which having been considered and adopted, was ordered to be presented to our citizens for signature, and then transmitted to the Canal Board previous to their meeting, on the 30th of October next.

The committee was also submitted to the meeting the report of the Canal Board, made to the Legislature on the 30th day of March last, and the letter of the Engineer, dated March 23, 1835, addressed to the Canal Board, as fully sustaining, in its statements, and reasoning, the enlargement of the Erie Canal, to the dimensions of eighty feet width and

eight feet depth. On consideration of these documents it was ordered that such parts of the report and the letter of the Engineer's as should be pertinent to the object of this meeting, should be republished and circulated under the direction of a committee of publication and correspondence.

MEMORIAL.

To the honorable the Canal Board of the State of New York.

The subscribers to this memorial are residents of the State near the line of the Erie canal; and many of us have long been, and still are, extensively engaged in the business of transportation upon it. We have habitually observed its effects, and shared in its influences; and suppose no private members of the community have been more incited by interest, or had better opportunities to understand all its bearings upon public and private prosperity.

We were exceedingly gratified with that enlightened regard to one of the most important subjects of their care, which led the Legislature, in May last, to provide for the enlargement of this great work. And we congratulate each other upon the wisdom, which placed the time, and mode, and measure, of such enlargement, in the almost unrestricted discretion of the Canal Board; and more especially as the law to which we refer, was passed, after due reflection and deliberation, upon your report of 30th March preceding. That able document, with the scientific and satisfactory letter appended to it, addressed to your honorable body by three of your engineers, appears to us to indicate the most obvious and efficient means of giving the happiest development to the great system of internal improvement, which this State has so long, and so profitably pursued.

With such impressions we ask leave to offer to your consideration the following resolutions and statement:

1st. Resolved, That the interests of this State require that the capacity of the Erie canal from Albany should be greatly enlarged.

2d. Resolved, That as a capacious navigable outlet to connect the trade of our large upper lakes, with the Atlantic, the extent of this enlargement should be adapted to the exigencies of a commerce greater than was ever carried on in the interior of any continent; and that it should be limited only by such dimensions as will require the least practicable power of traction, in boats carrying at least one hundred and twenty tons burthen, and in such numbers as will ultimately require double locks for their transit.

3d. Resolved, That our observations, calculations and experience, confirm us in the opinion, that such dimensions cannot be less than eighty feet width of water at the surface, with eight feet depth.

4th. Resolved, That no aqueduct, deep cut, or passage through city improvements, should be constructed on a less width of water, than is sufficient freely to float two boats of the aforesaid tonnage, abreast.

5th. Resolved, That the locks, and other improvements hereafter to be constructed on the canal, should all be adapted to the proposed scale of enlargement.

6th. Resolved, That it will become the policy of this State, as soon as it may be consistent with its constitutional charter, to complete the enlargement of her great artificial water-way; and then to provide liberally for all the ramifications from this spinal cord of her internal navigation.

7th. Resolved, That we deem the construction of the Erie Canal on its present dimensions, as a measure of economy wisely adapted to the greater work which we now contemplate; inasmuch, that if our present views had been originally entertained by judicious and practical statesmen, they would have been amply justified in giving it such minor dimensions:

1st. As a large experiment to convince the incredulous of the advantages of the work:

2. As the most useful engine which could have been devised to facilitate the ulterior construction.

8th. Resolved, That considering the natural advantages which the State of New-York possesses in her population, her wealth, her experience, her enterprise, and her reputation, to obtain and secure the trade of the Western Lakes and a portion of the valley of the Ohio, it belongs to her enlightened statesmen, to accomplish a work which will contribute so largely to the individual wealth and public

prosperity of her citizens; and merit the benedictions and gratitude of posterity.

JESSE HAWLEY,
TIMOTHY CHILDS,
ISAAC HILLS,
LYMAN B. LANGWORTHY,
JACOB GOULD,
THOMAS H. ROCHESTER,

Committee of Publication and Correspondence.

MAD RIVER AND LAKE ERIE RAILROAD.—A public celebration was had at Sandusky, on the 17th ult., on the occasion of commencing the Railroad that is to connect that fine lake port with Dayton, and thence through the Miami canal, with the Ohio at Cincinnati. General Harrison, we observe, was present, and was much complimented.

With regard to the Engineer of the work, we copy the following honorable tribute from the Sandusky Clarion:

Too much praise cannot be given to the Engineer of the company, James H. Bell, Esq., of New York, for the ability and zeal which he has manifested in the discharge of the laborious duties devolved upon him. The letting of the contracts for 35 miles of the Road on the 16th, reaching between this place and Tiffin, tested the correctness of Mr. Bell's estimates, and afforded ample proof of skill in his profession. The contracts were taken at prices considerably below the estimates, although fears had been entertained that they had been made too low. So favorable a commencement of the active operations of the company, gives strong encouragement for the future.

The *Montgomery Register* states that \$400,000 of the stock of the Montgomery Railroad was promptly subscribed in that city. After the closing of the books the scrip was sold at an advance of ten per cent.

[COMMUNICATED BY THE NEW YORK AMERICAN.]
Extract of a letter from a gentleman who has been travelling through the greater part of the State this summer.

ITHACA, September —, 1835.

"I am very much inclined to believe that, in the universal rage which has so prevailed of late among our farmers, to remove to the far west, many advantages are overlooked nearer home. I could not help thinking so, lately, when passing a few days in the town of Binghamton, in Broome county, which is certainly one of the most beautiful little towns in the State. It is situated on a plain, at the junction of the Susquehanna and Chenango rivers, and surrounded by an amphitheatre of hills. It is regularly laid out, and from appearances, must be a place of considerable business, as I counted between twenty and thirty, three story brick and stone stores, well filled with goods. There are several churches, and some handsome private residences. Many points in the neighborhood offer very beautiful views, and it has the reputation of being one of the healthiest parts of our country. The canal is rapidly progressing, which is to open a water communication all the way to New York, and the engineers of the New York and Erie Railroad Company are busily engaged, laying out their road, which is to pass near, if not through, the town. Many new buildings have been erected this summer, and more are in contemplation. The flats on the river are well cultivated, and the cleared fields are gradually encroaching on the hills, which offer the finest prospects for the raising of sheep—now the most profitable stock. The hills are generally covered with white oak, which will soon find its way to the city, in the form of staves. This part of the country, and in fact, all that part of it, generally termed the Southern tier of counties, has been kept almost in a state of nature, for the want of good avenues to market. They will now have them, and the inhabitants will turn their attention from lumbering, to the cultivation

of a soil, which, if not so rich as the lands of the far west are said to be, yet offer many great advantages to compensate the husbandman for his labor. When I was there, they were giving the hands on the canal, fourteen dollars per month and found, with the prospect of work all winter.

I believe if this part of the country were better known it would attract the attention of both emigrants and men of capital."

THE WESTERN TRADE.—The Pennsylvania Canal to Pittsburgh, and the Erie Canal from Albany to Buffalo, are rivals for the trade of Ohio.—That part of Ohio which borders on Lake Erie, and upon the Ohio Canal, which commences at Cleveland, has access to the New York market at a less cost than to that of Philadelphia, whereas the lower part of that State, which borders upon the river Ohio, finds Philadelphia its natural market. The merchants in purchasing their foreign goods study the question of freight, with a nicety of calculation almost as refined as that practised at the mint. Upon articles possessing much bulk and little value, the difference of a few cents per 100 pounds in the expenses of transportation, is of considerable importance, involving perhaps the most of their profit, and hence they give a preference to the route which leaves most money in their pockets. The tolls of the present season have been favorable to the New York Canal, and many goods have been sold this summer in Philadelphia, groceries, as well as dry goods, upon the condition that the seller would pay the freight to New York. After the completion of the canal now in progress, between Pittsburgh and the Ohio Canal, this advantage of the New York canal over ours will disappear.—Goods may be sent to Cleveland from Philadelphia as cheap as they can from New York, and we shall enjoy the advantage besides of three months navigation whilst the New York Canal is frozen up.—[Philad. Gaz.]

RAILROAD "MONOPOLIES."—The following sound and forcible remarks were made by A. Stewart, Esq. of Utica, N. Y. in the course of an address delivered before the Convention recently held at Oswego, for the purpose of furthering the great undertaking of the railroad from the Hudson to Lake Erie.

What has been done on the subject of railroads and canals in New-York, Pennsylvania and Ohio, in the last seventeen years, will exceed all that has been done by Europe from the morning of time. The sister States will be laid under lasting obligation to New-York, for her great example in the work of internal improvements, which has given new impulse to the affairs of mankind.

What better could New-York do with the vastness of her resources, than judiciously expend 100 millions of dollars in railroads and canals? Every dollar would be quadrupled in private and public benefit.

The world has been exhausted by all her resources, hitherto, in *War and Architecture*. The war-wasted resources of the world, would have made every inch of land a garden, from the regions of eternal ice to the burning line.

Our late patriotic war cost us 130 millions of money, which would have made us ten thousand miles of railroad and canal. Had this 130 millions been appropriated, it would have left my country ahead of the world.

Look at the waste of public money and human labor, in the useless architecture of the pyramids, those "piles of wonder," and "sleeping places of death," mere pride and ostentation! The proud monarchs by whom built, their names have perished from the records of human remembrance; the same labor and money would have united the Nile and Red Sea, the Persian Gulf; and saved the long and dangerous navigation around the Cape of Good Hope.

Look at the Languebec Canal—the only monument likely to rescue the memory of Louis 14th from oblivion; but what was this expenditure compared with the waste of money on building the palaces, and making the wild hills of rocks and fictitious lake at Versailles—amounting to the enormous sum of 400 millions of dollars—a sum sufficient to have brought a railroad and canal to the gate of every city and village in France, and left a direct communication between such city and village, and the Mediterranean and Atlantic.—These same palaces at Versailles are now a fright-

ful solitude; nothing is seen but an old decayed officer hobbling over the piles of sculpture and through empty palaces, to show the stranger and travellers those vacant abodes of the departed enemies of man.

The energies of the Grecian and Roman nations were squandered upon those expensive erections of marble which inflamed pride and ambition without benefiting the commerce of those nations. What would have made ten miles of canal, was expended on the polish of the columns of a heathen temple.

Look at modern Europe, covered with abbeys, castles, and the nonsense of kings, by which the power of the nation has been wasted in the pride of architecture.

The money spent on any one of the 1000 wars of Europe would have connected the Indian ocean with the Mediterranean, and the Pacific with the Atlantic by the Isthmus of Darien; and the too often disastrous navigation around Cape Horn and that of Good Hope might have been avoided, and the navigation of the globe shortened one-half.

But the modern cry which has been heard against improvements of this lovely land, is the senseless cry of Monopoly!—Monopoly!—Monopoly! A rail road is a wonderful monopoly,—in which the rich man's money is expended in making the poor man's road. Take for example the contemplated railroad from Utica to Schenectady, 80 miles; it is found that 200,000 poor persons pass over this road now, in a year, the stage fare is \$3—time is bad going 34 hours, in good 12. Contemplated price for a poor man on the railroad, \$1—to go through in four hours saves \$2 in money—but he saves his own capital—time. The Rich built the last described road, and distribute of positive benefits among the Poor (supposing 200,000 to travel over it)—no less than \$2 each, or \$400,000 among 200,000 persons. Which will divide the greatest profit, the Rich men who own the stock, or the Poor men who travel the road?

But this is not all; the rich men think it hard to spend any more than their income, and encroach upon their principal. But the poor man, when he spends a day or an hour of time in travelling, is spending, so far as time is concerned, his very capital—for his only capital is time. A railroad is an annihilator of distance, and a time saver, and therefore the poor man's friend—and when he uses it, it takes less of his capital than any other mode.—Rich men ought to be compelled to make railroads through the great thoroughfares of the land, at a just toll; as by this means the money of the rich benefits the poor man, stranger, and traveller, as much as it does the rich. The poor man gets a benefit from this monopoly every time he uses the road; the stockholder gets his dividend again in six months on the road; but the poor man gets his dividend as often as he finds it necessary to use the road. But forbid the rich to invest their money in these railroads, and they will purchase out the farmers. The 60, 75, 100, and 150 acre farmer, without any outlet for his produce, sells one after another to the rich man, who buys out 100,000 acres, and leaves no freeholder, until his plantation reaches another rich man's. Who have these rich men under them? Not the sturdy owner of the soil—but the grovelling tenant, the cattle tender, the shepherd and his minions. Then, for want of the monopolies or railroads, benefiting the whole land through which they pass, making each little freeholder's farm a garden, lovely and desirable—our farmers, without roads, sell to the rich, and his away to the rolling prairies of the far west.

The New-York American gives the amount collected for tolls on the Pennsylvania canals and railroads at \$581,000, for the fiscal year ending on the 12th of September; and adds that this sum is about one-half of the amount collected on the New-York canals for the same time. In this comparison the American must have referred to the amount of tolls collected during the present season of navigation, on the New-York canals, which amounts to something more than a million of dollars, and net to the receipts for the fiscal year. The whole sum received for tolls on the New-York canals from the 30th of Sept., 1834, to the 30th Sept. 1835, will not vary much from \$1,500,000.—[Alb. Argus.]

Nonfote, Sept. 30.—THE NEW CROP.—A bale of cotton of choice staple, being the first of the new crop that has appeared at our market, was brought in yesterday morning in a wagon from Chowan county, (N. C.) and readily sold at 19 cents,

OHIO STEAMBOATS.—We are informed on good authority that the number of boats built the present year between Louisville and Pittsburgh, including those places, will not fall short of fifty.—About 35 of these are for distant parts of the country—for the southern and westernmost States: the remaining 15 will be added to our river trade, increasing the number of boats thus employed to about 60. Supposing the amount of freight conveyed in each boat to be 40 tons down and 20 up, some opinion may be formed of the amount of merchandise transported yearly upon the Ohio.—The river may be estimated to be navigable from six to eight months in the year, and each boat to perform twelve trips from Wheeling to Louisville and back. Each boat, then, transports 12 times 40 tons down, and half this quantity up, equal to 720 tons. This, multiplied by 60, the number of boats, gives 43,200 tons as the gross amount of merchandise transported yearly in steamboats upon the Ohio.

To fix the value of this merchandise is not so easy. Yet something like accuracy may be obtained. It is said that a wagon load of dry goods, weighing 2 tons, will cost about 4,000 dollars, and that western merchants who purchase 8,000 dollars' worth receive them generally in two wagon loads. This would make a ton of dry goods worth 2,000 dollars. As grosser and heavier articles, however, are sent down the river in large quantities, the value per ton may be rated at 500 dollars. Forty times 500 give \$20,000 as the value of each cargo; this, multiplied by 12, gives 240,000 as the amount conveyed by each boat during the season; and this multiplied by 60, the number of boats, gives the sum of 14,400,000 dollars as the value of the down freight in a single year. This is independently of the merchandise conveyed in keel and flat boats, and the immense amount of lumber which almost covers the face of the river in the spring season. The value of the merchandise transported up the river may be estimated at about 1,500,000 dollars. Making the total value of merchandise transported in steamboats yearly on the Ohio, upwards of sixteen millions of dollars.—[Wheeling Gazette.]

ST. JOSEPH'S, FLORIDA.—This is a new town, recently laid out on St. Joseph's Bay; to which place the principal inhabitants of Apalachicola are about to remove, owing partly to a difficulty about their land titles in that town, which are derived from Spanish grants, but mainly to the superior natural advantages of St. Joseph's over Apalachicola. St. Joseph's is said to be the finest harbor upon the Gulf of Mexico, superior to Pensacola, there being twenty-three feet of water at the former and twenty-one only at the latter port over the bar, and the harbor is so formed that like Newport, in Rhode Island, vessels can always enter it. As nearly the whole coast of the Gulf is belted with sandbars, which present an impassable barrier to vessels of a large depth of water, St. Joseph's which is almost a solitary exception on the Florida coast cannot fail to increase rapidly in population, and in a very short time to raise into great commercial importance.—To the natural advantages of the place, the enterprising settlers carry with them capital, intelligence, and untiring industry.

The inhabitants, though yet scarcely located there, are building wharves and roads and making other improvements, and have contracted for a Railroad to Lake Wimico, six miles, which is to be finished this year.—This opens a communication with the Apalachicola river, and thus completes the communication with Columbus, Georgia.—[Boston Post.]

INDIA RUBBER FABRIC.—A discovery has been recently made by Mr. Charles Goodyear, by which India Rubber after having been dissolved, can be restored by a cheap process to its original whiteness, and the pure gum formed into a fabric to be used instead of cloth, leather, or parchment, and can be moulded into almost any form, and can also be combined in a variety of ways with cloth, cordage, or leather. Being first made white, it admits of every shade of color worked in and as durable as the rubber itself. A variety of fine specimens are now being exhibited at the Mechanics' Institute at Castle Garden, which will give an idea of the general utility of the invention. From our little experience and that of one of our friends in the use of this fabric, we are disposed to the opinion

that it is valuable, and the invention one of importance.—[Jour. Com.]

[From the Mercantile Advertiser.]

THE TOBACCO CROP.—Extract of a letter from a commercial house of the first respectability, to a house in this city, dated—

RICHMOND, October 1, 1835.

"We this morning give you information of a severe and killing frost, which, from all accounts, will greatly injure the now growing crop of tobacco. Some say one half the crop is either cut perfectly green, or bitten with the frost; but we are at all times willing to make allowances, and in this instance will put it down at one-third of the crop, to be injured by the frost, which in this market has already the effect to raise the price of the article."

Another letter from Petersburg, (Va.,) of the same date, to a gentleman in this city, says—

"Prices of tobacco of all grades have advanced, and no doubt will still go higher, as we have had a sharp frost this morning, which has killed a great deal of the crop of tobacco, and also of cotton, both being about a month later than usual."

The U. S. Branch Bank at Baltimore closed its business on Tuesday the 29th ult. at 3 o'clock, P. M.—and next morning at the usual banking hour, the Merchants' Bank had taken possession, and commenced operations. Upwards of 600,000 dollars of the capital of this Bank is already paid in, and the balance of its capital is called in, and to be paid, in instalments of one-fifth (400,000) every sixty days until the whole two millions are paid up, and thus rendered immediately available for banking purposes. By stipulation, the Merchants' Bank redeems the notes of the Baltimore Branch, and pays the sum due to the depositors of the latter. In fact, every circumstance, likely to effect public or private utility has been regarded, in the arrangement between these institutions, and so ordered therein, as to promote the general convenience, as well as the interests of the parties. As it is well remarked in a morning paper: One important feature in the constitution of the Merchants' Bank, is the establishment of an Exchange Committee which meets daily at twelve o'clock, to decide on offers of Domestic Exchange on any of the numerous places embraced in their list. There can be no doubt that the carrying out of the enlarged and liberal views entertained by the Board will render the Bank a most efficient means of facilitating the business operations of this growing community.—[Baltimore Chronicle.]

BALLOON COMMUNICATION BETWEEN LONDON AND PARIS.—We perceive that the grand aerial project which occupied so much of the attention of the Parisian quidnuncs about this time last year, is revived—with this difference only, that the scene of operation, or to speak more properly, perhaps, the starting-post, has been shifted from Paris to London. The projectors who have now taken unto themselves the style and title of the "European Aeronautical Society," announce in the newspapers that their "first aerial ship, the Eagle, 160 feet long, 50 feet high, and 40 feet wide," and which is to be (?) "manned by a crew of seventeen persons," may be inspected at a certain dock in the neighborhood of Kensington, previous to making its first trip "from London to Paris and back again;" after which it is to make similar trips to Brussels, Amsterdam, Berlin, Munich, Madrid, &c., till the practicability of establishing an aerial communication between London and the other capitals of Europe, is fully and incontrovertibly demonstrated! The scheme is, after all, only a copy, and that but an indifferent one, of a plan that was proposed as far back as 1796, by an engineer of the name of Camponas, and not only entertained by the French government,

but sanctioned by that select body of savans, the French Institute. Camponas wrote a long letter to Bonaparte, then General-in-Chief of the army of Italy, from which we extract a paragraph or two. "General Citizen.—The artist who addresses you, filled with the most lively gratitude, will erect, if the means of execution be afforded him, a vast edifice, whence, at the conclusion of his labors, there will issue an Aerial Vessel capable of carrying up with you more than 200 persons, and which may be directed to any point of the compass. I myself will be your pilot. You can thus, without any danger, hover above the fleets of enemies jealous of our happiness, and thunder against them like a new Jupiter, merely by throwing perpendicularly downwards firebrands made of a substance which will kindle only by the contact and percussion at the end of its fall, but which it will be impossible to extinguish. Or perhaps you may think it more prudent to begin at once, by forcing the British cabinet to capitulate, which you may easily do, as you will have it in your power to set fire to the city of London, or to any of the maritime towns of England. From the calculations I have made, I am convinced that with this machine you may go from Paris to London, and return back again to Paris in twenty-four hours, without descending. The object I propose is to establish in the great ocean of the atmosphere a general navigation, infinitely more certain and more advantageous than maritime navigation, which has ever disturbed the tranquillity of mankind—to restore the perfect liberty of commerce, and to give peace and happiness to all the nations of the universe, and unite them as one family. By great labor I have surmounted the multiplied obstacles which presented themselves before me; and my progressive discoveries are developed in a work which I have prepared, consisting of about 400 pages, and divided into five parts." How lucky for England that the "new Jupiter" had other things on hand, to divert his attention from this most appalling (though not more appalling than sensible) scheme of national destruction!—[London Mechanics' Magazine.]

STATE OF EDUCATION IN ENGLAND.—From a summary, prepared by Mr. Rickman, of the Returns made to the House of Commons, on the motion of the Earl of Kerry, it appears that there are 4,000,000 of persons in England, under 15 years of age, and only 1,200,000 receiving daily education. If we allow half a million for the number of persons under 2 years old, and also a similar deduction for those who at an early age receive the rudiments of education in the nursery, and those of the richer portion of the community, who receive what is termed home education, there will still remain above 2,000,000 individuals, who both for their own sakes and the sake of society should receive instruction, but who are entirely destitute of its advantages.—[London Mechanics' Magazine.]

NEW-YORK AMERICAN.

OCTOBER 3—9, 1835.

LITERARY NOTICES.

THE PICTURESQUE BEAUTIES OF THE HUDSON RIVER AND ITS VICINITY: Illustrated by a series of views from original drawings, taken expressly for this work, and engraved on steel by distinguished artists, with historical and descriptive illustrations by SAMUEL L. KNAPP, Esq.—Part 1.; New York, J. DISTURNELL.—The title page tells so amply the nature and objects of this publication, as to leave to us only the expression of an opinion as to the manner of its execution—and that we can, with a good conscience, give in terms of decided admiration. The engravings, four in number, including the vignette, are finely executed, particularly that of the harbor of New York, as seen from Bedlow's Island. The least good, is the view of Hellgate; the accompanying notices are well done, and may be read for information, we are sure, by the great majority. The type, paper, and materials of this work are really beautiful.

THE DISTRICT SCHOOL, OR NATIONAL EDUCATION; by J. ORVILLE TAYLOR—third edition, Philadelphia, CAREY, LEA & BLANCHARD.—In apprising our readers of this new edition of Mr. Orville Taylor's capital book on popular education, we are glad of the opportunity of stating, that upwards of three thousand copies of it, have previously been sold. This augurs well, as to the desire of the public to be informed, which is the first step to improvement. This third edition has been, in great part, as we learn from the preface, re-written; Two new chapters have been added—No. VII., in favor of Seminaries for teachers, and No. XIX., urging the study of natural history in our common schools—and many valuable notes have been added. The book is also now divided into paragraphs, to adapt it to the use of schools, as a reading class book.

We cannot better occupy a little more space, perhaps, than by stating that the author of this volume has, during the past summer, been on a missionary tour throughout our State, to inculcate the necessity of improving our Common Schools, and of calling attention to the advantages offered by the law of the last Legislature, authorizing the establishment of small district libraries. The result of this mission has been satisfactory. In many districts the necessary tax has been voted, and in all, where Mr. Taylor had an opportunity of stating the case, good seed, it is hoped, has been sown, of which some, it is reasonable to believe, will ripen into fruits of knowledge and virtue. While writing this paragraph, we have received the Oneida Whig, in which we find the proceedings of a large meeting, held at Utica, on this subject—and in order to show the spirit in which they were conducted, we annex the resolutions:

ONEIDA COUNTY COMMON SCHOOL CONVENTION.—At a numerous Convention of teachers and others, inhabitants of Oneida county, interested in the subject of Common School Education, held at the Academy in the city of Utica, on the 24th day of September instant, Alvan Stewart, Esq. was called to the Chair, and James Watson Williams appointed Secretary.

The Convention was briefly addressed by the Hon. Hiram Denio, and the following resolution proposed by him, was unanimously adopted:

Resolved, That universal education is an indispensable concomitant of popular institutions, and that it is the obvious dictate of patriotism, to provide that the diffusion of intelligence shall be co-extensive with the elective franchise.

The Chairman (A. Stewart, Esq.) then proposed the following resolutions, which, after some re-

marks by the mover and other gentlemen, were adopted:

Resolved, as the sense of this Convention, That we perceive great wisdom and patriotism in the act of the Legislature of this State passed at its last session, by which each school district of the State is authorized to appropriate twenty dollars for creating a school library in such district, with such further sum as may be necessary for a book case, and also to raise ten dollars annually for the increase of such library.

Resolved, That we recommend that the several school districts of Oneida county accept the provisions of the said act, and make all needful preparations to carry the same into full effect; believing that it will be a most important step towards perpetuating the liberties of the people, by the diffusion of moral intelligence, and the cultivation of the human mind.

Resolved, That our sister counties be invited to accept of the great benefits to be derived from the library law.

Resolved, as the sense of this Convention, That the late conduct of Pennsylvania, in suspending her common school system, is an alarming symptom, and cannot but in some degree impair the confidence of mankind in the perpetuity of our institutions, and it becomes the State of New York to march forward to further improvement in our common school system by legislation and otherwise.

Resolved, That we admire the noble and patriotic course pursued by the representative governments of Prussia and France, in relation to learning in general, and common education in particular; and we would commend Prussia as a model for the world, as under her system it will be found more difficult to escape education than to acquire it.

Resolved, That it is with pleasure that we commend Mr. J. Orville Taylor, the author of the "District School," to the public as a gentleman of talents, who, as his book will show, is a reformer of the abuses of the age in the common schools of our country.

Resolved, That we recommend that each school district purchase "the District School" as an interesting volume of the twenty dollar library.

Resolved, That the thanks of this Convention be presented to Cornelius W. Lawrence and Jas. G. King, trustees of the Common School Mission, and their associates, for their liberality in employing Mr. Taylor to visit the Common Schools of this State with a view to their improvement and elevation.

On motion of Dr. C. B. Coventry, it was

Resolved, That this Convention consider the appointment of agents to visit and examine into the actual condition of our Common Schools, as of vital importance, and absolutely necessary, in order to derive the greatest possible benefit from our common school fund.

Resolved, That the members of this Convention use their influence, and invite the co-operation of their fellow-citizens, to procure the appointment of such agents under the direction of the Legislature.

On motion of Mr. Williams,

Resolved, That the teachers of the several school districts in the county of Oneida, be requested to act as a committee in their several districts, for the purpose of awakening the attention of the inhabitants to the provisions of the law relating to district libraries, and forming libraries in pursuance of that law.

After expressing his thanks for the hearty co-operation he had received from his fellow-citizens of the county, Mr. Taylor asked the privilege of introducing the following resolutions, which were unanimously adopted:

Resolved, That this Convention deem it absolutely necessary as a first step to be taken for the improvement of our Common Schools, that the intelligent, prominent men of every school district give their influence, respect, and patronage to the district school.

Resolved, That this Convention believe that the character of our Common Schools is in a great measure in the hands of parents; and that it is the high duty of parents to their country, to the peace of society, and the individual happiness of their children, to adequately reward, respect and co-operate with their common school teachers.

Resolved, That this Convention, to insure the natural and necessary working of our excellent school system, most sincerely and earnestly request every commissioner, inspector and trustee, parent and teacher, to co-operate with the school act,

which is wisely intended, with such a co-operation on the part of the people, to give every child and youth in our State, that kind and degree of knowledge which our institutions demand.

In connection with this subject, we have great pleasure in referring to a book, now in the Harpers' press, under the following title:

THE CITIZEN'S MANUAL; being a Digest of the Laws of the State of New York and of the United States, which relate to crimes and their punishments, and of such other parts of the Laws of the State of New York, relating to the ordinary business of social life, as are most necessary to be generally known; with explanatory remarks: to which is prefixed an Essay on Civil Government: designed for the instruction of young persons in general, and especially for the use of schools. By ALFRED CONKLING.

Judge Conkling, who presides as District Judge of the United States, for the northern district, has prepared this volume with direct reference to schools, and with the desire of adding his contribution to the patriotic efforts now making to improve, and extend, common education. We have not had any opportunity of examining this work, but may, in all confidence, bespeak for it—from Judge Conkling's habits of investigation and pursuits—a favorable reception.

THE LINWOODS, or Sixty Years since in America. By the author of Hope Leslie, Redwood, &c. 2 vols.: N. Y. HARPER & BROTHERS.—It may, we think, be stated as one of the distinctive characters of Miss Sedgewick's writings, that they take a cheerful and encouraging view of human nature—and found their claim to attention, rather upon the triumphs of goodness and self-discipline, over the evils, infirmities, and temptations which beset us, than upon the vehement and despairing struggles of lawless passions, and wicked and perverted talent: they are, in short, the *antipodes* of the Byronian school.

They have another characteristic, too, which should be, as we dare say it is, one of the elements of their great popularity; and that is, their manifest aim and tendency to establish, that neither merit, nor success, are the creatures of fortune, or of easy circumstances—but that in every condition of life, good principles, a cheerful temper, and, above all, a perpetual guard over one's own evil dispositions, combined with perseverance, and generous aspirations, will lead to eminence.

Miss Sedgewick loves her country, its institutions, and its people—and this sentiment is felt, though rarely put forth directly, and never ostentatiously, in every thing from her pen. The little story of *Home*, to which we adverted with so much delight, not many weeks ago, is worthy of particular mention on this ground.

In the volumes now before us, the American feeling of the authoress would naturally find more full and direct expression—and it is so. There are no heroines, and no heroes, in the ordinary sense of the word—that is, grand leaders, performing incredible feats, and uttering endless protestations of love of country, and so forth—but the high and unfailing qualities of our yeomanry, when called forth by adequate occasion, for stations of responsibility or of peril—the self-sacrifices of sturdy freemen, contending for their rights, and the influence which in such scenes, woman can exercise, and does exercise, for good, are finely delineated in the story of the *Linwoods*. We do not mean to dissect its plot, nor betray its story, and will therefore, after advising our readers to get the book, give a short extract, descriptive of New England character:

"I have been pondering on the character of our New England people during my ride. The aspect of our society is quiet, and to a cursory observer, it

appears tame. We seem to have the plodding, safe, self-preserving virtues; to be industrious, frugal, provident, and cautious; but to want the enthusiasm that gives to life all its poetry and almost all its charms. But it is not so; there is a stronger under-current. Let the individual or the people be roused by a motive that approves itself to the reasoning and religious mind, a fervid energy, an all-subduing enthusiasm bursts forth, not like an accidental and transient conflagration, but operating, like the element, to great effects, and irresistibly. This enthusiasm, this central fire, is now at its height. It not only inflames the eloquence of the orator, kindles the heart of the soldier, the beacon-lights and strong defences of our land; but it lights the temple of God, and burns on the family altar. The old man throws away his crutch; the yeoman leaves the plough in the half turned furrow; and the loving, quiet matron, like you, my dear mother, lays aside her domestic anxieties, dispenses with her household comforts, and gives the God-speed to her sons to go forth and battle it for their country. The nature of the contest in which we are engaged illustrates my idea. Its sublimity is sometimes obscured by the extravagance of party zeal. We have not been goaded to resistance by oppression, nor fretted and chafed, with bits and collars, to madness; but our sages, bold with the transmitted spirit of freedom, sown at broadcast by our Pilgrim fathers, have reflected on the past and calculated the future; and coolly estimating the worth of independence and the right of self-government, are willing to hazard all in the hope of gaining all; to sacrifice themselves for the prospective good of their children. This is the dignified resolve of thinking beings, not the angry impatience of overburdened animals.

THE REPUBLIC OF LETTERS. Vols. 1 and 2, 4to.; 450 pp. each. N. Y. E. DEARBORN.—In these two volumes of the first series of the Republic of Letters, before the form was changed to the more convenient one of 8vo., may be had for four dollars and a half! what occupies from 40 to 50 volumes of ordinary size, and all approved and chosen works—the print, too, is distinct and clear, and the paper very good. It is scarcely possible, to have cheaper good literature.

A PILGRIMAGE TO THE HOLY LAND, &c. &c., by ALPHONSE DE LA MARTINE, Member of the French Academy. 2 vols. Phil.: CAREY, LEA & BLANCHARD. For sale in New-York by WILEY & LONG.—These are not volumes of travels in the ordinary sense of that word, but the vivid and poetical impressions and imaginations of a man of genius, a poet and a philosopher, wandering over the Holy Land, with a heart deeply touched by its past history, and its associations with the great incidents of our religion.

The translation is well done, and we do not err in predicting for these volumes a large circle of readers. We have no room for extracts to-day, but shall return, more than once, to their pages for gleanings for our columns.

OLD MAIDS; their varieties, characters, and conditions. New York, C. SHEPARD.—This little volume is written in an agreeable vein, and in a kindly spirit. Let the following extract avouch our words:

There is, without doubt, implanted in the breast of all women, a passionate longing—an almost irrepressible desire, for the society and companionship of man. It is an instinct woven into their moral and physical structure,—it is a passion which grows with their growth, and strengthens with their strength. It has mingled with their dreams, and formed the subject of their mid-day reveries.

The bashful maiden, whose deep fringed eyelids half conceal the liquid lustre of her hazel eyes, seats herself pensively, away from observation, perchance, in the deep recess of some gothic window, or on some grassy bank, arched overhead by the "giants of the wood," and there is a voice and a mystery around her.—This is the "spirit of Love, felt everywhere;" it finds a kindred feeling in the breast of the coy maiden; and, in luxurious meditation, she lives, in the space of one brief hour, a

life of love.—But the maiden is not alone in her solitude—her heart is filled with the image of some ideal being created by her heated fancy. It comes at her bidding, shadowy and unreal; and she steepers her soul in tenderness, and with enamored accents of delight, betrays how profound, how intense and overpowering is the desire to love and to be loved. It requires only that some congenial spirit shall approach her, and the whole torrent of her affections will be let loose upon him; one touch, or one look that stirred the chord of her feelings, would fix her destiny; any incident, however trivial, that developed a correspondent tone of sensibility in one of the opposite sex, would make him the idol of her young heart,—and yet this creature, whose very frame is love, lives and dies an Old Maid.

The passions that are coursing through her veins, may indeed re-act fearfully upon herself; her face may blanch—her eye may lose some portion of its brightness—her step may become less elastic—and tender melancholy may invest her with a double charm. But year after year rolls over her head, and finds her still "in maiden meditation." Her friends, one by one, visit the Hymeneal Altar; perhaps her own sisters, amongst whom she is "the bright, the fair one," become brides.—She rejects offer after offer, and, at length is marked out by her family as an "Old Maid," who wonder why Mr. So-and-so was rejected—"an excellent man"—"good fortune," &c. &c.—and delicately hint, that she had better "have made hay while the sun shone."

Gentle creature, thou hast preserved in all thy pristine purity, thy feminine attributes—thou hast brooded so long over the love dwelling in thy heart—that man's cold, selfish and calculating affection is utterly unworthy thy acceptance. The one who could alone have fixed thy vehement longing—has never appeared; thou art too pure, too good, too holy, for those who would have wedded thee; for thy heart would have been broken, and thou wouldst have sunk into a premature grave, when the sad truth had come upon thee—that man's tenderness, devotion and admiration, are changeable and perishable. When thou hadst left thy quiet home, and fixed thine affections so firmly, that to break the bond would have been destruction, thou wouldst have found, "that one was lost in certainty and one in joy;" and then thou wouldst have pined and withered like a beautiful exotic, removed from its own bright clime to another region, where factitious heat and unnatural stimuli are made to supply the want of the pure and invigorating rays of its native sun. The struggle has been severe; but thou hast triumphed nobly over sensual temptations—thou hast kept, in all its integrity, the "sea of love," whose turbulent heavings disturbed thy young imaginations; and it is now ready to overflow on every deserving thing that comes before thee. Thy sisters and friends smile at thy philanthropy, and sneer at thy simplicity; for their love and their singleness of purpose have either evaporated, or have assumed a direction widely apart from those golden hopes and joys which "maidens dream of, when they think of love."—These thou hast kept in all their original brightness, and now, though the frost of forty winters has pressed upon thee, thou art still a maiden—in mind and heart.

THE EDINBURGH REVIEW, for July, 1835—being No. XVIII. of Foster's re-publication.—Another of these very cheap and very valuable re-publications by Foster is here presented to us. The first paper in this number of the Edinburgh, on Sir James Mackintosh's History of the Revolution, is of the highest order. There are other very good articles in it.

RELIGIOUS ULTRAISM; A Sermon, delivered August 25th, at the installation of the Rev. JOHN H. HUNTER, as Pastor of the first Congregational church, in West Springfield, Massachusetts, by WM. B. SPRAGUE, DD. pastor of the second Presbyterian church Albany; Albany, PACKARD & VAN BENTHUSEN.—On a former occasion, we spoke of the distinguished clergyman whose sermon is now before us, as a "bold man," for venturing to speak plainly, unpopular truths. The epithet is alike applicable to this discourse, which arraigns the *ultraism* of the day, in religion and

morals, before the bar of reason and revelation and convicts it of much evil. It is no small service, in our judgment, rendered to rational piety, and humble, unostentatious moral worth, thus to strip the Pharisees of the day, of the garb of righteousness, by virtue of which they delude so many into pernicious extremes, while they disdainfully use all, who will not fall in with their rash views.

We commend this sermon to the notice of our readers.

THE TOKEN AND ATLANTIC SOUVENIR; Boston, CHAS. BOWEN; for sale in New York, by Freeman Hunt & Co.—This whole pretty annual is American—the designs, engravings, and literary matter—and it is certainly deserving of much praise, for so successful an effort, where, in the nature of things, success is so difficult.

This volume, too, is much larger in contents than heretofore, and the literary matter, is much of it, very clever. We would particularly instance "*Wealth and Fashion*," Of the Engravings, "*Beatrice*," and "*The Wreck at Sea*," please us most.

THE MAGNOLIA, for 1836, edited by HENRY W. HERBERT: New York, MONSON BANCROFT.—A new, and by far, the handsomest annual ever published in America. Its Engravings are surpassingly beautiful—its pages, typography, and binding, all that taste and luxury could desire, or supply; and its literary matter of high merit. New York has reason to be proud of such a *bijou*.

The Editor has done his part well; and as this is the first of the *Magnolias*—we hope it is only the first of a long series to come—we must not dismiss it, without a specimen of his contributions. We take the following:—

THE DEATH OF SOTO.

By the Author of "*The Brothers*."
But wind me in in a banner bright—
A banner of Castile—
And let the war drums round me roll,
The trumpets o'er me peal!
And bury me at noon of night,
When gone is the sultry gleam—
At noon of night, by torches' light,
In the Mississippi's stream.

It was the evening of a sultry day, sultry almost beyond endurance, although the season had not advanced beyond the early spring time—the sun, though shrouded from human eyes by a dense veil of moist and clammy vapor, was pouring down a flood of intolerable heat upon the pathless cane-breaks, the deep bayous—haunts of the voracious and unseemly alligator—and the forests, steaming with excess of vegetation, through which the endless river rolled its dark current. On a steep bluff, projecting into the bosom of the waters, at the confluence of some nameless tributary and the vast Mississippi, stood the dwelling of the first white man that ever trod those boundless solitudes. It was a rude and shapeless edifice of logs, hewn from the cypresses and cedars of the swamp, which lay outstretched for a thousand miles around, by "hands unused to aught of base or menial labor;" yet were there certain marks of comfort, and even of luxury, to be traced in the decorations and appliances of that log cabin; a veil of sea-green silk was drawn across the aperture which perforated the massy timbers of the wall; a heavy drapery of crimson velvet, decked with a fringe and embroidery of gold, was looped up to the two lintels, as if to admit whatever breath of air might sweep along the channel of the river. Nor were these all;—a lofty staff was pitched before the door, from which drooped, in gorgeous folds, the yellow banner, rich with the castled blazonry of Spain; and beside it a tall warrior—sheathed from head to heel in burnished armor, with gilded spur, and belted brand—stalked to and fro, as though he were on duty upon some tented plain, in his own land of chivalry and song. At a short distance in the rear might be observed a camp, if by that name might be designated a confused assemblage of huts, suited for the accommodation of five hundred men; horses were picqueted around; spears, decked with pennon and pennoncel, and all the bravery of knightly warfare, were planted before the dwellings of their owners; sen-

tinals, in gleaming mail, paced their accustomed round. But in that strange encampment, there was no mirth, no bustle—not even the low hum of converse, or the note of preparation. The soldiers glided to and fro, with humbled gait and sad demeanor; the fiery chargers drooped their proud heads to the ground, and appeared to lack sufficient animation to dash aside the swarms of venomous flies, that battered, as it seemed, upon their very life blood; the huge blood-hounds, those dread auxiliaries of Spanish warfare, of which a score or two were visible among the cabins, lay slumbering in listless indolence, or dragged themselves along, after the heels of their masters, with slouching crosts, and in attitudes widely different from the fierce activity of their usual motions. Pestilence and famine were around them, on the thick and breezeless air—in the dark waters, in the deep morass, and in the vaults of the pine forest, the seeds of death were floating—avengers of the luckless tribes, already scattered or enslaved by the iron arm of European war. Oh—how did they pine for the clear streams of Gaudalquivir, or the viney banks of Xeres, for the breezy slopes of the Apuxarras, or the snow clad summits of their native Sierras—those fated followers of the Demon Goid. How did their recollection doat upon the waving palms, the orange groves, the huertas and meads of fair Granada! In vain, in vain!—Of all those gallant hundreds, who had leaped in confidence and hope, from their proud brigantines, upon the glowing shores of Florida, glittering in polished steel, and “very gallant with silk upon silk,” who had traversed the wild country of the Appalachians, who had seen the gleam of Spanish arms, reflected from the black streams of Alabama, who had made the boundless prairies of Missouri ring with the unechoed notes of the Castilian trumpet, who had spread the terrors of the Spanish name, with all its barbarous accompaniments of havoc and slaughter, through wilds untrod before, by feet of civilized man.—Of all those gallant hundreds, but a weak and wasted moiety, was destined to reach the shores of their far fartherland, and that—not as they had fondly deemed, in the pride, the exultation, and the health of conquest, but in want, and heaviness and woe.

The arrows of the Savage, and the yet fiercer arrows of the plague, dearly repaid the injuries that they had wreaked already, on the wretched natives; dearly repaid, too, as it were, by anticipation, the wrongs that their children, and their children's children, should wreak, in long perspective on the forest-dwellers of the west.

There, in that lonely hut, there lay the proud-est spirit, the bravest heart, the mightiest intellect, the favorite comrade of Pizarro—the joint conqueror of Peru!—There lay Hernando de Soto; his fiery energies, even more than the hot fever, wearing away his mortal frame; his massive brow clogged with the black sweat of death; his eye that had flashed the more brilliantly, the deadlier was the peril—dim and filmy; his high heart sick—sick and fearful, not for himself, but for his followers; his hopes of conquest, fame, dominion, gone like the leaves of autumn! There he lay, miserably perishing by inches, the discoverer of a world—a world, never destined to bless or him or his posterity, with its redundant riches.

Beside his pallet-bed was assembled a group of men, the least renowned of whom might well have led a royal army to the battle for a crown. But their frames were gaunt and emaciated, their cheeks furrowed with the lines of care and agony, both of the mind and body; their eyes wet with the scenes of bitterness. The dark cowed priests had administered the last rites of religion to the dying warrior, and now watched, in breathless silence, the parting of his spirit. An Indian maiden, of rare symmetry, and loveliness that would have been deemed exquisite in the brightest halls of old Castile, leaned over his pillow, wiping the cold dew from the conqueror's brow, with her long jetty locks, and fanning off the myriads of voracious insects, that thronged the tainted air! There was not a sound in the crowded chamber, save the heavy sob like breathings of the dying man, and the occasional whinnings of a tall hound, the noblest of his race, which sat erect, gazing with almost human intelligence upon the pallid features of his lord.

Suddenly a light draught of air was perceptible, the silken veil fluttered inwards, and a heavy rustling sound was audible from without. As the huge folds of the banner swayed in the rising breeze, a sensible coolness pervaded the heated chamber, and reached the languid brow of De Soto,

who had lain for the last half hour in seeming lethargy. Heavily, and with a painful expression, he raised himself upon his elbow.

“Moscoso,” he said, “Moscoso, art thou near me?—my eyes wax dim, and it will soon be over. Art thou, for I would speak with thee?”

“Noble De Soto, I am beside thee,” he replied, “say on: I hear and mark thee!”

“Give me thy hand!” Then, as he received it, he raised it slowly on high, and continued in clear and unflinching tones, though evidently with an effort.—“True, friend and follower, by this right hand, that has so often fought beside by own; by this right hand, I do adjure thee, to observe and to obey these my last mandates.”

“Shall I swear it?” cried the stern warrior, whom he addressed in a tone and voice rendered thick and husky by the violence of his excitement.—“Shall I swear it?”

“Swear not, Moscoso!—leave oaths to paltry burghers, and to cringing vassals—but pledge me the unblemished honor of a Castilian noble—so shall I die in peace!”

“By the unblemished honor of a Castilian noble—as I am a born hidalgo, and a belted knight, I promise thee in spirit and in truth, in deed, and word, and thought, to do thy bidding!”

“Then, by this token,” and he drew a massive ring from his own wasted hand, and placed it on the finger of Moscoso, “then, by this token, do I name thee my successor—thou, the leader of the host, and Captain General of Spain! Sound trumpets—heralds make proclamation!” A moment or two elapsed, and the wild flourish of the trumpets was heard without, and the sonorous voice of the heralds making proclamation; they ceased; but there was no shout of triumph, or applause.

“Ha, by St. Jago!” cried the dying chief, “Ha, by St. Jago, but this must not be; ’tis ominous and evil! Go forth, then Jaseo, and bid them sound again, and let my people shout for this, their loyal leader.”

It was done, and a gleam of triumphant satisfaction shot across his hollow features. He spoke again, but it was with a feeble voice.

“I am going,” he said, “I am going, whence there is no return! Now mark me,—by your plighted word, I do command you; battle no farther—strive with the fates no farther—for the fates are adverse! Conquer not thou this region—for I have conquered it, and it is mine! mine, mine, though dying!—Mine it shall be, though dead!—March to the coast as best ye may, build ye such vessels as may bear ye from the main, and save this remnant of my people! Wilt thou do this—as thou hast pledged thyself to do it, noble Moscoso?”

“By all my hopes, I will!”

“Me, then, me shall ye bury thus! Not with lamentations, not with womanish tears, not with vile sorrow, but with the rejoicing anthem, with the blare of the trumpet, and the strong music of the drum! Ye shall sheathe me in my mail, with my helmet on my head, and my spur on my heel!—With my sword in my hand, shall ye bury me—and with a banner of Castile for my shroud! In the depths of the river—of my river—shall ye bury me! with lighted torch and volleyed musketry, at the mid hour of night! For am I not a conqueror—a conqueror of a world—a conqueror with none to brave my arm, or to gainsay my bidding? Where, where is the man, savage or civilized—Christian or heathen—Indian or Spaniard, who hath defied Hernan de Soto, and not perished from the earth? Death is upon me—death from the Lord of earth and heaven! To Him I do submit me—but to mortal, never!”

Even as he spoke, a warder entered the low doorway, and whispered a brief message to Moscoso.—Slight as was the sounds, and dim as hanged the senses of De Soto, he marked the entrance of the soldier, and eagerly enquired the purport of the news!

“A messenger,” was the reply, “an Indian runner, from the Natchez.”

“Admit him—he bears submission—admit him, so shall I die with triumph in my heart.”

The Indian entered—a man of stern features, and of well nigh giant stature. His head, shaven to the chivalrous scalp-lock, was decked with the plumes of the war-eagle, mingled with the feathers of a gayer hue,—his throat was circled by a neck-lace, strung from the claws of the grizzly bear and cougar, fearfully mixed with tufts of human hair—his lineaments were covered with the black war-paint,—in one hand he bore the crimson war-pipe,

and in the other the well known emblem of Indian hostility, a bundle of shafts bound in the skin of the rattlesnake. With a noiseless step, he crossed the chamber, he flung the deadly gift upon the death-bed of De Soto—he raised the red pipe to his lips—he puffed the smoke—and then, in the wild accents of his native tongue, bore to the Spaniards the defiance of his tribe, concluding his speech with the oft heard and forgotten cadences of the war-hoop!

As the dying leader caught the raised tone of the Indian's words, his eye had lightened, and his brow contracted into a writhing form! He knew the import of his speech, by the modulations of his voice, his lips quivered—his chest heaved—his hands clutched the thin coverlid, as though they were grappling to the lance or rapier. The wild notes of the war-hoop rang through his ears—and in death, in death itself, the ruling passion was prevalent—manifestly—terribly prevalent!

He sprang to his feet—his form dilating, and his features flushing with all the energy of life. “St. Jago,” he shouted, “for Spain! for Spain!—Soto and victory,” and with an impotent effort to strike, he fell flat upon his face, at the feet of the Indian who had provoked his dying indignation!

They raised him—but a flood of gore had gushed from eyes, mouth, ears—he had burst some one of the larger vessels—and was already lifeless ere he struck the ground!

The sun had even now sunk below the horizon, and ere the preparations for his funeral had been completed, it was already midnight. Five hundred torches of the resinous pine tree flashed with their crimson reflections on the turbid water, as the barks glided over its surface, bearing the warrior to his last home.

A train of cowed priests, with pix, and crucifix, and vaulting censor, floated in the van, making the steaming woods to echo the high notes of the Te Deum—chanting in lieu of the mournful Miserere over the mortal part of that ill-fated warrior.

But as the canoe came onward in which the corpse was placed—seated erect, as he had ordered it, with the good sword in the dead hand, the polished helmet glancing above the sunken features, and the gay banner of Castile floating like a mantle from the shoulders—the pealing notes of the trumpet, and the roll of the battle-drum, and the Spanish war-cry—“St. Jago for De Soto and for Spain!”—and the crash of the volleying aquebuses might be heard, startling the wild beasts, and the wilder Indians, of the forest, for leagues around.

There was a deep pause—a deep, deep pause—a sullen splash—and every torch was extinguished. “The discoverer of the Mississippi slept beneath the waters. He had crossed a large part of the Continent in search of gold, and found nothing so remarkable as his burial place.”

THE NORTH AMERICAN REVIEW has, as we learn, passed into the hands of Prof. Palfrey. It cannot fail, under such guidance, at least, to maintain its well earned reputation, and its truly national character.

We are afraid that, both in respect of this Review, and of the *American Quarterly*, New York hardly does its duty. They both deserve support, as periodicals creditable to our literature—and this city, so lavish of expenditure in other matters, should not be niggard in their support.

From a paper in the last *American Quarterly*, on *National Defence*.

The consideration of the militia force, and of the means of giving it efficiency, without obstructing the recruiting service of the regular army, comes next to be considered. Nor is it of secondary importance, when we have regard only to its own influence upon the defence of our country.

It has been the opinion of officers who have seen service in all parts of the globe, that the mass of the people of the United States furnishes the finest material for a military force, which exists in any part of the world. Yet, as our militia is at present constituted, it has been reasonably doubted, whether its employment upon emergencies has been pre-emptive of most good or evil to the military character of our country. The same description of force, which fled at North Point without seeing an enemy; which broke at Plattsburgh upon the first fire; which refused to cross at Queenstown to complete a victory already gained; manned the

weak lines at New Orleans, from which a superior regular force retired completely beaten; and foiled at Plattsburgh, the veterans of the Peninsular wars. It is therefore certain that no reliance can be placed upon the effects a militia force, as at present organized, will produce; for by circumstances not to be predicted, it may either achieve victory, or ensure defeat. This must always be the case, so long as citizens are called on sudden emergencies from their homes, to act as soldiers, and are retained no longer in service than is sufficient to give them a distaste for the profession of arms, without instilling either habits of discipline, or a knowledge of military evolutions. In addition, the demoralizing influence of a succession of calls, which may reach a whole population, is not to be disregarded; for if the moral character of the debased may be raised by the influence of military honor, and curbed by the regularity of military discipline, it is no less true, that a partial acquaintance with the profession of arms, incapacitates for steady civil industry.

The calls for the militia, then, should be of such a nature, that the subject of them must know, that his civil occupations are to be at an end, at any rate, for a term of years, and that his own comforts will be promoted by his acquiring a knowledge of his new business, and at the same time abstaining from the vices which have sometimes been considered the reproach of the life of a camp, but which have never failed to influence a draughted militia.

It is to a military force alone, drawn from all classes of citizens indiscriminately, and officered by the authority of the States, although acting under the call of the general government, that the defence of the country can be safely intrusted. Two ways have witnessed at their close, regular armies dismissed, in the one place without pay, in the other almost with disgrace, and it is not in the nature of things that such events can be repeated without danger. It is calculating too much upon human virtue, to hope that on any future occasion, a large and perhaps successful regular army, shall not be at the beck of its commander, to do whatever he may dictate; nor can it be hoped that if in preponderating force, they will assent to be disbanded, when the purpose for which they are raised is fulfilled. It is far otherwise with a militia force.—However powerfully they may be attached to their standards by patriotism or discipline, a return to their firesides will be a reward instead of a punishment, and the news of a peace will be hailed by such a force with joy, when to regulars it will convey the unwelcome intelligence of their occupation being gone.

That the patriotism of the people of the United States will induce them to bear the fatigues and dangers of military service without a murmur, was fully proved during the late war, in which no small portion of the population was actually called into service. But it is no more than just to such a population, that such a service should be rendered as little onerous as possible, by confining it to the least number of individuals. This can only be done by deciding upon an organization in time of peace, by which the persons to be called upon in case of war, shall be pointed out, and the manner of designating them, and fixing the order of rotation, rendered precise and definite.

The largest call yet made upon the militia, was for 100,000 men, and this may be safely taken as the maximum that can ever be demanded in any future war. In fact the means of concentration at any given point, by the improved modes of conveyance, are so much greater than they formerly were, that a much less force would be needed than was necessary on former occasions. A force of this amount ought to be at once called for by law, although in a time of profound peace, by draughts from militia of all classes and ages, as at present organized; it might be formed into 102 battalions of infantry, organized into 17 brigades. Each battalion should be composed of eight companies or platoons of 32 files, and would make with officers, 800 men. To the 17 brigades should be attached 34 companies of artillery, and as many squadrons of cavalry. The force at first drawn, should be divided according to their ages, into six classes, one of which should be discharged annually. The place of this class, and of all vacancies by death or removal, should be supplied by annual draughts from all citizens between the ages of 20 and 26. The draughts thus constituted should be assembled in the largest body that the nature of the population would admit of, as many times in the year as the militia of the several states is now usually called

ed out, but separate from those not designated by lot, and under the command of the officers designated from the general body for the purpose. For non-attendance at such parades, no other penalty than a pecuniary fine should be imposed. An option should, however, be left to the several States to substitute in whole or in part for draughts from the militia, volunteer corps having a term of service of six years, provided they be officered, and organized in conformity with the war establishment of the United States; say, in battalions of eight platoons, each of thirty-two files, but with the privilege that no more than two-thirds of the number, making a formation of two in depth, should be required to be present, except when called into active service and put upon pay. The laws of the several States give privileges to volunteer corps enrolled for a term shorter than that of the usual military liability, and who equip and arm themselves, which would ensure the creation of an efficient force of this sort, if put under some one general regulation. But such general and uniform regulation is necessary, if we wish to do away the ridicule which is beginning to attach itself to our citizen soldiers. This ridicule, we are sorry to say, is not unmerited, and it cannot be denied that those who have seen service in our trained bands, are far less fitted to make good troops than if they had never donned a uniform. All this reproach may, however, be done away, by making the volunteer battalions permanent, discharging and receiving equal numbers annually, and conferring the privileges due to voluntary service, only upon those who perform it in a corps designated by the State government, in lieu of a drafted militia, as ready to be called at any moment into the general service.—To the sense of pride which our volunteers have exhibited, however mis-directed on most occasions, may be safely committed the care of providing instruction in manoeuvres and tactics. It is otherwise with those called out by draught. To give these a chance of being speedily rendered efficient when embodied for service, their non-commissioned officers, to the number of fifty-six to each battalion, ought to be kept in pay, and in constant service. These would form a company, which should be commanded by the adjutant of the battalion, who should also be in constant service, and by three other officers of the battalion serving in monthly rotation. In this way a school for military knowledge would be formed for each portion of the militia, by which a knowledge of the duties both of soldier and officer, would be communicated. The expense of such arrangement would indeed nearly equal that of our present military force, but as it would ensure the action of a well appointed army of 100,000 men upon any emergency, it would be more than defrayed for whole years, by the saving which would ensue in a few weeks of war. It would, moreover, furnish a mode of distributing surplus revenues among the States, to which no pretended or actual constitutional objection could apply.

In case of any alarm of war, the whole or any required part of the battalions, might be at once embodied and called into service; first the men whose term of service had not extended to four years, and in case of evasion, the whole. A call of this sort to the extent of twenty-four battalions, would at once set free the whole of the regular force, from the duty of garrisons, and to this the militia battalions ought of course to be devoted until time had been afforded to mature their discipline.

If, upon a call for the active service of the militia, substitutes were accepted, not, however, to enter into the militia, but to be embodied in the regular army, and to serve for the war, a large accession would be at once made to the regular force; and as the demands for substitutes in the militia, and for recruits, would no longer conflict with each other, the filling up of the regular army to the war establishment, might be almost insured by calling the draughted militia into service. The pay, too, of the forced levies of militia, ought not to equal that of the enlisted army, and thus there would be many who would prefer to pass from the militia ranks to those of the standing force.

For an illustration of this part of our subject, we may refer to the histories of the war of the revolution, and of the more recent contest with England. In both of these, it became necessary to embody large draughts from the militia; the consequence was, that the demand for substitutes almost wholly impeded the regular recruiting service, or enhanced the bounties on enlistments to a bur-

themsome extent; and finally the supply of the regular force depended almost wholly upon those persons who, draughted themselves into the embodied militia, could not be accepted as substitutes, but preferred to take the bounty for joining the regular army, to serving without it. It would be impolitic not to accept substitutes, as those who obtain exemption in this way are generally of habits of life which would make them but poor soldiers; and it is still more impolitic to admit such substitutes into the embodied militia itself, and thus cut off the source whence the regular army might be supplied.

[From the Portsmouth Journal.]

LECTURE ON PRINTING.

Delivered before the Portsmouth Lyceum, by C. W. Brewster.

The periodical Press—Extensive Printing Establishments—Influence of the Press in increasing Knowledge and advocating the Interests of Mankind.

The first Newspaper published at regular intervals was issued monthly at Venice, in Italy, about 250 years since. It was called the *Gazetta*—signifying a little treasury of news. The number of copies issued of this paper must have been very limited—for the jealousy of the Venetian government would not allow of the circulation of a printed sheet, so that the *Gazetta* continued to be distributed in Manuscript for more than thirty years. Files of this paper are now extant.

In the whole Chinese empire, although Printing has been so long practised there, but one regular newspaper is published at the present time. It is a sort of court Journal, issued at Peking, and called *Kingpaou*, or the Messenger of the Capital.

The Press had been in operation in England nearly a century before a regular periodical was published. In Nov. 1665, the *London Gazette* was issued weekly, and has been published to the present time.

The first newspaper in the British American Colonies, the *Boston News-Letter*, was commenced in 1704. The *Boston Gazette* was commenced in 1719—and the third paper in the Colonies was commenced the same year in Philadelphia, entitled the *American Weekly Mercury*. The first paper in New York was established in 1725—in Maryland in 1728—Rhode Island and South Carolina in 1733—Virginia in 1736—Connecticut and North Carolina in 1755—New Hampshire in 1756—Delaware in 1761—and in Georgia in 1763.

In 1775, there had been 78 different newspapers printed, 39 of which had been discontinued previous to that time—so that at the commencement of the Revolution there were but 39 papers printed in the U. States—and of the number then printed but eight establishments are now in existence.

In 1810 the whole number of newspapers was three hundred and fifty. There are now about one thousand two hundred newspaper establishments in the United States—of which are issued, at a moderate calculation, 100,000,000 printed sheets annually—which, if in one continuous sheet, would reach four times from pole to pole—and if embodied in a book form, would be equal to issuing six volumes as large as the Bible every minute in the year!

The advancement in newspapers has not only been in numbers but in size. The largest paper published about fifty years since, were of the demi size. In about twenty years, some had increased to the super-royal. Within a few years some have grown to the elephant size—and last month a New York publisher presented the public with a full grown mammoth.

We cannot better illustrate one of the causes of the rapid advancement which has been made within a few years in the various branches of morals, than by drawing aside the curtain and disclosing what the Press is doing in one branch—that of Temperance. We shall look only in one office, that of the *Temperance Recorder*, in Albany.—Sixty workmen are there constantly employed—six presses are kept in operation by steam, and six by hand power. Those are in constant operation, and every working minute of the year are throwing out twenty copies of some Temperance publication—each one intended to go forth and do its work in the public renovation. It is not surprising that any hydra, either in the moral or political world, upon which the press can be brought to bear is more easily vanquished now than in former times—for the sixty printers employed in the office to which we have just referred, exert a greater influ-

ence on the public mind, than sixty thousand scribes with their greatest industry, possibly could have exerted 500 years since.

The office of the Harpers, in New York, gives employment to 140 persons. They print on an average an edition of books of the Family Library size, every day in the year. Their expenses are about three hundred dollars per day.

We do not speak of this establishment as standing forth above every other: we do not know but more extensive ones are in operation in our country. At Brattleborough, in our sister state of Vermont, is one which is deserving notice. The printing establishment of Messrs. Fessenden, keeps in operation seven or eight power presses, printing not far from twenty thousand sheets of paper per day. Connected with the establishment is a paper mill at one end, and a book-bindery at the other, so that (like the chrysalis-changing of a vile caterpillar to a beautiful butterfly,) what enters at one end—the cast-off covering of the human body, is by a regular and rapid process brought out at the other extremity, beautiful paper finely printed and bound—a material for a permanent dress of the immortal mind. So rapid is the process by which paper can be made by the power of steam, that rags have been received at that mill in the morning, manufactured into paper and printed before night! The Comprehensive Commentary is now printing at that establishment. When it is completed, it will have consumed fifteen thousand reams of paper.—Think not that the woollen or the cotton manufacturers are the only ones for whose benefit sheep are raised, or cotton imported; for this one work will use up the amount of a thousand bales of cotton in paper—and will require the skins of sixty thousand sheep for its binding!

The most extensive Printing establishment in England at the present time, is that of the 'Society for the Diffusion of Useful Knowledge.' It gives regular employment to thirty-six type foundrymen, seven men damping paper, and 160 compositors.—Besides 15 common presses, two steam engines are employed in driving 18 printing machines, which can throw off from 700 to 1000 impressions each, per hour. There are in the establishment about one thousand works in stereotype, among which are 75 different sets of plates for the Bible. The first cost of these plates was not far from \$1,500,000. The average quantity of paper printed amounts weekly to 2000 reams—equal to half the quantity used in all the twelve hundred newspaper establishments in the United States!

We shall only advert to one more extensive establishment, which is probably the largest in the world, it is the *Royal Printing House at Paris*. It contains a sufficient quantity of types to have standing at the same time 125,000 octavo pages, or 500 volumes of 250 pages each. It consumes about the same quantity of paper annually as the London establishment, and gives employment to three hundred and fifty persons.

Our own country as yet has not made that advancement in the accumulation of books which has been made in the seat of literature in Europe.—The thirty-one largest libraries in the United States contain together only 250,000 volumes, while the same number of libraries in Germany contain 3,300,000! Look at these vast assemblages for a moment—the growth of four hundred years only! If they continue to increase at the same ratio, to grasp their contents, the age of man will again have to be extended to the antediluvian length, and perhaps after all be drowned in a second deluge from the portentous clouds of literature! We have, however, but little to fear. Literature, like trade, will regulate itself. The wheat will be sifted out, and the chaff thrown to the winds.

As it is only by the deprivation of blessings that we are enabled to estimate their worth, let us for a moment contemplate the extinction of the Press at this time, in our land and throughout the world. Yes—upon the flood gates of Vandalism, and with the press and types let every printed work be swept to destruction—but not with them the recollection that they ever existed. Let nothing be found for the reading world but such manuscripts as may be purchased of the scribes, or copied by our hands. Although the arts generally might be practised in perfection, the earth bring forth her fruits in abundance, the blessings of life be richly bestowed—yet the Press silent—we can hardly imagine a greater blank! How many among us would be found able, if willing, to pay five hundred dollars for a Bible—or one hundred

for a common octavo—or a ten dollar bill for a school manual! A ten dollar bill? No, we had forgotten ourselves—without the aid of printing, we should have had no bills or banks either! The lawyer would be compelled to study the public laws from the manuscript records of Legislature, or spend the income of years to obtain a copy—not for his library (for none but a prince would presume upon such an extravagance)—but for his strong box, to be watched over and preserved like the miser's gold. Or perhaps when he enters the courts of justice, we should see in his fringed garments, as in Jewish days, the mementos of his legal knowledge. The Divine, instead of having a thousand volumes within his reach for reference, would be far more fortunate than many of his brethren, if the only work he possessed was a whole bible. The physician, deprived of the knowledge he now derives from the world of skillful practitioners of other times, must rely on the oral instructions of his teacher, and make up the rest of his knowledge from his own personal observation and experience. Whatever discoveries he makes in the healing art, will be sure to be his own: for however benevolent his intentions may be, he can find no press to diffuse his discoveries abroad. If a quack invents some pill, which will, as usual, cure every malady, he must be content with taking it himself, if he will venture to, as he will have no opportunity of sending it, like Samson's foxes, scattering fire brands through the land.

With the channels of knowledge closed, men would rapidly verge back to the ignorance of former times. Aristocracy would extend her coveting and domineering hand to the stores of knowledge, and rejoice in being able to keep others in ignorance. Without the press, there would be nothing like the general conveyance of intelligence from one state to another, or from town to town—it could only be from individual to individual. But why talk of State? The system of our government, over so vast an extent of territory, could not be maintained, and the name of State, in its present relations, would soon be heard no more among us. The chain which binds our Union together would be broken—for we are literally bound together by the Press, and the chains strengthened by the jars of opposing parties in politics, produced by its influence:—without this lightening of the cords, our nation might fall into a state of apathy dangerous to its liberties. Without the Press, there could not be a republican system of government maintained over so extensive a territory as the United States—ignorance must unavoidably exist without its enlightening influence—the laws of each State could not be generally understood in other and distant States—jealousies would be continually rising up—acts of violence, and civil war. No!—without the Press, the Republic could not exist;—a Monarch, with standing armies, to keep his ignorant and servile subjects, in awe, is the most we could expect without this bulwark of our liberties.

Due credit has never been given to the Press for the part it performed in the brilliant achievement of our National Independence. It was on the Press that the oppression of the Stamp Act was brought directly to heart: scarcely a newspaper could be found, among the thirty-nine which were then published, which would either willingly or forcibly submit to the imposition of so unjust a tax. The same degree of oppression might have been exercised upon other branches of the Arts, not less sensible of injury, but without the means of arousing the public to a sense of their wrongs, and been meekly borne—but the Stamp Act was bearding the lion in his den! Indignant, he came forth, and shaking his shaggy mane, his roar resounded through the forest, and sympathy for the aggrieved was echoed from every quarter! It can with confidence be said that the newspapers at that time, dressed in mourning, and the place for the British stamp supplied by a Death's Head—distributed generally among the people—did as much in preparing their minds for the Revolution, as a Lafayette, or even a Washington, afterwards did in accomplishing it. Archimedes, in vain glory, boasted that if he had a spot on which to place a fulcrum, he could move the earth! What the ancient son of science proposed in sport to do to the material universe, is now fast doing to the political, scientific, and moral world. A fulcrum has been found!—based on the sunbeams, already has half the world been elevated by its agency—and ere another century, should its influence continue to extend in the ratio of the last twenty years, wisdom will run to

and fro throughout the earth—knowledge will everywhere be increased—and the ennobling principle of Liberty and Equality will be every where inculcated.

If it be true that "Knowledge is Power," it requires no extra keenness of vision to discern this fulcrum in THE PRESS.

LATER FROM EUROPE.—By the packet *Sully*, from Havre, we have Paris papers of 1st Sept. and Havre of the 2d, with London dates of the 29th Aug., three days later than before received from the latter place.

There have been troubles in Madrid, of which some particulars have been heretofore given. Tranquility was, however, restored.

In England all eyes are intent upon the breach which now seems inevitable between the Lords and Commons.

In the sitting of the House of Lords on the 27th Lord Melbourne moved the rejection of some of the most significant amendments made to the Corporation bill, particularly that respecting the pecuniary qualifications for eligibility, and that which vested in Aldermen their seats for life. Lords Ellenborough, Haddington, and Lyndhurst, opposed the motion, which was *lost*—89 for it, 160 against it. Lord Melbourne then said, he could not anticipate the assent of the Commons to any of the amendments; and Lord Brougham, in a speech frequently interrupted, spoke of the inevitable rejection of the life clause, which he characterized as odious and fatal.

The bill, with its amendments, was sent down to the Commons on the 28th, but would not be discussed there before the 31st, as it was necessary to reprint it with the Lord's amendments.

Many petitions have already been presented to the Commons, urging them not to give way to the Lords. When the bill from the House of Lords was announced, and the word *amendments* was uttered, loud laughter burst forth from the majority, and the Chancellor of the Exchequer said, "It will be expedient, I think, to postpone the discussion till the bill and amendments are printed, which, cannot well be before Monday. It is impossible to proceed with too much caution in the Municipal Corporation's Bill, for it is the most important measure submitted to Parliament since the Reform Bill. In assenting to the delay which I propose, the House will have time to prepare itself for a calm, firm, but resolute decision on the amendments proposed by the other House." (Loud cheering.)

The Duke of Nemours is in London, and was received with much distinction. The rumor that he intended a visit to the young Queen of Portugal, is contradicted.

Paris seems quiet enough, and little is said in the papers of *Fieschi*, whose accomplices, if he had any, are not yet discovered. A *M. Pepin*, an Ex-Captain of the National Guard, had been arrested on suspicion of having had some connection with *Fieschi*, but had escaped after his arrest. His is the thirty-second instance, says a Paris paper, of the escape of prisoners from arrest. *M. Pepin* subsequently wrote to the House of Peers to say he would surrender himself whenever the period for his trial arrived.

In consequence *M. Gisquet*, Prefet of Police, "tired," says the Havre paper of the 1st Sept., "of seeing prisoners, committed to his charge escape, escaped this morning himself. After a stormy conference with *M. Thiers* he returned home, ordered his carriage, and went off full speed to the country."

Armand Carrel is named as a Candidate, at *Toulon*, for the seat in the Chamber of Deputies vacated by the late *M. de Montalivet*.

cated by *M. Bastide d'Isard*. *M. Thiers* was exerting all his influence to defeat *M. C.*'s election.

The Cholera had raged with violence at Algiers. Letters of the 22d August, however, state, that "thanks to the precautions of the medical facilities, the ravages of the Cholera have been less than was feared. From the 10th, the first day of its breaking out, to the 20th August, the number of deaths, civil and military, does not exceed 638.

In the House of Commons, on the 29th, the Chancellor of the Exchequer brought in a bill, which was read once, for the relief of the *Irish Clergy*. This is a provisional bill, to meet the contingency of the possible loss, between the two houses, of the *Irish Church Bill*, in which case the *Irish Clergy* would be left without revenue.

LONDON, 29th Aug.—City 4 o'clock.—Consols for accounts opened at 89 7-8, and closed about the same. They were firm during the whole day.

PARIS, 29th Aug.—The Chamber of Deputies yesterday closed the discussion on the law of the press, and adopted it with almost all the amendments proposed by the Committee. The vote was, for the law 226, against it 153. The security required to be paid in advance, by a daily paper in Paris, was fixed, on the proposition of *Firmin Didot*, at 100,000f. [\$20,000.]

BERLIN, 22d Aug.—Letters from Dantzick state that the garrison of that place turned out on the 17th, at day break, to be reviewed by the Emperor of Russia, who was accompanied at the review by the Prince Royal of Prussia.

Extract of a letter to the Editor, from Havre, dated Sept. 1, received by the Sully:

This is the season when those in the cotton trade should give orders to purchase on your side the water. But we know not what to be at. The article by the last advices was too high to leave any hope of profit here. Our prices have fallen lately, but are still nominally too high to give profit to the manufacturer. Sales now made are on a small scale. The planter is making too much money; there is little chance left for the dealers. The number of ships ordered to Liverpool, which were destined for this port, has depressed that market also. We pause, too, on another account: the twenty-five millions—how, and when, is it to be settled? We can get no satisfactory account of what has been done to put this affair at rest. It is not probable your Government will explain, further than it has done, by approving and publishing the approval of Mr. Livingston's conduct. But it would appear that Mr. Livingston has displeased more than Gen. Jackson in his message; the pique is against him.

I must refer you to the papers for news on Spanish affairs.

FROM RIO DE JANEIRO.—Capt. Chase, of the ship *Mary*, has politely favored us with a file of the *Jornal do Comercio* to the 21st of August. They contain very little news of importance, the columns being chiefly filled with reports of the debates in the general legislative assembly, the principal topics of discussion being a project for the substitution of paper money for the immense quantity of copper now in use, and a series of measures rendered necessary by the recent occurrences at Para.

Some particulars are given of another attempted negro insurrection at Bahia on the 22d of July, a vague notice of which we had previously received, via Buenos Ayres. The insurrection was quelled, after a short time, but the inhabitants were left in a state of great alarm and uneasiness.

The intelligence from Para is not so late as before received.

A general amnesty for political offences, passed on the 19th of June, for the provinces of Minas Geraes and Rio de Janeiro, was extended on the 17th of Aug. to those of Pernambuco and Alagoas

[From the Key West Inquirer.]

LATE FROM CAMPEACHY.—The schooner *Wm. Robbins*, of Baltimore, Capt. Watlington, arrived here on 24th inst. in 21 days from Campeachy.

Capt. W. brings accounts of still farther aggressions upon American property by the authorities of that place. The ship *John*, of Philadelphia, Capt. Holbrook, was seized a few days previous to his sailing, and hardly a vessel arrived that had not a portion, if not the whole, of her cargo confiscated. The brig *Ophir* was still retained in the custody of the government, the captain being the only one belonging to her that yet remained there, the mate and seamen having returned to the United States.

The principal cause of these seizures and confiscations is stated by Capt. Watlington to be, a deficiency in the number of manifests required.—The regulations now in force, and which are stated to be unknown to the Mexican Consuls in the U. States, require from each vessel three general manifests, and three particular manifests for each consignee, and one at least of these three last, must be certified by the Mexican Consul at the port in the United States whence the vessel departs. A trade has been long carried on between Campeachy and others ports in the Gulf and Havana, under feigned clearances from ports of the United States, and although well known to exist, still no steps are taken by the authorities to put a stop to it. The necessary documents are issued in Havana, printed blanks being provided, purporting to be issued at the Custom House at Key West and Apalachicola and the names of the Collectors are attached with all due formality.

FROM KEY WEST.—By the Charleston steamboat, we have Key West papers to September 12th.

The hull of the schooner *Pee Dee*, the loss of which we have before mentioned, was towed into Key West on the 4th or 5th ult. by the schr. *Fair American*. She belonged to one of the minor ports of Carolina.

Key West, Aug. 29.—The case of the schr. *United States*, Captain Thomas, came up before his Honor Judge Webb on Saturday 22d inst. The decree of the Court awards to the Salvors 50 per cent. of the nett proceeds of sales. The sales amount to about \$1500.

Key West, Sept. 5.—SMACK FAIR AMERICAN.—Fears are entertained for the safety of the Fishing Sloop *Fair American*, as she has not been heard of since the gale of 16th last month, when it is supposed she was on her way to Havana. The persons on board were Daniel P. Tillinghast, of R. I. master; Charles W. Andrews, N. Y.; John S. Scates, Mass.; and T. Allen.

Key West, Sept. 12.—Melancholy Occurrence.—We regret to have to announce the probable loss of Lieut. Gabriel O'Brien, of the Revenue Service, commanding the U. S. Cutter *Washington* on this station. He was blown to sea in a sail boat, and is supposed to have perished.

Shipwreck.—The brig *Mary*, of Boston, Capt. Nehemiah Hill, 30 days from New York, was wrecked on the reef off Key Vacas, on Saturday the 5th instant. The vessel having bilged will be totally lost.

The *Mary* was bound to Mobile with an assorted cargo of considerable value, most of which has been brought to this port, (principally by the revenue cutter *Washington*,) and we believe it is but little damaged, having been taken on deck before the vessel bilged.

[From the Journal of Commerce.]

OPENING OF THE PORT OF SINGAPORE TO AMERICAN VESSELS.—It is well known to merchants, that for several years past the question whether American vessels have a right to trade directly with Singapore, has often been mooted, but never so far cleared up affirmatively as to constitute a safe basis of action for ship-owners. Accordingly, for the most part, American vessels have either kept aloof from the trade with Singapore, or have carried it on through the neighboring Dutch port of Rhio. This, of course, was attended with much inconvenience and delay, besides the expense of boat-hire, &c. &c. In one or two instances, American vessels have ventured the consequences of a direct trade; and in one at least, a prosecution was entered, which, although it resulted in favor of the defendant, was nevertheless a source of great inconvenience, and loss, and has, so far as we are aware, effectually deterred others from similar attempts.—

The merchants and people of Singapore have always been favorable to the direct trade; but until the determination of the British government should be known, they were unable to do anything more than petition for existing obstacles to be removed. We are happy to state that this object is at length accomplished, and that *American vessels may now trade directly with Singapore, free from any hindrance or interruption.* Information to this effect is contained in a letter of May 7th, from Mr. Balestier, American Consul at Singapore, to a commercial house in this city. We have been favored with the following extract: "I now have the pleasure to inform you that yesterday I received from the governor a copy of a despatch from the Court of Directors in London, saying that inasmuch as Singapore had been united under the same Government with Penang, to which port our vessels had acquired a right to trade by the Convention of 1815, it was right to consider us at liberty to trade here, as well as at the other principal settlements, such as Calcutta, Madras, Bombay and Penang—and so the port is free to us! I have already availed myself of the circumstance, (which by the by, from good authority I had before anticipated,) in favor of the brig *Edwin*, Millett, of Salem, whose cargo I have landed in the port,—there being at the time a King's ship in it, which, so far from vexing, offered me any assistance we might want. This morning the ship *Marmora*, of Boston, arrived from China."

[FOR THE NEW-YORK AMERICAN.]

MISSINGS.—By *Flaccus*, in the Country.
TO AN INFANT IN HEAVEN.

"Think what a present we to God have sent."—[Milton.]

Thou bright and star-like spirit!
That in my visions wild
I see 'mid heaven's seraphic host—
Oh! can'st thou be my child?
My grief is quench'd in wonder,
And pride arrests my sighs—
A branch from this unworthy stock
Now blossoms in the skies!
Our hopes of thee were lofty—
But have we cause to grieve?
Oh! could our proudest, maddest wish,
A nobler fate conceive?
The little weeper, tearless—
The sinner, snatch'd from sin—
The babe, to more than manhood grown
Ere childhood did begin.
Thy brain, so uninstructed
While in its earthly state,
Now threads the mazy track of spheres,
Or reads the book of fate.
Thine eyes, so curb'd in vision,
Now range the realms of space,
Look down upon the rolling stars,
Or watch their maker's face.
Thy feeble feet, unsteady,
That totter'd as they trod,
With angels walk the heavenly paths,
Or stand before their God.
Thy little hand, so helpless,
That scarce its toys could hold,
Now clasps its mate in holy prayer,
Or twangs a harp of gold.
Nor is thy tongue less skilful—
Before the throne divine
'Tis pleading, or a mother's weal,
As once she prayed for thine.
What bliss is born of sorrow!—
'Tis never sent in vain—
The heavenly surgeon maims to save,
He gives no useless pain.
Our God, to call us homeward,
His darling son sent down;
And now, still more to tempt us there,
Has taken up our own.

No. 12.

W.

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-11

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 30 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
25-3.

New-Lisbon, Ohio, Sept. 17, 1858.

RAILROAD IRON.

280 tons of Railroad Iron of the T pattern, just imported and for sale by
HOWLAND & ASPINWALL,
 238 10t 35 South street.

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
 75 do do round-pointed do
 150 do do cast steel Shovels and Spades,
 100 do do Socket Shovels and Spades,
 150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
 2 Liberty street, New-York.
BACKUS, AMES & CO.
 8 State street, Albany.

34—yif

RAILROAD IRON WORK,

Of all kinds, made to order by **GODWIN, CLARK & CO.,** Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.
 Paterson, Aug. 19, 1835. 34—ly

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

AUBURN AND SYRACUSE RAILROAD.

NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road.

Individuals disposed to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

EDWIN F. JOHNSON,
 Chief Engineer & Agent A. & S. R. R. Company.
 Auburn, Aug. 22, 1835. 37—1150

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,
 No. 264 Elizabeth street, near Bleecker street,
 New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. 373 of

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, **AXLES** furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J. S. ROGERS, KETCHUM & GROSVENOR

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 225 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1835mm

H. BURDEN.

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 15th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Railroad between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skillful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application: at the Engineer's Office, at Pottsgrove, for ten days previous to the letting.

MONCURE ROBINSON, C. E.
 Philadelphia, Sept. 2, 1835. s2 Sawt019

LOCK GATES, FOR CANALS.

DAVID WILKINSON, of Cohoes, Albany county, State of New-York, have obtained Letters Patent for the United States for an improvement in Lock Gates, &c., invites the attention of engineers and constructors to his invention, the result of thirty years' practical experience. The chief feature of his invention is the SELF-ADJUSTING VALVE GATE, which is opened in a great degree by the force of the water, and is closed by the weight of the valve gate, rods and screws, and kept secure and close by a pall; the improvement requiring very little force, in aid of the power of the water, to raise the valve gate. The Lock Gate is kept perfectly tight, or free from sagging, by the method of adjusting the anti-friction roller upon the quadrant or circular railway. By means of a thimble on the capstan, the chain for moving the gate can never become tangled or ride on the capstan, and by means of a pall in the head of the capstan, it can never be turned the wrong way, thus effectually guarding against much danger.

There is a lock in operation at Hogsburgh, New-York, where the experiment has been fully tested, to the satisfaction of all scientific men who have viewed it, and which has a self-adjusting valve gate, opening an aperture five feet in length, by 18 inches in width, under a pressure of 84 feet lift.

Having transferred the Letters Patent to Mr. JOHN L. WILKINSON, canal contractor, rights to construct under the same, may be obtained from him by applications addressed to Cohoes P. O. Competent workmen to construct the gates and put them into operation, will be supplied, if desirable, either by the inventor or the assignee.

The following letter, from Judge WATSON, of New-York, one of the most experienced engineers in the United States, is conclusive with respect to the character of this gate:

"Moulinette, (U. Canada,) Aug. 14, 1835.

"DEAR SIR: I have here witnessed a trial of a new paddle gate invented by David Wilkinson, Esq., for Locks, to be introduced into the gates. It is 5 feet long, by 18 inches wide; and I am certain it is the best improvement of the kind which has been tried in this country. I think it will not get out of order, and is so simple, that a 12 years' old boy will open it; and there is no danger of throwing persons into the lock, from the operation, as nothing of the kind can happen.

"I think you will be much pleased with it. It applies its use to any head which can be used in locks, and is more particularly superior in the gates of the lock, to fill and empty rapidly, as easy as you please.

"I am, very respectfully, dear sir, your obedient servant,

"BENJ. WRIGHT.

"To EDWARD P. GAY, Esq.,

"Civil Engineer, Lancaster, Pa."

To which is added the testimonial of J. B. MILLS, Esq., Engineer, who has been associated with the greatest works of internal improvement in the Union:

"Mr. Wilkinson has recently invented a VALVE for Lock Gates, which is undoubtedly of great value, and readily applied. Mr. W. has the contract for constructing the Lock Gates upon the St. Lawrence Canal, (which is the largest upon this continent,) where it is determined to adopt his valve, and his manner of working the same. Having the utmost confidence in Mr. W.'s valve, having seen it applied, I most confidently commend it to all those interested in the construction of Canal Locks.

"J. B. MILLS,

"Engineer St. Lawrence Canal.

"Cornwall, (U. C.), Aug. 21, 1835."

39—3L

NEW-ORLEANS AND NASHVILLE

RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Grading and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications. This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,

Chief Engineer N. O. & N. Railroad.
 Engineer Office, N. O. & N. Railroad,
 Aug. 25, 1835. 37

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN BUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—if

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sep.12-ly

RAILWAY IRON.

250 tons of 1 inch by 1 inch,	Flat Bars in lengths of
200 do. 1 1/2 do. 1 1/2	14 to 16 feet, counter sunk
40 do. 1 do. 1 do.	holes, end cut at an angle
800 do. 2 do. 2 do.	of 45 degrees, with splicing
800 do. 2 1/2 do. 2 1/2	plates and nails to suit.

250 do. of Edge Rail of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 5 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & C. RALSTON.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d11meowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,
 corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1835.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Supt of Construction
 of Baltimore and Ohio Railroad.

Philadelphia, February, 1835.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1835.

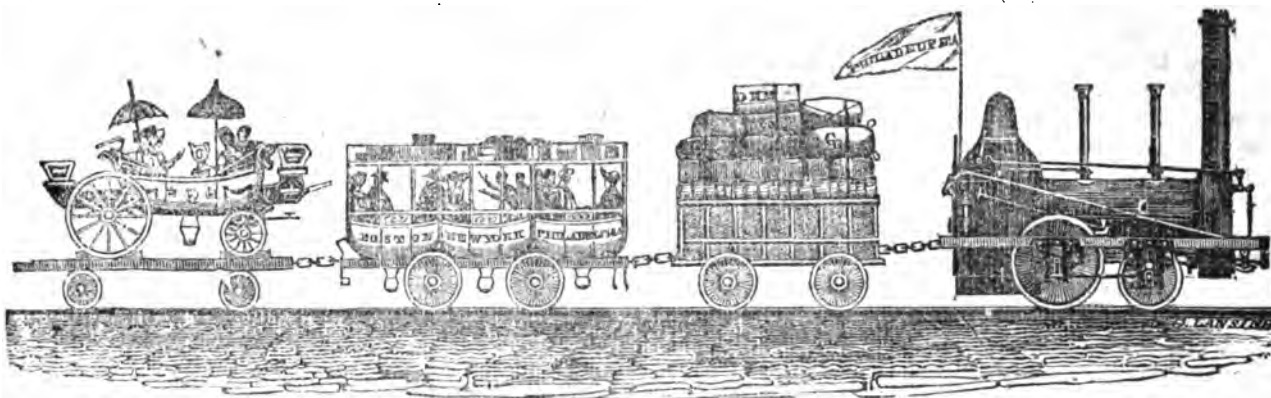
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

Germantown, and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, OCTOBER 17, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, OCTOBER 17, 1835.

We ask the attention of our readers to the communication of "A New-York Citizen," in this number of the Journal, in relation to *Railroads*. We have been long convinced, as this work will bear witness, of the importance, and peculiar fitness, of Railroads for the business and enterprize of this country—and we are now more than ever satisfied that they will yet pervade, not only *every State*, but also almost *every county and town*, in the Union.

[For the American Railroad Journal.]

RAILROADS.

* The construction of Railroads is becoming a subject of great importance to the citizens of these United States, but to none more so than to the citizens of this City.

Almost every day tells us of new undertakings; Railroads are in progress from the North to the South, from this City to the Lakes, and others are contemplated from Boston to the Far West, from New-Orleans, more than 500 miles, to Nashville, and, [if successful, who can say that it may not ere long reach the Rocky Mountains? nay, even the Pacific Ocean?]

In the mean time, Railroad Stocks have become abundant, and a large amount of capital has been invested in them by New-Yorkers. These Stocks, also, like the

Roads themselves, are daily on the increase.

Should Railroads prove successful in this country, it will be not only difficult to conceive, but impossible to describe, the benefits resulting to this City; then, also, will the holders of these Stocks prove to have made a wise investment. On the contrary, should Railroads prove unsuccessful and unprofitable in the United States, then will not merely disappointment follow to the country and towns through which they pass, but loss and ruin will fall to the lot of many of our enterprising and industrious citizens, who become holders of the Stock.

On the question, therefore, whether Railroads are or are not calculated to benefit this country, and the Stockholders, it behooves this community to reflect maturely, if possible, to form a correct decision, and to act conformably thereto.

If these undertakings are to fail, no time should be lost by intelligent and patriotic citizens in forewarning this community of their danger.

On the other hand, if they are to afford the benefits and profits held out to the public, then are they entitled to the countenance, encouragement, and patronage of all classes of men.

The writer can only give to this important subject a passing and superficial notice, in the hope of inducing skilful and experienced men to advise the public correctly. Judging from general principles, he has, however, for himself, arrived at the conclusion, that *this is the country for Railroads*, and that *wherever judiciously located, and managed with skill and economy, they will not fail to prove successful*.

Our country has been formed by the God of Nature, upon a large and magnificent scale,—her Mountains, her Plains, her Forests, her Prairies, her Lakes and her Rivers, are large and far between. The extent and distance of these from each other, and from our numerous and important sea

ports, point out this as the Country for Railroads.

The Political situation of the United States also leads to the same conclusion, formed of 24 Independent States, having separate seats of government, united under one confederated government, seems to point to the quick and easy communication by Railroads as, providentially adapted to their peculiar situation.

In the quantum of transportation also the products of our forests, our agriculture, our mines, of commerce, of raw materials and manufactured goods, form a sum total, large indeed, but increasing almost beyond calculation.

Finally, it would seem that the disposition and pursuits of the American people, render the construction of Railroads proper, and can scarce fail to make them profitable. They are a people actuated by the spirit of enterprize, activity, and trade; influenced in their habits by the rapid changes around them, in a country whose rapid population and sudden prosperity, beggars the page of history, time is prized by our citizens, as of more value in a peculiar point of view, than by any other people,—here delay is brooked with impatience, and increased speed paid for liberally by the impatient traveller.

So far as the writer can judge, *experience*, also, indicates that our Railroads will succeed; no failure of any one has yet come to his knowledge.

Perhaps the best tried experiment on record is the Liverpool and Manchester Railroad, which in despite of Canal competition, has, according to a recent statement in the newspapers, divided 9 per cent. per annum, and notwithstanding the predictions that the wear and tear of the road, engine and cars, would render the investment a bad one for the stockholders, the stock is now quoted at 200 per cent.

It is true that it may be said all this has been done in old England, but that in this

country we can have no Road to compare with the great Liverpool and Manchester Railroad. The writer would be happy were it in his possession to lay the results of all the Railroads in this country, so far as ascertained, before the public, believing that they would generally bear a respectable comparison with the great Liverpool and Manchester Railroad.

Unfortunately, he has one only which it is in his power correctly to state by way of comparison, viz., the Boston and Worcester Railroad. This Road somewhat exceeds in length the Liverpool and Manchester Road, but has thus far been even more successful.

At the time when the Road first became passable throughout, two per cent. dividend was made from the earnings up to that period. During the quarter just passed, its receipts have been \$56,000, the expense during the same time (independent of further completion of the Road paid from a surplus of the Capital before unexpended) are short of \$15,000; leaving a net profit remaining of \$41,000, on a capital of \$1,250,000, being over 3 per cent. for 3 months.

This Road (which has a certain prospect of great increase) shows, by the result, what the writer believes that all the other Railroads of this country demonstrate, viz.—that they will be even more beneficial and productive here than in any other country. He is unwilling to believe that his countrymen, who excel all other people in Commercial enterprise, in constructing and managing the finest Ships of War, Foreign Packets, Coasting Packets, and Steamboats, will not also excel all other people in Railroad.

Also, on the subject of the comparative safety of these, compared with other Stocks, it is worthy the consideration of Capitalists inclined to invest in them, that they cannot, like Marine Stocks, be reached by storms, like Fire Stocks, by conflagration, or, like Bank Stocks, be subject to depredation, or laid under contribution by any invasion.

It must not be forgotten that the United States have become one of the principal commercial and maritime nations of the earth, and that among maritime nations, wars must occur; now when war comes (as come it must) even out of our growing prosperity, will it not prove the wisdom of this people to have a country like this intersected by Railroads? For then the tremendous resources of this extensive country could be brought almost with the speed of the wind to defend any point of attack.—Provided the writer is correct in his conclusion that this is the country for Railroads, it seems to follow that the investments in them are not only safe from loss to the community, but that they will, like our Western Canal, become solid capital, beneficial to the Public, and profitable to the Stockholders.

THE NEW-YORK CRITERION.

GREAT INTERNAL IMPROVEMENT CONVENTION.—This Convention will be held at *Utica*, on the 11th day of November next.—We hope every section of the State will be represented. The State of New-York gave the first grand lead, by the Erie and Champlain Canals; and since that time, she has halted. Did this first sublime effort exhaust her powers? Look at the immense income which these works are now yielding—an income that, with a tithe of the enterprise we once possessed, would induce an expenditure of ten millions per annum, until all the great avenues which nature has prepared for us are perfected throughout the State. We approve of the remarks in one of our city papers that nothing sectional should enter the feelings or deliberations of this body. That men should be chosen who will extend their views over the whole State—and that there the question should now be settled, whether internal improvements should end, or whether the benefits which have flown in upon us so abundantly from what we have done, should induce us to finish the plan of the first great undertakers. Those who will look back, and examine the views of Governor Clinton, will see that what has been done is only a part of his great project. We have, it is true, formed connections between the tide waters and the Susquehanna at various points; while the Allegany, a much more important river, has been totally neglected.

The southern range of counties have realized comparatively nothing from the expenditures of government—the northwest is capable of great improvements, and many other parts of the State.

Other States are securing to themselves a trade which nature assigned for us, which improved roads and canals would have secured to us exclusively forever. Their enterprise and wisdom has already taken from us a great and important trade in the West, which we have forfeited by our supineness. The proposed Convention must determine whether we shall suffer nearly the entire trade of the West to go to other cities, or whether we shall now awake from our long sleep, and engage in earnest to retrieve, in time, at least some portion of what our apathy has lost.

ERIE AND KALAMAZOO RAILROAD.—This road, for which a charter was granted by the Territory of Michigan, will extend from *Toledo*, on the *Maumee*, through *Adrian*, and terminate at the mouth of the *Kalamazoo*, on *Lake Michigan*. The first section of 30 miles, from *Toledo* to *Adrian*, is in course of construction, and will be completed early next spring—six to eight miles are now nearly ready for use.

We hope soon to receive further and more particular information in relation to this road.

The proceedings of the Board of Assistant Aldermen, on Tuesday evening, were of unusual interest. Resolutions were offered by Mr. Van Schaick re-

specting the enlargement of the *Erie Canal*, and in favor of aid from the State to the *New York and Erie Railroad*. The deep interest of this city in both these lines of communication, amply justifies this step, which, it is fair to presume, both houses will adopt. The only reasonable explanation, indeed, as it seems to us, of the apathy manifested by our citizens to these two projects, is that of the actual prosperity of all branches of business, which—keeping every body busy with the present—leaves little leisure for the contemplation of the future.

While, however, we are thus reaping the actual harvest, competitors elsewhere, are busy to secure for themselves a portion of this prosperity in time to come, and unless we look about us a little, we may find, when it is too late, that although New York cannot be made to go back, she may cease to go forward, in the progress of wealth, population, and influence, as rapidly as lately she has done.

Ald. Van Schaick offered the following resolution:

Resolved, if the Board of Aldermen concur, that his Honor the Mayor be requested to transmit to the Canal Board, through the Comptroller of this State, copies of the following resolutions:

Whereas the prosperity of this city is derived exclusively from its advantageous situation as a great commercial mart, forming by its proximity to the ocean, its navigable rivers running far into the land, and by the *Erie Canal*, the most important link in the chain which connects our coasting and foreign trade with the growing commerce of the lakes:

And whereas the most persevering and sagacious efforts are continually made under the impulse of the enlightened Councils of neighboring States to divert from the city of New York the advantages resulting from her intimate and ready intercourse with the fertile and productive regions of the West—and since it has become manifest that our maritime and commercial superiority so far as they depend upon our inland trade, can be best preserved by decisive measures founded upon an enlightened and liberal policy; and as the facility and cheapness of the transportation of passengers and merchandize is the great point to be gained, and upon which the ultimate direction of the largest portion of the trade of the lakes must depend:

And whereas the line of Rail-Road from Boston to Albany is intended to divert a portion of our trade to Boston—Therefore be it resolved, that this Common Council regard with unqualified approbation, the design of the Act of the Legislature of May 11, 1835, authorizing the enlargement and improvement of the *Erie Canal*, and the doubling of its locks, the final determination upon which and in relation to its dimensions is left to the judgment and discretion of the Canal board.

Resolved, That the said enlargement should be projected upon a scale which shall only be restricted in its extent by the ability to combine in the construction of Canal Boats, the greatest amount of transportation with the greatest facility and despatch of business.

Resolved, That unless there are strong objections to the employment on the canal of the largest size of boats arising out of the increased difficulty of their traction, the Common Council recommend that the canal be enlarged to 90 feet in width of water at the surface and 8 feet in depth, so as to carry boats of 120 tons burthen; and in relation to a measure so vitally important, the consideration of the amount of money the improvement may cost, should not be entertained, since if the canal is enlarged to the extent proposed, vessels will be built competent to the navigation of the Hudson, and which will discharge their cargoes in this port and harbor without incurring the expense and loss of time consequent upon unloading and transhipping their cargoes between Buffalo and New York.

Resolved, That copies of the following resolutions be transmitted to those gentlemen who shall belong to the next Legislature from the first Senatorial District.

Whereas, the Mayor, Aldermen and Commonality of the city of New-York have not the right expressly given them by their charter or by law to loan money to incorporated companies, or to purchase their stock; but as it is expected that the

constituted authorities of the commercial emporium shall be vigilant in promoting the public interests, and shall afford such encouragement to great designs, having for their object the development of trade and industry as may be consistent with their appropriate duties and the limited nature of their powers, and as the construction of a rail road from New-York direct to Lake Erie is a measure which when completed will, together with the improvement of the Erie Canal, insure the absolute superiority of this city against all competition.

Therefore, be it Resolved, That this Common Council do regard the proposed New York and Erie Railroad as an undertaking of the highest importance to the prosperity of this City and District, as well as the sections of the State through which it is intended to pass, and they therefore respectfully request the representatives of the people in the Legislature from the First District, to use all their influence in promoting the completion of that work, either by inducing the State to become the proprietors thereof, or to loan to the Company the credit of the State to such reasonable amount as the said Company may be able to assure the ultimate payment of by the most satisfactory security.

Ald. Van Schaick accompanied these resolutions with a few remarks on the importance of the object contemplated, and adverted to the efforts making by Pennsylvania and the Canadas to draw off our trade; and directed the attention of the Board to the contemplated railroad from New-York to Albany, on which alone New-York can depend to prevent the Albany and Boston railroad from carrying off our winter trade. He read some resolutions lately passed at Rochester, on the subject of widening the Erie Canal, and doubling its locks; and also, resolutions passed at Faneuil Hall, in Boston, in favor of a railroad thither from Albany. The resolutions were laid on the table and ordered to be printed.

RAILROAD BARS.—We find in the London Mechanics' Magazine, the following remarks in relation to a mode of avoiding the jar which occurs in passing over the pedestals, or supports, of the rail.

RAILROAD BARS.—Sir: I have not hitherto directed particular attention to railroads, but as I read Mr. Daglish's letter of the 26th May, an idea occurred to me, which I am induced to offer, through your columns, to the consideration of those connected with great undertakings of that kind. I will put my idea as a question:—Is it not possible to produce a railroad with uniform elasticity, or, at least, so nearly so as to avoid the inconvenient and injurious jar experienced while the wheels of a carriage are passing over the pedestals and joints?

To effect this, I propose that the ends where the different portions of the rails meet should have corresponding notches to admit keys, for the purpose of keeping all fair at top. These keys might be extended to the rails on both sides of the road, to keep them parallel and at a uniform distance. The vertical joints where the ends of rails meet to be open, to allow for expansion; and for the same reason also, the vertical joints at the sides of the keys. Horizontally the keys to be as tight as possible in the rails. The rails are to be kept in their vertical position by the mortices in the chairs, and to be fastened down to them by the keys. Each portion of the rails is not to rest on the bottom of the mortices in the chairs, but upon a transverse bar or bars, whose strength and bearing are to be precisely that which will produce the same degree of elasticity as that of the rails, that is, if the wheels of a waggon were passing immediately over these bars, or the keys in the joints of the rails, there would be no more tendency to jar than if they were rolling on the rails in the middle between any of the supports.

This idea may be applied to a great many, or all the variety of forms for the

rails; but I think with Mr. Daglish, that the rails, from their upper to their under surface, ought to be as little as possible. And, indeed, to produce steadiness in motion, the centre of gravity of a train of carriages, and the goods they contain, cannot be kept too low.

I am, sir, your obedient servant,
JOSEPH JOPLING.
31, Somerset-street, July 11, 1835.

THE LEXINGTON.—We observe in the London Mechanics' Magazine for August, an account, by "an American," of the Steamboat Lexington, which was constructed for, and under the direction of, Capt. VANDERBUILT of this city, rating her at 20 miles per hour, and calling her "the fastest vessel in the world."

This communication called out several others in reply, from which we select the two following, and would ask from Capt. Vanderbilt, or some one else, a drawing, and such a description as will put the matter at rest, to the satisfaction and credit of all concerned.

Extract from a communication in the London Mechanics' Magazine, signed "James Barstow."

THE AMERICAN "FASTEST VESSEL IN THE WORLD."—Sir: As the account sent you by "an American," of the Steamboat Lexington, and inserted in your journal of Saturday last, does not explain with sufficient clearness the peculiar mode of construction by which she has been enabled to accomplish a degree of speed, hitherto quite unrivalled, and by many deemed utterly unattainable, your readers may be, perhaps, pleased to receive from another American some further particulars on the subject. I have not myself seen the Lexington, but my information respecting her is from a good source.

THE AMERICAN "FASTEST SHIP IN THE WORLD."—Sir: I have read an extract from an American paper, in your last Number, p. 384, giving an account of the trial of the Lexington steamer. I do not quite understand the construction of her deck; and should be glad to receive further information by a sketch in your Magazine. Neither do I comprehend how she could move at the rate of 20 miles an hour, seeing the greatest velocity of her paddle-wheels is but 19.7064 per hour. Perhaps your printer made the error, in stating the diameter of the wheel at 24 feet; surely it should have been 34 or 42 feet: it is in vain to expect an engine with a stroke of 11 feet to make more than 23 per minute; indeed, this speed for the piston is greater by far than is usual in England; so that the speed of the vessel must be attained by increasing the diameter of the wheel.

Under this idea, I do hope your correspondent will write for a more detailed account of the Lexington and her engines, for at present she looks a "trifle slanting-dicular." At the same time, I am ready to acquit your correspondent of any personal intention of misleading your readers.

I am, Sir, yours truly,
W. THOROLD.
Norwich, August, 22, 1835.

Sir: Having read in your valuable journal for August 15th, an account of the "fastest boat in the world," I was induced to look minutely into the description given;

and upon comparing the diameter of the wheel with the number of strokes mentioned, I find that the speed of the boat (which is stated to be twenty miles per hour) is two miles an hour faster than the motion of the periphery of the wheel!

Now, Mr. Editor, I take upon myself to say, that no steamer in this country has approached, within some miles, the speed of the diameter of the wheels. The "Diamond," "City of Canterbury," and "Star," now running in the Thames, are no doubt the three fastest boats in Europe; the speed of these boats, is as near as possible, thirteen geographical miles per hour, during which time the periphery of the paddle-wheels moved seventeen miles, travelling four miles per hour faster than the vessel.

Now in the description of the "fastest boat in the world," the diameter of the wheel is given at twenty-four feet, and the speed twenty-one to twenty-three strokes per minute; I have taken the mean of twenty-two strokes per minute; this gives, for the speed of the wheels, eighteen miles per hour, and deducting four miles, as is the case with the three boats before mentioned, will leave fourteen miles per hour; but I will not allow the Americans even this speed, for two reasons; first, it will be observed that I have founded my previous observations upon three of the fastest, as well, perhaps, as the best boats in this country, both as regards engines and construction, which is the reason that the speed of these boats approaches so near the speed of the wheels; for if the average of thirty boats on the Thames be taken, we shall find that the wheels are often going fifteen miles an hour, while the boats are going only ten miles. Again, the lumber, which is used in American boats, and called steam engines, can never be compared with the engines as now manufactured by our first-rate makers, either for lightness, safety, or effective force. Taking all these facts into consideration—facts which are well known to scientific men in this country—I think we may allow the American boats a speed approaching thirteen miles an hour, and not more; and this speed is not produced by the eleven-feet stroke or the arched deck and beams, but from the simple fact of her enormous length, as compared with her beams. Vessels of this class may do very well for the large rivers of America, but never would do for sea service, or for the rivers of this country.

As I find in your last number, another American has been giving his countrymen a fillip, by endeavoring "to explain more clearly than your former correspondent has done, why this boat has attained this wonderful speed," but which explanation only shows the manner in which she is trussed longitudinally; perhaps he will now have the goodness to explain, why in America steam ships go faster than their wheels, while in all other countries they generally go from one third to one fourth slower.

I am, Mr. Editor,
Your obedient servant,
FANQUI.

LIVERPOOL AND MANCHESTER RAILWAY.—Seventh Half-Yearly Meeting.—The Directors reported a continued increase in the traffic, as compared with the corresponding six months of last year. The receipts of the half year ending 30th of June, amounted to 99,474*l.* 16*s.* 6*d.*, and the expenses to 61,814*l.* 6*s.* 1*d.*, leaving a net profit for six months of 37,660*l.* 9*s.* 10*d.* A dividend of 4*l.* 10*s.* per share (for the half year) was resolved upon. The shares are now quoted at 200*l.*

To the Editor of the Railroad Journal:

I perceive, sir, in your Journal of the 3d inst., a reference to an improvement made by Mr. Force, of Baltimore, in the construction of "Railroad Axles."

If I understand your description of it, the axle can be repaired when the journals become worn, without removing the wheels, and without putting the journal into the fire. If this can be done, a very considerable expense will be saved to a company which has many cars and carriages in use—but there is some doubt in my mind as to the feasibility of effecting such repairs in the manner proposed; and I would call to it the attention of practical men.

Yours, truly,

A STOCKHOLDER.

We shall endeavor to satisfy, not only "A Stockholder," but many stockholders, of the facility with which the journals of axles may be repaired in the manner proposed.—[Ed. R. R. J.]

THE BRISTOL AND GLOUCESTERSHIRE RAILWAY (from Bristol to the great Westerleigh coal-field) was opened on the 6th inst. It is 9 miles long; and the cuttings and embankments are supposed to be greater than on any railway of similar extent which has yet been formed. There is a tunnel (under Staple Hill) 1,540 feet long, 12 wide, and 16½ feet high; it is in a straight line, 3 shafts by which the excavations were carried on being left open to admit light. One of the embankments is 56 feet in height. The capital expended on the undertaking is about 77,000*l.* The Act was obtained in June, 1828, and the works were commenced in June, 1829. Mr. Townsend is the engineer.

THE RAILROAD FROM BRUSSELS TO MALINES cost 1,224,100 francs, and produces immense profit to the Belgian Government, which established it. The receipts from the 17th of May to the 1st of July last, were 106,802 francs, paid by 163,482 passengers. The distance is 4 leagues, and the journey is made in 35 minutes.—[Paris Advertiser.]

STEAM CARRIAGES ON COMMON ROADS.—

Mr. WALTER HANCOCK performed a journey of 75 miles, from London to Marlborough, in his steam carriage, the *Erin*,—originally called and described in this journal as the "*Era*." The time occupied was about twelve hours, seven and a half of which was running time, as will be seen by the following account:—

JOURNEY FROM LONDON TO MARLBOROUGH IN MR. WALTER HANCOCK'S STEAM CARRIAGE, THE "*ERIN*."—Sir: The "*Erin*" steam carriage, which was built by Mr. W. Hancock to run on the Paddington road, and originally called the "*Era*," (described in your journal, No. 585) started from Stratford on Tuesday morning last, at half-past four, for Marlborough, with a party of gentlemen. Mr. Hancock had attached a small tender to the carriage, containing coke and water sufficient to have lasted us to Reading; but the bar of wood, through which the bolts ran that fixed the tender to the carriage, gave way in Cheapside, and we were obliged to leave the tender behind us.

The carriage reached Hyde Park corner by six o'clock, where we remained about

half an hour to take in some of our party, and proceeded on to Reading, which we reached at 11 minutes past 11 o'clock. The company stopped there an hour and a half and dined; after which the journey was resumed.

The carriage reached Marlborough by half-past 6 o'clock, with no other accident than the breaking of one of the bands of the blower. The total time on the road was a minute or two short of 12 hours, of which 4½ were occupied in stoppages, leaving 7½ hours for travelling the 75, being at the rate of just 10 miles an hour.

No one who has not travelled by steam carriages can imagine the inconvenience and delay which results from the want of regular and ample supplies of water; the carriage having to stop from 14 to 18 minutes every 10 or 12 miles to fill the tanks by hand-buckets from pumps, with sometimes the additional inconvenience of having to take the supply from some neighboring stream or pond. While the carriage is stationary, the fire slackens in consequence of the blower being stopped, and it requires about two miles running to get it again into full play. By observations which I made on the road while timing the carriage, I found that the rate of the first three miles, after taking in water, averaged 7½ minutes a mile, whilst the latter part of the distance, till the carriage again stopped for water, averaged one mile in five minutes. Frequently the men were obliged to use any kind of water they could get; some being filled with duck-weed, straw, and filth of every description, which, of course, very much retarded the generation of steam. The inconveniences arose in the present case chiefly from the loss of our tender, which would have carried us to Reading without any stoppage.

All these delays would, of course, not happen, if water stations, having tanks with large hose, which might fill the carriage in a minute, were provided. There is no doubt, that had such arrangements been made for supplying the "*Erin*" on the present journey, it would have performed it, including stoppages, in 6 hours; though the carriage was not built, I am informed, nor intended for long journeys, but for such short distances as between London and Paddington.

Mr. Hancock started from Marlborough to return to London on Friday at half-past five. The carriage accomplished the ascent of Marlborough hill—the steepest acclivity on the Bristol road, being full one mile long, and having a rise of about 1 in 7, in 6 minutes, with a stoppage of 4 minutes. The "*Erin*" reached Reading by 10, and stayed 1½ hour for breakfast. After running through the town we continued our journey, and reached London by half-past five, being again 12 hours on the road, and having lost nearly about the same time in stoppages as on our journey down.

Our reception on the road was very cordial; there was scarcely any manifestation of bad feeling throughout the journey; indeed, wherever we stopped to take in water, we had every assistance given us by the bystanders. We were particularly well received at Marlborough, where we stayed two days. The carriage made a trip through the town each day; and Mr. Hancock astonished the inhabitants by the easy manner in which he could turn, stop, or back his carriage. Two gentlemen of Marlborough most hospitably entertained the steam travellers whilst they remained in that town.

Subjoined, I give a table of the performances of the steam carriage taken from

the notes of the gentlemen who timed the carriage.

And remain, yours truly,
London, August 10, 1835.

R.

MESSRS. MAUDSLEY AND FIELD performed the same distance in five hours 49½ minutes, running time.

JOURNEY FROM LONDON TO MARLBOROUGH BY MESSRS. MAUDSLEY AND FIELD'S STEAM CARRIAGE.—The journey from London to Marlborough has been also recently performed by the steam carriage constructed by Messrs. Maudsley and Field for Sir Charles Dance, Mr. Macneil, and other gentlemen. We extract the following statement of its performances from a letter of Mr. Macneil to the newspapers. It will be seen that the rate of speed realized was nearly the same as in the case of Mr. Hancock's "*Erin*;" but the time occupied in stoppages was less, owing, no doubt, to better arrangements having been made for the supply of water:—

"Time on the road in going down	8 10 30
Deduct stoppages	2 21 4
Total time while moving	5 49 26

Which gives about 12·86 miles per hour whilst running.

Time returning	11 22 0
Deduct stoppages	4 2 0

Total time moving	7 20 0
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Which is rather more than 10 miles per hour whilst running."

[From the London Mechanics' Magazine.]

MR. GALT'S SUBSTITUTE FOR STEAM POWER.—The following is an extract of a letter addressed by Mr. Galt, the celebrated novelist, to the Greenock Advertiser:—

"The fatal explosion of the Earl Grey steamer has induced me to try if the principle of my pressure-syphon could be applied to propel vessels; and the result has been so perfectly satisfactory, that I find myself actuated by humanity to make it public, that others may test the experiment, the simplicity of which is not the least of its merits.

"Take a cylinder, and subjoin to the bottom of it, in communication, a pipe—fill the pipe and the cylinder with water—in the cylinder place a piston, as in that of the steam engine—and then with a Bramah's press, and a simple, obvious contrivance, which the process will suggest, force the water up the pipe, the pressure of which will raise the piston. This is the demonstration of the first motion.

"Second—when the piston is raised, open a cock to discharge the water and the piston will descend. This is the demonstration of the second motion, and is as complete as the motion of the piston in the cylinder of the steam engine; and a power as effectual as steam is obtained without risk of explosion, without the cost of fuel, capable of being applied to any purpose in which steam is used, and to an immeasurable extent.

"The preservation of the water may in some cases be useful, and this may be done by a simple contrivance, viz. by making the cock discharge into a conductor, by which the water may be conveyed back at every stroke of the piston to the pipe, at the end of which the Bramah's press acts.

"My condition does not allow me to do more than to solicit that the experiment may be tested. Although no mechanic, I yet believe myself mechanician enough to see the application of the principle."

GREAT RAILROAD MEETING IN BOSTON.—On Wednesday evening a large public meeting was held at Faneuil Hall, to concert measures for the completion of the great Western Railroad to Albany.

The meeting was very large. Mr. Abbott Lawrence was in the chair, and T. B. Curtiss, and S. B. Higginson were the Secretaries.

Delegates from Albany were in attendance.

A Committee appointed at a previous meeting made a long report, from which we annex an extract, explanatory of the objects in view.

The Railroad proposed to be constructed under this charter extends from the Boston and Worcester Railroad to the border of the State of New York. To complete the line from that point to the Hudson river, two railroads have been incorporated by the Legislature of New York, one leading from the city of the State to the city of Hudson, and the other leading from the same point to Greenbush, on the bank of the Hudson river, opposite to the city of Albany. The stock in both these corporations have been taken up by citizens of the State of New York, and the routes have been surveyed. On one of them the work is now in actual progress, and on the other it will soon be commenced. In addition to these two Railroads, which may be considered as branches of the Massachusetts Western Railroad, a third is proposed, leading from the same point at West Stockbridge to the city of Troy. Public notice has been given, that application will be made to the Legislature of New York, at its next session, for the incorporation of a company for this purpose, with a capital of \$600,000.

The line of communication, therefore, proposed to be established, and which will be completed by the construction of the Western Railroad, will lead from Boston, through the whole length of this State, passing through its centre, and through the centre of three western counties to the Hudson river, where it will unite, at two or three points, near the great channels of communication already established, leading to the St. Lawrence on the North, to the great Lakes in the West, and to the city of New York in the South.

The report concluded with the following resolutions, which were unanimously adopted.

Resolved, That in the opinion of this Meeting, a Railroad, leading from this city through the centre of the Commonwealth to the Hudson River, will be of great public utility, by affording an easy and rapid communication, and thereby establishing a more intimate personal and commercial intercourse, between Boston and the Western parts of the State, and also between Massachusetts and New York and the Western States.

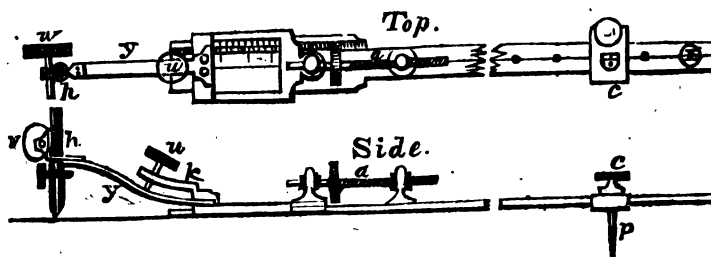
Resolved, That in the opinion of this Meeting, the prosperity of this City will be particularly promoted by the great public improvement now proposed, by the increase of its trade and population, and a proportionate advance in the value of property therein.

Resolved, That in the opinion of this Meeting, the work now proposed will not only be beneficial to the public, but productive of a profit to the proprietors, affording an adequate remuneration for the heavy capital which will be necessarily invested in it.

Resolved, That such is the magnitude of this undertaking, that it is necessary for its accomplishment, to rely on the aid of an enlightened public spirit; and that consequently, however strong may be the assurance that the profits resulting from it will afford an adequate return for the capital invested therein; those citizens who shall subscribe for the Stock, with the laudable purpose of raising a sufficient fund for the prosecution of the work, and of thereby promoting the important benefits which will result from it, will be entitled to the thanks of the community, as public benefactors.

Resolved, That Committees be appointed of six persons for the City at large, three for each ward, for South-Boston, and for the towns of Charlestown, Lynn, Cambridge and Roxbury, to solicit, in concurrence with the persons named in the Act establishing the Western Railroad Corporation, subscriptions to the Capital Stock of the same, and to return the subscriptions so obtained, to the persons entrusted by the said Act with the charge of the same.

TRAUTWINE'S BEAM COMPASS.



[From the Journal of the Franklin Institute.]

Description of a Beam Compass, contrived by JOHN C. TRAUTWINE, of Philadelphia, Architect and Engineer.

TO THE COMMITTEE ON PUBLICATIONS.

Having recently had occasion to draw several maps of railroad surveys, on a large scale, I was at a loss for a beam compass, of a length sufficient for striking the curves, and, in consequence, contrived, for that purpose, the one here described.

Finding it to answer in a very satisfactory manner, and thinking it might, in the absence of a better, be useful to others, I submit it for insertion in the Journal, provided it be considered of sufficient utility.

The instrument consists of a strip of brass, (mine is three and a half feet long, half inch wide, by one-twelfth inch thick,) having its edges rounded, to prevent its catching in any inequalities in the paper, and being divided and numbered into feet and inches, or in any manner that may be preferred.

Precisely in the centre line of the strip, and at each point of division, is carefully drilled a very small circular hole, entirely through the brass, and barely large enough to admit the finest sewing needle. Pains must be taken to drill these holes *precisely vertical*.

At that end of the beam where the numbering of the divisions commences, is a sliding vernier, by which the divisions may be subdivided into hundredths of an inch. This slide is moved along the end of the beam, by means of the screw, *a*, and is furnished with a holder, *h*, into which a pencil, or drawing pen, may be inserted. It has also a screw, *u*, which, by operating on the stiff piece of brass, *k*, above, and the elastic piece, *y*, below, forces the pencil, with any required degree of pressure, against the drawing. The lower piece, *y*, is elastic, that it may, by yielding, allow the pencil to play over any roughness, or knots, that the paper may contain; and is very essential to the drawing of a clear, unbroken line. *c* is a sliding piece of brass, with a point, *p*, and a semicircular hole, *o*, on top, (for seeing the dimensions on the beam.) It will often be found useful for ascertaining the centre of a circle by trial, when it is inconvenient to do so by calculation.

As the size and proportion of the parts of the slide, (particularly of the spring and pen,) are of great importance, and mine are the result of several trials, I

have represented them at one-quarter the full size, to enable others to make them with certainty at the first attempt.

The drawing ink should be perfectly clean and free from dust, and of a certain degree of fluidity, which a few trials will point out.

The paper should be brushed with a clean handkerchief, to remove dust, before beginning to draw the curves.

The dimensions above stated I consider sufficient for beams six feet long, which gives a diameter of twelve feet, a size which is very rarely exceeded in neat finished drawings on paper.

For radii less than three feet in length, both the breadth and thickness of the strip may be reduced.

To use the instrument, having first found the centre from which the curve is to be described, drive a fine needle firmly and vertically into it; and over the needle, place that division hole of the beam which more nearly corresponds with the required radius; after which, bring the pencil *precisely* to the point of beginning of the curve, by means of the screw, *a*; and after giving it a proper degree of pressure on the paper, by turning the screw, *u*, describe the curve by merely pushing the beam over the paper, without any other vertical pressure than what arises from its own weight. When one line is drawn, and the pencil is to be taken back, to commence [another, it may be raised from the paper, either by unscrewing *u* a little, or by slightly lifting the whole slide. It will not be necessary to lift the beam off the needle, for the purpose of altering the position of the pencil, for drawing concentric curves, whose difference of radii does not exceed the play of the slide, as that may be done much more readily by the screw, *a*.

In this manner, any number of curves may be described from one point, without the least enlargement of the centre hole in the paper; a defect to which all other beam compasses I have ever seen, are liable. This is subject to so little spring, or irregularities of any kind, that I have, in the width of *one inch*, described *one hundred* concentric curves, of *seven feet* diameter, precisely equidistant, with as much neatness, accuracy, and clearness, as I could have drawn the same number of small ones, with a pair of common six inch dividers.

The instrument is peculiarly adapted to cases where the centre is on the same plane as the drawing, and where the beam

will be supported throughout its entire length, or where it may be upheld by intermediate supports, sufficiently near each other to prevent any degree of sagging; but where it is impossible to support it between the centre and the pencil, it is not by any means to be recommended.

When the curves are finished, the needle may be easily withdrawn, either between the legs of a pair of common dividers, or between the blade and back of a penknife. A hole, x , should be made in the beam, for hanging it up.

These beams are kept ready made, for sale, by Mr. William J. Young, mathematical instrument maker, of this city.

CROTON RIVER.—We perceive by a statement in the Daily Advertiser, that the Water Commissioners have requested Mr. Douglass, Chief Engineer of the New-York Water Works, to make a gauge of Croton River in its present state, which has been done accordingly. The result is communicated to the Chairman of the Commissioners, Hon. Stephen Allen, in the following terms:

SING SING, 6th October, 1835.

Dear Sir:—It being a rainy day, I have completed my calculations relative to the supply of water in the Croton, and lose no time in sending you the result.

The gauging was performed yesterday (Monday) morning, before the flow had been increased by the working of the Mills above, and probably exhibited the very lowest rate of discharge which has been experienced this season, in consequence of the water having been generally shut back in the ponds during Sunday.

I confess I was somewhat alarmed by the appearance of the stream—it was drawn into so narrow a channel, leaving wide margins of its slimy bed, which had rarely, if ever, been uncovered before, and which had evidently been under water the day previous, now uncovered—and the stake which I had driven at the former gauging, standing high and dry at a considerable distance from the water's edge. I proceeded with my work, however, and gauged the water, even in this reduced state, with extreme care, and found the result as follows:—

Section of water equal 40 1-2 square feet.

Mean velocity per second 97-100ths of a foot.

Giving for the discharge per second 39 28-100ths cubic feet.

And per day 3,393,792 cubic feet.

Which is equal to 21,133,324 standard gallons.

The gauging was performed near Pine's Bridge, and of course did not include Flewelling's Mill Stream, and several other runs which were found unfailing, and which discharge their waters above the dam. The first mentioned, being the most considerable, were gauged, (two of them,) and found to yield jointly 744,386 gallons, which being added to the preceding result, gives an aggregate of 21,877,650 gallons*—the smaller runs referred to not being included.

I thought it desirable to obtain this result, as being the minimum flow under the most unfavorable circumstances; it evidently ought not, however, to be considered as the discharge of any one entire day. The waters had been stopped back on the Saturday night previous, and the stream at the instant of gauging, appeared to be under the full effective influence of this stoppage—probably a few hours would again restore it to its customary height. To verify this fact, one of the party was left behind for the purpose of taking the height of water, by a certain mark, frequently during the next following 24 hours, and the following were the results: at 5 P. M. of the same day, the water had risen 1 7-8 inches, at 9 in the evening no further change either way; during the night a storm commenced and continued raining in the morning, so that the rise of water was considerably influenced thereby.—The measurement at 7 A. M. on this morning, for instance, gave a rise of 4 3-8 inches, and at 10 a

* This quantity estimated in Ale gallons is 21,210,433.

And in common wine gallons, 26,266,904.

rise of 7 7-8 inches above the level at the hour of gauging—and there now is, therefore, probably more than a hundred millions of gallons running, from the joint effect of rain and diurnal increase.—To avoid any error in estimating the effect of rain, I exclude the observations of this morning, and deduce my average daily supply from the result of the gauge, and the notes of last evening. These carefully calculated gave 27,954,790 standard gallons; and this, under all circumstances, I consider as the lowest daily supply for this year—certainly very much within bounds, as I have no doubt from my observation of the stream, that the flow would have been much increased this morning, independently of the rain, and would have given us, could I have ascertained it by an actual measurement, an average considerably higher than that stated.

Having thus deduced what may be considered as the minimum rate of flow at any one time, and the minimum daily supply, I will just add in connexion, a remark upon the general average of supply, during the drought, for this is the real question of interest in relation to the supply of the city.

On the seventeenth of August I gauged as heretofore reported, and found between 43 and 44 millions of (wine) gallons flowing. I have since repeated the calculation of my notes with greater care, and find the quantity in standard gallons equal to 39,601,266—from that time to the date of the recent gauging, the river has been falling regularly,—but as it fell towards the last more slowly than at first, and that we may run no risk of over estimating, I give twice the value in averaging, to the low result, that I do to the high one, and upon this principle I find the daily discharge for the time mentioned (49 days) equal to 31,836,948 standard gallons.

One other remark—Our Croton reservoir will be 400 acres in extent, and will contain therefore, about 100,000,000 of gallons to each foot of depth at the surface. The disposition of the works at the head gate, will be such as to admit of drawing this down if necessary, say 3 1-2 feet (350,000,000) with a residue of held still sufficient for the full supply of the conduit—we shall thus have a disposable surplus, for occasions of drought, sufficient, after deducting an ample allowance for evaporation, to afford 5,600,000 gallons per diem for fifty years, and this being added to the preceding average for that time, gives an available aggregate of 37,436,948 gallons per diem.

All these calculations, it will be recollected, are founded upon actual ascertained results, during a season of unparalleled drought—on this point there is no difference of opinion. The counties of Westchester and Putnam, furnish incontestible proof of it, in the multitude of streams and springs every where noticed as having failed this year, which have never been known to fail before; and the Croton itself, according to the concurrent testimony of the inhabitants, has been at the same time lower and lower for a longer period than is remembered on any former occasion. A result, therefore, obtained under these circumstances may be deemed certain, and should, I think, put the question of supply entirely at rest.

I should not omit to mention that I gauged the water on the same day at the wire factory below Garritson's Mill, and found it to agree very nearly with the gauging above, the pond having been drawn down (evening) and the head gates drawn clear of the water,—the difference was only about 200,000 gallons. This gauge, however, was less likely to be accurate than that at Pine's bridge, as there was a considerable stream wasting through the dam, which it was difficult to measure accurately, on account of its spreading among the stones. I shall continue to keep an eye upon this subject, should anything further occur worthy of notice.

I remain, yours very truly,

D. B. DOUGLASS.

Chief Engineer N. Y. Water Works.

Stephen Allen, Esq. Chairman, &c.

[From the Albany Argus, extra.]

ALBANY.

The following communication, exhibiting the actual condition of our city, its prospects and advantages, is from a source, it will be perceived, that entitles its statements to entire credit. We lay it before our readers with the more pleasure, as the present indications point not only to the continued prosperity of the city, but to the prevalence of a

spirit among us that must lead to a far higher appreciation of the advantages of this most favored location for all the purposes of extensive business and profitable adventure. The growth of Albany has been steady, and in all respects substantial. At the head of one of the most noble rivers in America—at the confluence of the river, and a chain of internal communication, stretching west from the Hudson to the Mississippi, and north to the St. Lawrence—the recipient of the products, not only of our own west, with its abundance and fertility, but of all the extended and rapidly improving country, bordering upon and lying between the two great points referred to,—its destiny cannot be mistaken. It must become one of the largest of the cities of the Union. This result will be facilitated by the measures now in progress for opening a direct communication, via Stockbridge and Worcester, to Boston; and particularly by the fresh spirit and energy with which our citizens have entered into that and other improvements.

This communication, which we conceive to be of sufficient value to issue in this form, is intended to be addressed to such persons in the New-England States especially, as will be likely, from their character, standing and relative situation, to view the matter with interest, and give it circulation among those for whose information it is designed.

SIR—With a view of inducing men of capital and industrious mechanics contemplating to remove from your neighbourhood to this or the western states, to establish themselves in this city, we take the liberty of presenting to you the following statement, with the request that you will give it a general circulation.

ALBANY, the capital of the State of New-York, is near the head of navigation on the Hudson River, where the great western and northern canals terminate. Its happy position, at a point where a river navigable to the ocean, and one of the finest in the world, meets the great inland communications with the northern and western lakes, ensures its advancement, and that at no distant period, to the very first rank among the inland cities of this country. Since the completion of the Erie and Champlain canals, its progress in population and business has been almost unexampled.

In 1820, the number of inhabitants was 12,630. In 1830, 24,209, being an increase of 92 per cent in ten years. No census has been taken since 1830, but one is now in progress, and will shortly be completed. No doubt is entertained, from the increase of business in the city, that it will show a very great increase of population over that of 1830.

The following table shows the increase in the amount of produce and merchandise arriving at Albany, by way of the Canal in two years from 1832 to 1834:

COMPARATIVE TABLE FOR THE YEARS			
		1832.	1834.
Domestic spirits,	bls.	21,285	20,839
"	hhd.	1,974	
Boards and scantling,	feet,	36,090,594	62,103,000
Shingles,	M.		22,643
Timber,	feet,	55,569	104,145
Flour,	bls.	423,695	795,192
Provisions	"	21,274	20,864
Salt,	bush.	23,117	19,070
Ashes,	bls.	19,091	16,494
Wood,	cords,	15,324	17,685
Wheat,	bush,	145,960	233,574
Coarse grain,	"	208,943	490,680
No. of boats arr'd and cleared,		14,300	18,554
No. of tons,		109,300	146,800

It appears from the above table that the increase in favor of 1834 over 1832 on the three greatest articles of merchandise, viz: lumber in its various shapes, flour and grain, is from 70 to 100 per cent. and a continued increase will no doubt go on.—The lumber trade alone at this city, is already immense, it being one of the best lumber markets in the union, and promises to continue so for a long time to come.

The following is a complete return of the different articles arriving at Albany by way of the canal during the year 1834.

1834.			
[Complete return of articles, under the new order.]			
Domestic spirits, bls.			20,839
Boards and scantling, feet			62,103,000
Shingles, M.			22,643
Timber, feet			104,145
Staves,			56,438,000
Flour bls.			795,192

Provisions, "	20,864
Salt, "	10,070
Ashes, "	16,944
Lime, "	455,310
Beer, "	293
Cider, "	43
Dried fruit, lbs.	45,934
Apples, bbls.	1,241
Wood, cords	17,685
Wheat, bush.	233,574
Coarse grain, "	490,880
Brans and ship stuffs, "	273,191
Peas and beans, "	13,137
Potatoes, "	19,758
Clover and grass seed, lbs.	790,454
Flax seed, "	613,046
Wool, "	591,760
Cotton, "	92,419
Cheese, "	1,553,304
Butter and lard, "	1,826,341
Hops, "	247,165

(CIRCULAR.)

Hemp, "	57,581
Tobacco, "	447,349
Fur and peltry, "	361,983
Stone, "	4,111,323
Merchandise, "	181,218
Furniture, "	199,747
Clay, "	4,256
Pig lead, "	1,000
Pig iron, "	49,313
Iron ware, "	377,922
Sundries, "	8,129,695

There is no doubt that the business of this year will very greatly exceed that of the last. By returns from the collector's office at Albany, up to the 1st of August, (after which it will be recollected the great business season of the year is yet to come,) it appeared that the amount of many of the articles mentioned in the foregoing report which had then arrived, exceeded the entire quantity that arrived during the whole of last year.

The following is a statement of the canal tolls received by the collector at Albany, down to the 1st of September in 1834 and 1835:

To the 1st of September, 1834,	\$124,262 49
" " " 1835,	192,883 10

Being an increase of business by the way of the canal of 56 per cent. since last year. Besides this, a considerable quantity of produce is brought to Albany on the Mohawk and Hudson Railroad, which strikes the Erie canal at Schenectady—the amount being about 420 tons per week.

For the future, the prospects of Albany are still more encouraging. The Railroad from Schenectady to Utica is now constructing, and will be completed by next July or August; thus extending the railroad communication 100 miles west. Railroads are also constructing between Syracuse and Auburn and between Rochester and Batavia, which will so far complete the line of railroads to Buffalo, that it is easy to foresee that but a short time can elapse before a continuous line will be established to Lake Erie, thus making the spring and winter facilities of transportation nearly equal to those of the summer. A company is now engaged in making surveys for a railroad from Albany to Stockbridge in Massachusetts, which with the contemplated railroad from Stockbridge to connect with the Boston and Worcester railroad, will form a chain of railroad communication between Albany and Boston, which will be of great advantage to this city, especially in the winter; when the intercourse by water with New York is suspended. When all these roads are completed, and there is no doubt they soon will be, and the links west of Utica, above referred to, filled up, there will be a line of railroad communication from Boston to Buffalo; from the Atlantic to the western lakes, of which Albany will be the business centre.

While private enterprise is doing so much to improve the communication with the west, the State government by a late law has authorised an enlargement of the Erie Canal and the construction of double locks, which it is supposed will have the effect to reduce the price of transportation 30 to 40 per cent., and greatly to augment it in quantity.

The present rate of toll on 1000 pounds of flour from Buffalo to Albany is \$1 62 1-2. The reduction will bring it to less than one half the cost, for the same distance by any other route, and the valley of the Mohawk must continue to be, as it always has been, the natural and easiest channel of commerce with the west, and Albany the depot

where the exchange takes place between the productions of the interior for those of the sea coast and of foreign countries. This exchange will be much facilitated by the improvement now making in the navigation of the Hudson, by the United States government. The removal of the bar, which is the object of this improvement, will, when completed, deepen the channel to about twelve feet, and will give to this place a West India trade, in which the productions of the islands, consumed in the west, will be exchanged for the produce brought down the canal, without being burdened by landing, storage and reshipment at New-York.

No doubt is entertained that the coasting and West India trade will be carried on to a very great extent in Albany, and with very great profit and success, so soon as the improvement in the river navigation is completed; and for the reason above given, no place in the country can, in many respects, be more advantageously situated for it. Indeed, the coasting trade carried on between this city and the seaport towns of New-England, is already very extensive. There are about twenty-five regular trading vessels between Albany and Boston only, which it is estimated by one of our most intelligent forwarding merchants bring to this place about \$5,000 quintals codfish during the season, and about 25,000 barrels of mackerel, besides large quantities of merchandise which passes up the canal or stops for a market here, not less, probably, than 5000 tons. These vessels take from Albany to Boston, in return, about 75,000 barrels of flour per season, together with large quantities of timothy seed, peas, wool, &c. The indirect trade between Boston and Albany, which is transhipped at New-York, is also very extensive.

Besides the routes above mentioned, others are making to the north, all directly communicating with this city, and increasing its advantages. A railroad communication already exists between this place and Saratoga Springs, by way of the Mohawk and Hudson and Saratoga and Schenectady railroads. The railroad now about making from Saratoga Springs to Whitehall, will complete the route to Lake Champlain, and afford the same advantages for a trade with Canada in the fall and spring as are now given by means of the northern canal in the summer.

It necessarily results from the situation of Albany, and its easy means of communication with the surrounding country, that an immense travel centres at this city. Some idea may be formed of its extent when we state that it is estimated, and no doubt truly, that from 600,000 to 800,000 persons arrive at and depart from this city in the course of the year, by the several stage routes, railroads, steamboats and other vessels—and this number is yearly increasing, and no doubt six years will see it doubled.

In consequence of this city being a great depot for the produce of the north and west, raw materials for manufacture are obtained here at the cheapest rates and provisions are lower than in any of the Atlantic cities. The market is abundant at all seasons of the year, and is well supplied with all the necessities and luxuries of life, at moderate prices.

Industrious mechanics, and all men of enterprise and character, cannot fail to prosper in Albany, as the means of living are cheap, and the market extensive—communicating with almost every section of the country, in the readiest manner. All will here find an almost certain reward for their exertions; almost every branch of mechanical labor is or may be carried on at this city to very great advantage, and no doubt with great success. Good water power exists in its vicinity for mills and manufactories, and a ready market can easily be found for all products of labor and skill. With the strong conviction that the interest of those who may come to take up their residence in our city will be promoted, as well as the prosperity of the city thereby increased, we hope that you will give circulation to this statement, among such as you may suppose wish to seek in this State additional encouragement for their enterprise and industry.—Respectfully, yours,

ERASTUS CORNING,	THOS. W. OLCOTT,
JOHN TOWNSEND,	JESSE BUEL,
TRUNIS VAN VECHTEN,	GIDEON HAWLEY,
FR. BLOODGOOD,	H. BLEECKER,
JOHN WOODWORTH,	B. KNOWER,
S. VAN RENSSLAER, JR.	JAS. VANDERPOEL,
AUGUSTUS JAMES,	LEWIS BENEDICT,
JAM. STEVENSON.	

An Address to the Mechanics of Easton, Pennsylvania, delivered at their request, by JAMES MADISON PORTER, on the 4th of July, 1835.

(Concluded from Number 39.)

Oliver Evans was originally an apprentice to a wagon maker or wheelwright. But he was a boy who thought and read, and his attention was called to the expansive power of steam by the heating of a gun barrel in a blacksmith's fire, in which about a gill of water had been confined. He read and reflected, until he made as great an improvement in the use of steam, as perhaps any who preceded him.

As steam has been referred to, let us for a moment advert to the mighty engine it has become in the hands of men. Its expansive power was known to the ancients: "The elegant toys of Hiero—the beautiful experiments of Porta and Decaus—the modification of the Greek machine by the Italian Branca—the ingenious ideas of Hautefeuille, and their masterly extension and development by Papin, contain all the rudiments required for a perfect machine, wanting only to be touched by the magic hand of some mechanical magician, to form a structure of surpassing ingenuity and semi-omnipotent power."

The total neglect with which these individual schemes were regarded, is not the least extraordinary circumstance in the history of the steam engine. And when the Marquis of Worcester, towards the close of the seventeenth century, made his first attempt, imperfect as it was—yet successful, in applying steam as a moving power, he was unable to interest the public in the matter, and it fell almost, if not entirely, into oblivion, until Captain Savery, thirty years afterwards, succeeded in combining a mechanism in which steam or elastic vapor was the motive power. Newcomen carried it somewhat farther. The improvement thence progressed, until the invention of Bolton and Watts, perfected, as was supposed, the system of condensation, so as to give the greatest possible power to a given quantity of steam generated. Our own Fulton adapted it in practice, the first successfully, to the propelling of boats, and, in the short period he lived thereafter, not less than fifteen steamboats were built and put in use, under his own direction. Suffice it to say, that it is now used as the motive power for almost every purpose. Steam has added to the productive faculties of Britain what would be equal to some hundreds of millions of operatives; and what has it not done for our own country, where the price of labor is higher than in foreign countries?

Steam and water, by the aid of improved machinery, are accomplishing wonders, and indeed it would seem that we knew not where the perfection of machinery will end. This much we do know, that we must keep pace with the improvements of the times. Who now would think of making cut nails with the hand-machine in use less than thirty years since? On a recent examination before the House of Commons in England, it

was testified, "A cotton manufacturer who left Manchester seven years since, would be driven out of the market by the men who are now living in it, provided his knowledge had not kept pace with those who have been, during that time, constantly profiting by the progressive improvements that have taken place in that period."

There is a very common error existing among those who have never reflected on the subject, that these improvements in the Mechanic Arts which have so increased and economized the products of labor, are prejudicial to individuals, by depriving them of work. All experience has shown that it is not the result. The reduction of price always increases the quantity sold in a corresponding degree, and thus the amount of labor which must be done by hand, is kept up, so as to give equal, if not increased employment to operatives. To give a familiar illustration:—Some years since all the floor boards used in our cities, were planed, tongued and grooved by hand; now they are principally, if not altogether, done by machinery. Sash, too, in all our large cities, until lately, were made entirely by hand; now they are made in many places by machinery. In both these items, the prices of the article have been reduced fifty to seventy-five per cent. Many carpenters were apprehensive that these things would ruin their business, and throw them out of employment. Has such been the result? On the contrary, has there not been an increased demand for carpenters in those very cities, from the fact that the diminished expense of building in consequence of these and other improvements by labor-saving machinery, has induced so many more persons to invest money in buildings? and has not the price of labor among carpenters been so enhanced, that many have gone from the country to the cities, induced by this advance in wages?

Now, believe me, such will ever be the case in every branch in mechanism and manufactures.

The invention of the spinning wheel undoubtedly threw hand spinners out of employment at hand spinning, but gave them increased employment at other branches, in consequence of the increased demand, from their reduced price, for the articles spun.

So, too, with power looms—so, too, with the carding machine—the cotton gin—the last of which actually doubled the value of the cotton lands to the planter; and who now never sees a pair of hand cards used, unless it be for some very special purpose.

All these things had the effect of changing the direction of labor, and yet no one will doubt but that they have all tended to advance the interests of the community at large; and it may be laid down as an axiom in political economy, that, whatever benefits the community at large, must eventually benefit all the members of that community.

The great object which I have had, in throwing together these desultory observations, has been to call your attention to

the propriety, nay, necessity, of improving yourselves in your various callings and trades, by learning, in addition to the practice, the principles on which your work is done—in other words, to ask you to think, to reflect, to read and learn what others have done before you, and to add your own experience to the existing stock of knowledge.

The mechanics of our country, and I flatter not when I make the assertion, are as useful and valuable a class of citizens as our country contains. In general, they may be said to fill that happy medium position in society, in which neither overgrown wealth nor abject poverty is found. To this there may be, and are some exceptions, but not enough to operate against the truth of this, as a general assertion. The question you are asked to answer fairly, and truly, is, Have you availed yourselves of all the means placed within your reach, to increase your own resources, or to sustain in society, and in the government of the country, that station to which your numbers and moral standing entitle you? If you have not, to what is it attributable? Your good sense and your patriotism are sufficiently known. It was to the mechanics of our country—of Boston—that we are perhaps indebted for the final adoption of the present Constitution of the United States. They met at the Green Dragon in Boston, in January, 1788, and recommended to the Convention of Massachusetts the adoption of the Constitution. It was Paul Revere, a brass founder of Boston, who carried these resolutions to Samuel Adams, who presented them to the Convention; and they tended much to induce that body of men to decide in favor of the adoption of the Constitution. For the interesting circumstances which took place on that occasion, I beg leave to refer to a speech delivered by the great champion of our Constitution, Daniel Webster, at Pittsburg, two years ago this day.

On you, my friends, the preservation of that glorious Constitution, and the liberty we enjoy under it, may very much depend. What boots it that our fathers fought and toiled, and many of them fattened their native soil with their blood, if their descendants should not properly prize the blessings handed down by them? And how can we prize those blessings properly, if we will not use every means for increasing knowledge—intellectual light—among us? And why are you, mechanics, especially required to carry on this glorious work?—because, in doing so, you will be peculiarly advancing your own secular interests, whilst you will be better fitting yourselves to play your own parts, as constituent members of that government, a portion of whose sovereignty you are.

You have advantages, which, in early life, neither Rittenhouse, nor Oliver Evans, nor Fulton enjoyed. You have all the lights they have shed; and all the improvements by those who preceded and those who succeeded them, both in Europe and our own beloved land, are placed around and before you, and within

your reach and power, to use and to improve, if you will.

It is astonishing the amount of information which one hour alone, out of the twenty-four, bestowed on the acquisition of useful knowledge, will bring forth. It is almost incredible, the amount of scientific works which a trifling contribution from each member of an association may bring together. There is no axiom truer than that "Time is Money"—nor than, that the heaviest taxes we pay, (as Dr. Franklin averred,) are those imposed upon us by our idleness, our pride, and our folly. The daily expense, which almost every one incurs, of a sixpence, for some matter of amusement or refreshment, which might just as well be dispensed with, would, if contributed by five hundred mechanics, and our town surely contains more than that number, produce over ten thousand dollars per annum. Yet such a tax imposed by government would be esteemed outrageously oppressive. One hour out of the twenty-four, now perhaps spent in conversation, perhaps in a beer house, or the bar room of a tavern, per chance, discussing politics, or the merits or demerits of some candidate for popular favor, in which neither side, in all probability, consults the best rules of courtesy, or the most conciliating means of persuasion, and each leaves his adversary just where he found him, or it may be yet more firmly wedded than ever to his own opinions—this hour per day, if spent in reading some improving work, or listening to a sound and sensible lecture on an interesting and appropriate topic, might enable you, in the course of a few years, to lay in a stock of valuable information, the benefit of which no one can calculate.

Can you, then, better close the labors of this grand Jubilee of Freedom, than in associating yourselves permanently together, as a Mechanics' Institute, and by your united efforts obtain a library suited to mechanical pursuits, and make provision for hearing, during a part of the year, lectures from scientific men, on the various subjects connected with the sciences of Natural Philosophy and the Mechanic Arts?

The result will be that reflection will be induced. Your apprentices will be taught to read and think, and reading and thinking apprentices make intelligent journeymen, who in turn will make intelligent master workmen, fit to fill any station to which they may be called. An Athenæum or Reading Room is a much more fitting and improving school than some that are resorted to for spending evenings. This plan has generally been resorted to in our cities, with great approbation and unbroken success. And if the Mechanics' Celebration of Easton on the 4th of July, 1835, shall lead to a similar result here, then, indeed, may every citizen rejoice that it has been gotten up, and join in the aspiration that such an association may annually assemble on the anniversary of American Independence, and rationally celebrate the birth-day of Freedom, long as the sun holds his course, or the love of Liberty and Intelligence shall exist in the breasts of Americans.

AGRICULTURE, &c.

GREAT IMPORTATION OF IMPROVED SHORT-HORNED DURHAMS.

The *Evening Star*, of Sept. 5th, gives the following description of eight splendid animals of the above breed, imported from England by the AGRICULTURAL SOCIETY OF OHIO.

We had not the pleasure of seeing these cattle, but have heard them spoken of as a very superior lot. It is gratifying to witness the efforts in different parts of the country, to improve the breed of domestic animals—much good must result from it.

THE SHORT-HORNED DURHAM OX.—“Some superior specimens of this famous breed of English cattle, were imported a few days since in the ship *Great Britain*, Capt. French, from Liverpool—having been purchased for the Ohio Agricultural Society, whose enterprising exertions we have before had occasion to advert to. We believe the present are the finest samples ever brought to this country. They are eight in number, two year old and yearlings. The largest, which is a two year old white bull, is of Herculean size, but not on that account of gross or unwieldy shape, but of remarkable elegance and symmetry of proportions, both in the body, neck, head and limbs—presenting in fact a beautiful model or study for a painter like Wouermans, so famous for his cattle. He weighs 2500 lbs. and cost in England £200, making the whole expense of bringing him out about \$1000.—What seems particularly to distinguish this breed of cattle, is the small elegant limbs, the robust muscular form of the neck, the fine contour of the head and face, and the short crumpled horn turned inward. The neck in this bull is of a depth fully equal to the length of the head, the small pointed nose forming with the forehead, throat and upper part of the neck, an isosceles triangle, of which the throat is the base line.—The two year old cow, which stood in the stall next to the large bull, was of white color, and nearly of the same size, also of elegant form. The yearlings, composed of both sexes, were full as large as some of our full grown cattle. The animals were fed on the passage on hay and oil cake, (made of ground flaxseed) and the sides of the stalls being cushioned, prevented any injury from the motion of the ship, from which in fact they scarcely felt any inconvenience, as they very prudently lay down during a gale.—The consequence is they have lost but very little flesh, and are in excellent health.—The English boy who had charge of them, came out expressly for that purpose.

RICE IN LOUISIANA.—The annexed extract of a letter proves the productiveness of rice grown in our own state. The inducements it holds out to the planters to turn their attention to it are tempting and should not be overlooked:

“In walking through the plantation of Dr. Y. M'Daniel, which lies on the west bank of the river Ponchatoula, parish of Livingston, my attention was attracted by the enormous size of his rice. I was invited to walk in, and to my astonishment, upon an admeasurement of it, although it had not attained its full growth, it proved to be nine feet high, when cut off above the grain. Its produce was as follows: in one single stool was found 33 stalks, each stalk, on an average, produced 477 grains, which made the astonishing number of 15,741 grains, the product of one single grain of rice.”

[From the Horticultural Register.]

On Heating Horticultural and other Buildings by Hot Water.

The way properly to approach this subject, is first to consider this scheme as compared with the former methods of heating such structures with flues, warm air and steam. The objections to the first, are the dry heat it occasions, owing to the hot air circulating through the flues having been in immediate contact with the fire, by which it is deprived of its moisture, partially decomposed or altered, and largely charged with carbonic acid gas; the heat of this air is probably 4 a 600 degrees, and should the fire by accident be made too large, or a leak occur in the flues, the plants are inevitably injured. Warm air is seldom used, but is open to the same objection. We have proved in four months' successive experiments for chemical purposes, that atmospheric air passing over ignited coal, becomes combined with a considerable quantity of carbonic acid gas, which is unfit for vegetation, and injurious to respiration.

The method of heating by circulating steam through pipes, is free from this objection, but the inconveniences are, that accident or negligence may over-load the safety-valve, and endanger the building; or what is the most serious objection, that the moment the fire gets so low as to cease driving the steam, the house becomes quickly cold, no heat being given off by the pipes.

To these objections the plan of heating by hot water inclosed in pipes is not liable; the surface by which the air of the building is warmed, scarcely ever attains 160 degrees of heat, (212 is boiling point) and it is almost impossible, if the proportions are originally properly calculated, to bring it to this point; consequently the plants can never be injured by overheat, and the atmosphere remains undeprived of its moisture, unaltered and uncontaminated. I have seen two adjoining green houses heated, for sake of experiment, by flue and hot water, the same species of plants being placed in each: after two months' operation, the difference in vigor of vegetation, in size and color of leaves, was beyond all conception strikingly in favor of the hot water. The thermometer was always much more steady, and the air never felt oppressive. In addition to this, if the boiler is properly constructed, so as to have a sufficient body of water heated, should the fire be let to go out, the water will take several hours to cool, and the pipes will continue to give off heat the whole time.

In fact, the superiority of this plan has been evident ever since its first application; but it has been several times in disrepute, owing to failures and accidents arising from a want of knowledge of first principles in those who have undertaken to construct the necessary apparatus, and in every one trying to start and drive a hot water system of his own, often opposed to these principles, and as often endeavoring to force them beyond their natural limits.

There are two extremes in the application of this system, the space between which has afforded extensive ground for experiments and plans. The first is the method of Perkins, who passes strong tubes of small diameter through the midst of the furnace, and thus heats the water to 4 a 600 degrees; these small tubes continue through the buildings, and give off a large quantity of heat; they take up little room, are easily concealed, and effectually warm the building. This is, therefore, very desirable, as long as the pipes remain sound; but should any accident produce a leak ever so small, the result might be a very, dangerous ex-

plosion, notwithstanding the safety-valve.—It is idle to say that common care will prevent this; several explosions have already taken place—and although every precaution is taken at a powder magazine, yet no one prefers to reside near it.

The other extreme is not heating the water sufficiently to keep up a rapid circulation through the pipes. This often arises from a wrong construction of the pipes and boiler, as well as of the furnace. Heat cannot be economized beyond a certain degree; if every glowing coal is placed in contact with a body which abstracts its heat, it is impossible to keep up a fire, and unless sufficient heat escapes up the chimney to rarify the air there, no draft can be created, and the fire will not burn; therefore, much depends on the proper construction and proportions of the boilers and furnaces.—Again, hot water does not give off heat in proportion to its solid mass, but from its surface; therefore, the larger the surface is, compared with the solid contents of the pipes, the more rapid will be the circulation, as the heat is given off quicker, and in larger quantities; to this, however, there are limits in reason.

Attention to the proper levels is of main consequence in this system, as if any part of the pipe descends below the bottom of the boiler, the circulation is immediately arrested.

Kewley's method with a syphon inserted a few inches below the surface of the water in an open boiler, is an excellent way, where an unlimited quantity of heat is required, or where additional heat is wanted occasionally.

THE MATHEMATICAL INSTINCT OF BEES.—The operations of pure instinct have never been supposed by any one to result from reasoning; and certainly they do afford the most striking proofs of an intelligent cause, as well as of a unity of design, in the world. The work of bees is among the most remarkable of all facts in both these respects. The form is in every country the same—the proportions accurately alike—the size the very same, to the fraction of a line, go where you will; and the form is proved to be that which the most refined analysis has enabled mathematicians to discover as, of all others, the best adapted for the purposes of saving room, and work and materials. This discovery was only made about a century ago; nay, the instrument that enabled us to find it out—the *fluxional calculus*—was unknown half a century before that application of its powers. And yet the bee had been for thousands of years, in all countries, unerringly working according to this fixed rule, choosing the same exact angle of 120 degrees for the inclination of the sides of its little room, which every one had for ages known to be the best possible angle, but also choosing the same exact angles of 110 and 70 degrees for the inclinations of the roof, which no one had ever discovered till the 18th century, when Maclaurin solved that most curious problem of *maxima* and *minima*, the means of investigating which had not existed till the century before, when Newton invented the *calculus*, whereby such problems can now be easily worked. —[Lord Brougham's Discourse of Natural Theology,

NEW-YORK AMERICAN.

OCTOBER 10—16, 1833.

LITERARY NOTICES.

PAULDING'S WORKS, vols. V. and VI; New York, HARPER & BROTHERS.—We have here "the letters from the South," by a northern man, which Mr. Paulding first published several years ago. The South, however, only means Virginia, which then was not so much eclipsed, as now it is—and there is not much of a Northern man in the sentiments uttered. In looking cursorily over the book, we were struck with a passage, which we subjoin, as chiming in curiously enough with some leading notions of this day. Referring to the Essays on the Constitution, by John Taylor, of Caroline, which Mr. Paulding considers as only second in value to the *Federalist*, he holds this language.

The essays on the funding and banking systems, are most especially entitled to the deep consideration of every citizen of the United States.—They exhibit, in a clear, unanswerable series of facts and arguments, the silent cunning, and almost inscrutable windings, by which these modern creators of aristocracy, under pretence of adding to the means and the wealth of a nation, operate as perpetual drains on the laboring classes, and landed interest, and finally create an aristocracy of concentrated wealth, "without rank or title; regardless of honor; of insatiable avarice, and neither conspicuous for knowledge or virtue." The legitimate aristocracy of virtue and talents, is thus superseded by that of paper-money, monopoly, and exclusive privileges; power goes over from land to money; from the many to the few; one-half the property of the nation is exempted from the burdens which the other is obliged to sustain, and the feudal baron is succeeded by the paper one. Thus, with equal rights guaranteed by the constitution and the laws; with a statute for ever abolishing the right of primogeniture, and of entailment of our own property, we see every day, nay, almost every hour of the day, the Legislatures of the different States creating corporate bodies with exclusive privileges, and granting to hundreds of societies and corporations the right of holding property in perpetuity, which is uniformly denied to individuals. Each and every one of these corporate bodies is more or less of the nature of a monopoly; and monopolies, either of wealth, honors, privilege, or power; whether of kings, nobles, churchmen, corporate bodies, presidents of societies, or bank directors, is fatal to the general diffusion of competency, wherever it exists.

NIGHTS AT MESS, 1 vol; Philadelphia, E. L. CAREY & A. HART, for sale in New York by WILEY & LONG.—These stories have appeared, we believe, separately, in one of the English periodicals, and are now gathered together in a volume, which has certainly a good share of fun.

GEORGE WASHINGTON America Septentrionalis Civitatum Federatarum Præsidiis primi Vita: FRANCISCO GLASS, A. M., Ohioensi, &c.—N. Y., HARPER & BROTHERS.—A life of Washington, written in pure, flowing, easy and classical Latin, by a country schoolmaster in Ohio, whose life was passed in teaching the children of his country neighbors to read and write, is certainly a remarkable production. The circumstances under which it was composed, together with the manner in which the editor, Mr. Reynolds, became acquainted with the author, are told in a most interesting manner, in Mr. R.'s preface, from which we make no apology for extracting largely.

The following classical production came into my possession in so singular a way, that I feel bound to give the reader the whole history of it. In the summer of 1823, I was a member of the Ohio University, and left that Institution, expecting to return to college to pursue my studies, in the winter; but circumstances, unnecessary for me to state, prevented me from joining my class at that time, and I was induced to seek, in the western part of the State, a person with whom I could prosecute my studies during the winter season. I heard of a

competent teacher in Warren county, of which Lebanon is the shire, situate about thirty miles from Cincinnati. He had excited no small degree of interest among the few who were capable of appreciating his extraordinary attainments in classical literature. This man was Francis Glass, the author of the following work, "*The Life of Washington*."

I found him in a remote part of the county, in a good neighborhood of thrifty farmers, who had employed him to instruct their children, who, in general, were then acquiring the simplest rudiments of an English education. The school-house now rises fresh on my memory. It stood on the banks of a small stream, in a thick grove of native oaks, resembling more a den for Druidical rites, than a temple of learning. The building was a low log cabin, with a clapboard roof, but indifferently tight—all the light of heaven, found in this cabin, came through apertures made on each side in the logs, and these were covered with oiled paper to keep out the cold air, while they admitted the dim rays.

The seats, or benches, were of hewn timbers, resting on upright posts, placed in the ground to keep them from being overturned by the mischievous urchins who sat on them. In the centre was a large stove, between which and the back part of the building, stood a small desk, without lock or key, made of rough plank, over which a plane had never passed; and, behind this desk, sat Professor Glass when I entered his school.

There might have been forty scholars present; twenty-five of these were engaged in spelling, reading, and writing, a few in arithmetic, a small class in English grammar; and a half a dozen, like myself, had joined his school, for the benefit of his instruction in the Greek and Latin languages, preparatory to a more extended course in one of the Ohio seminaries.

The moment he learned that my intention was to pursue the study of the languages with him, his whole soul appeared to beam from his countenance. He commenced in a strain, which in another would have seemed pedantic, but which, in fact, was far from being so in him.

The following imperfect, sketch, drawn entirely from memory, may serve to give some idea of his peculiar manner:—"Welcome to the shrine of the Muses, my young friend, *Salve! Xaiye!* The temple of the Delphian God was originally a laurel hut, and the Muses deign to dwell, accordingly, even in my rustic abode. '*Nou hantem domum fastidium, umbrosamve ripam.*' Here, too, the winds hold converse, 'Eurus and Caurus, and Argestes loud,' and the goddesses of the Castalian fountain, the daughters of the golden-haired Mnemosyne, are sometimes silent with the lyre, '*citharâ tacentes,*' that they may catch the sweet murmurs of the harp of Aeolus. Here, too, I, the priest of the muses, *Musarum sacerdos*, sing, to the young of either sex, strains before unheard, *Virginitus puerisque canto.* Plutus, indeed, that blind old deity, is far away; and far away let him be, for well has the prince of comic poets styled him a 'filthy, crooked, miserable, wrinkled, bald and toothless creature!' *ῥυτίστη, χυφόν, ῥόλιον, ῥυδόν, μαδύγνα, γυδόν.*"

Such was my first interview. It was a display perfectly natural, and without the least apparent consciousness of effort on his part. From this moment he took the greatest interest in my studies, and I enjoyed not only his instruction during school hours, but—as I had taken up my lodgings at a farm-house about half a mile from his school, on the road to his own humble residence, situate a mile beyond—almost every evening, from his deep interest in my progress, was spent with me at my dwelling.

I had been with him about three months, when he communicated to me his long-cherished intention of writing the life of Washington in Latin, for the use of schools. He, after this time, often adverted to the subject, with an earnestness I shall never forget. By parcels, I got something of his history. He was educated in Philadelphia, and spent the earlier part of his life in that city and vicinity, in literary pursuits. He often mentioned the name of Professor Ross, and said something of having assisted him in the compilation of his Latin Grammar. While acting as an instructor in the interior of Pennsylvania, he contracted an unfortunate marriage, in a state, as he said, of partial insanity; no wonder he thought so, when he found himself surrounded by evils which his imprudence had brought upon him.

Glass tried to make the best of his situation, but he could not soften the temper, or elevate the mind,

of the being to whom he was united for life. The influence of his situation, on such a sensitive scholar, was perceptible in every act. He did all he could for his wife and rapidly-increasing family, but his efforts procured for them but a scanty subsistence.

With all ambition prostrated, and with a deadly sickness at his heart, he, somewhere in the year 1817 or '18, left Pennsylvania for the West, and settled in the Miami country. From that time to the period I became acquainted with him, he had pursued the business of school-keeping, in various places, where a teacher was wanted, subject to the whims of children and the caprices of their parents, enough alone to disturb the greatest philosopher.

The winter had now drawn nearly to a close, and the opening spring, with its busy scenes of rural life, had called nearly all the larger scholars from his school; still nothing had been definitely arranged in reference to the life of Washington. He renewed the subject again and again. I had no one with whom to consult. I did not know how to decide in my own mind, for I felt incapable of properly estimating his attainments, and what he really was capable of producing,—besides, the expenses to which I should be subjected, were matters of responsibility, gravely to be considered. My feelings, however, were interested. I pitied the man, and felt grateful for his attentions, and for the advantages I had derived from his instructions. The attempt, I knew, was a bold one; but then, the subject addressed itself to the feelings of every American heart. The example, too, of such devotion to classic literature, on the part of an individual so humble, so obscure, could not, I thought, but awaken to higher efforts, on the part of individuals more favorably situated,—nor his labors be otherwise, than received with favoring kindness by every one interested in the advancement of literature in the United States.

From the moment he learned my determination, to meet his requirements in the prosecution of his work, his gloom and low spirits forsook him, and he appeared like a new being—though it was but too apparent, that the spirits thus newly lighted up, were still encased in a weak, fragile, and gradually sinking form.

I now visited his house for the first time. I shall not attempt a description, nor do I exaggerate, when I say, that his worldly goods and chattels, of all descriptions, could not have been sold for the sum of thirty dollars. Clothing for himself and family was now ordered, and, at the end of his term, arrangements were made for the removal of himself and family to Dayton, on the Miami, sixty miles from Cincinnati, where he immediately set about his work, and ere the close of the following winter, the whole was completed.

At this period I paid him a visit, and received from him the manuscript. His request was most earnest, that the result of his labors might be published. I promised him it should, and have never seen him since;—and, though years have rolled around, I have never, until the present moment, had leisure to attend to its publication, or to redeem the promise I had made to its author.

Poor Glass!—had he only been spared, to learn that his work had been examined and approved of by some of the ripest scholars of our country—men whose names are but other terms for all that is pure, and chaste, and elegant in classical literature—how it would have consoled and softened the last gloomy hours of his existence! For so obscurely did he live, so humbled and retired must have been his residence at the time of his death, that, since my return to the United States, I have not been able to learn a word in reference to him, except that he died while I was gone, and that his family had removed from Dayton to Germantown-ship, Montgomery county.

The interest of this story may justly add to that of the work it ushers forth, and when it is said that Prof. *Anton* of Columbia College, Prof. *Patton* of the New-York University, Prof. *Wylie* of the University of Pennsylvania, and other approved scholars, bear witness to the purity of the style in which it is written, it is not an unreasonable hope to express, that this life of Washington may become an elementary class book in our Latin schools.

It was a well timed and gracious act of Columbia College, at their commencement on Tuesday, to

confer on Mr. Reynolds, whose generous aid and sympathy cheered Mr. Glass on to the completion of his labors, the honorary degree of Master of Arts.

LA FRANCE LITERAIRE, New York.—This foreign periodical re-appears, for the first time since the Ann street fire, more disastrous to printers, though less so to letters, than that which destroyed the Alexandrian Library. The whole semi-monthly edition, for the 25th August, prepared in advance, was destroyed, together with many of the back numbers, and all the material of the printing office.

To surmount all this, in a foreign language, is not easy. In the number before us, however, we are glad to find the difficulties so handsomely overcome.

CAREY'S LIBRARY OF CHOICE LITERATURE.—Philadelphia, E. L. CAREY and A. HART. New York, G. & C. CARVILL.—A new weekly publication here greets us. Its price is five dollars per annum, for which a weekly pamphlet of 20 pp. double columns, and royal 8vo. size, is furnished, and made up of the "current literature of Great Britain, in all its various departments," and, when circumstances will authorize it, "of translations from the French, German, and Italian." In addition, the cover will contain original notices, reviews, and other articles. The numbers for one year will constitute two large 8vo. volumes! This Library makes its debut, by the re-publication of "the Memoirs of the life of Sir James McIntosh," by his son—and a better selection could not have been made. Some specimens of the Journal of Sir James were given in yesterday's paper.

THE TALES OF A PHYSICIAN; by W. H. HARRISON, 2 vols.: Philadelphia: E. L. CAREY & A. HART: For sale in New-York by WILEY & LONG. Those who, remembering the *Diary of a Physician*, with its delineations of power and pathos, may expect to find in these volumes any thing of the same thrilling interest, will be disappointed. The style of these Tales, and the incidents upon which they are founded, are, for the most part, common place enough—though they may serve to amuse a leisure hour.

THE CRATON MISCELLANY, No. 3: containing Legends of the Conquest of Spain, 1 vol.; Philadelphia, CAREY, LEA & BLANCHARD.—Yesterday we spoke, on hearsay only, of this volume, now, we have it before us, and have eagerly perused it. It is a delightful blending of fancy and romance, on a historical basis. It is the natural pouring out of such a mind as Irving's, when warmed with the perusal of the attractive legends of the Gothic Conquerors, reposing himself the while, amidst the faded glories, and thronging recollections, of the *Alhambra*. All readers will be delighted with it.

MEMOIR OF THE REV. JOHN STANFORD, D. D., late Chaplain of the Humane and Criminal Institutions in the city of New-York, by CHARLES G. SOMMERS, Pastor of the South Baptist church in N. York: 1 vol: New-York: SWORDS, STANFORD & Co.—If the value of biography is to be measured by the services to the cause of humanity and religion, of the individual whose life is commemorated, there are few volumes that should be more sought after than this memoir of an humble, persevering and self-denying Minister of the Gospel. No one who may have chanced to be present at the services in any of the institutions to which Mr. Stanford was Chaplain, and who recalls his venerable appearance and patient labors among the hardened and the corrupt, to whom he so freely and perseveringly ministered, should forego the purchase

of a volume which presents so faithful a portraiture of his mind and career.

It is principally compiled from his own writings, prepared rather for his own guidance and edification, than from any purpose of publication; and, therefore, rendering more accurately the impressions and feelings they record.

If persuasion or proof were needed to enforce the conviction that the Gospel is indeed from on high, and that the humble laborer in its vineyard has his own exceeding great reward, the life and labors of Mr. Stanford would be eloquent on that head.—To those who, in a career less repugnant, and mid duties less irksome than those of this venerable divine, are yet sometimes ready to faint by the way side, we may, in all confidence, commend this volume of humble works, practical piety, and unfaltering faith.

A BIOGRAPHICAL NOTICE OF COMMODORE JESSE D. ELLIOTT; containing a review of the controversy between him and the late Commodore Perry, and a history of the figure-head of the United States frigate Constitution, by a Citizen of New York; Philadelphia, printed for the author.—This is a book which denotes, as much as any thing we have seen, the evil influence of party. Commodore Elliott, from taste, or accident, has distinguished himself as a partisan of General Jackson. This we hold to be exceedingly unbecoming in any officer, towards any President. Like every other citizen, an officer in the military or naval service, is entitled to his opinions and his vote; but it always seems to us a desecration of the national uniform, when any one wearing it, becomes an active and heated partisan.

The fact, however, of Commodore Elliott's being so, has undoubtedly led to the writing and publishing of this book—of which the recitals on the title page are quite sufficient to indicate the character. It is a political diatribe, in the course of which, historical truth, and illustrious names, and glorious memories are alike falsified,—and all to prove, what, if true, would have needed no proof,—that Commodore Perry had lost, and Captain Elliott redeemed the battle of Lake Erie! Start not, gentle reader, even to such lengths as this has the spirit of second hand sycophancy been carried in these pages. We will not quote from them; but to such as may be disposed to verify what is here said by reference to the book, we cite the 186th page, as one of several where this pretension is boldly put forth.

As to the history of the figure head, "the duties of the democratic party," and such like cognate subjects, we have no time to waste on them.

As a publication, we consider this book a disgrace to the country; and so indeed others seem to think, for it is without the name of either printer or publisher.

AMERICAN MONTHLY MAGAZINE FOR OCTOBER: Edited by C. F. HOFFMAN and H. W. HERBERT: New-York: GEO. DEARBORN.—This is the only periodical for the month that has yet reached us, and it is, as usual, very good—though too much space is given to the notice of, and extracts from, Mr. Latrobe's travels. The "Letters from France," of which a series is commenced in this number, are agreeably written. We have little space for extracts, and therefore make only two short ones.

THE SOLDIER.

"Why go to the battle, dearest?" said the wife to her husband.

"Because we are oppressed,—and I owe my life to my country; and you, love, would not wish your husband a laggard where honor called him, because danger stood in the way?"

"No; if we could be certain that either honor

or duty called, I would be the last to detain you; though if you were killed, I could look to God alone for support or comfort in my desolation; but remember, when you speak of patriotism, that those opposed to you have the same feelings as you, and were your friends and associates. Must they be wrong?"

But he listened not to her arguments; and, taking one long kiss, laughed at her fears as he galloped to join his comrades. She was a woman and reasoned from her cowardice.

It was after a skirmish that the soldier walked the battle field, amidst the dying and the dead—and, as he drove away, the birds of prey eagerly hovering over them—and listened to the groans of agony, and curses of despair, of those whose laugh he had often heard, and whose happiness he had daily witnessed; he reflected whether any cause could justify so much misery.

He doubted whether those men would risk every thing to sustain a cause plainly wrong,—where nothing was to be gained and so much must be sacrificed; and remembering that they who had persuaded him to seek the lives of his neighbors, risked nothing by their patriotism; and, shunning the danger they persuaded others to encounter, seemed avaricious of any thing but the glory they extolled;—he saw that a few mean politicians were the country he was serving; and that he had been persuaded to avenge an imaginary wrong by a real injury. And he felt that patriotism might be a crime. Then his fond young wife, anxious and alone, mourning his absence, and constantly trembling at the perils he encountered, came over his mind; he realised her miserable uncertainty; and shuddering at her desolation if he should be slain, he wept. But the trumpet sounded; discipline drove all softer feelings from his heart, and he rushed foremost in the battle's charge—a reckless instrument of destruction.

Gallantly he dashed on, if that can be called gallant where all thought is driven from the mind, and the man sees nought but the foe before him;—his white plume could be seen tossing above the smoke, far in advance of his men;—the square he was charging fired—his horse fell, and his comrades trampled over him on their way to victory.

His body was thrown into a pit with some hundred others—his name was omitted in the despatch which told the story of the battle in which he fell.

And thus ends the life of the SOLDIER! Z.

THE HUES OF AUTUMN.

AN INDIAN TRADITION.

But every drop this living tree contains
Is kindred blood, and ran in Trojan veins

Here loads of hances, in my blood imbued,
Again shot upward, by my blood renewed.

DAVIDEN'S VIRGIL.

"Those bones, stranger?" said the pioneer, "why, that ignorant varmint can tell you nothing about them—they were the frame-work of men who kicked their shins against these knobs a million years before his people came here to scare game and burn the Prairies.

The Indian evidently understood the words of the rough hunter, though he did not vouchsafe a reply to the hereditary enemy of his race. He did not seem, however, to take offence at the interruption, but waiting patiently until the other had finished, he drew up his blanket around him, and rising to his feet, stood erect on the mound. The light of our fire was thrown full upon his attenuated features, and lit them up with almost as ruddy a glow as that which bathed the autumnal foliage behind him. He was mute for some minutes, and then spoke to this effect.

"Yes, they were here before my people. But they could not stay when we came, no more than the Red-man now can bide before the presence of the Long-knife. The Master of Life willed it, and our fathers swept them from the land. The Master of Life now wishes to call back his red people to the blessed gardens whence they first started, and he sends the Pale-faces to drive them from the countries which they have learnt to love so well as to be unwilling to leave them.

"It is good. Men were meant to grow from the earth like the oak that springs in the pine barren, or the evergreen that shoots from the ground where the tree with a falling leaf has been cut down.

"But listen, brother! Mark you the hue that dyes every leaf upon the tree? It is born of the red water with which its roots were nourished a thousand years ago. It is the blood of a murdered

race, which flushes every autumn over the land, when yearly the moon comes round that saw it perish from this ground."

FOSTER'S FOREIGN QUARTERLIES, No. XIX: New York, THEODORE FOSTER.—This number gives us the latest Westminster Review—which, however, we have not had time yet to look into.

Extract from the third No. of the Crayon Miscellany.

Legend of Count Julian and his Family.

In the preceding legends is darkly shadowed out a true story of the woes of Spain. It is a story full of wholesome admonition, rebuking the insolence of human pride, and the vanity of human ambition, and showing the futility of all greatness that is not strongly based on virtue. We have seen, in brief space of time, most of the actors in this historic drama disappearing, one by one, from the scene, and going down, conqueror and conquered, to gloomy and unhonored graves. It remains to close this eventful history, by holding up, as a signal warning, the fate of the traitor, whose perfidious scheme of vengeance brought ruin on his native land.

Many and various are the accounts given in ancient chronicles of the fortunes of Count Julian and his family, and many are the traditions on the subject still extant among the populace of Spain, and perpetuated in those countless ballads sung by peasants and muleteers, which spread a singular charm over the whole of this romantic land.

He who has travelled in Spain in the true way in which the country ought to be travelled; sojourning in its remotest provinces; rambling among the rugged defiles and secluded valleys of its mountains; and making himself familiar with the people in their out-of-the-way hamlets, and rarely visited neighborhoods, will remember many a group of travellers and muleteers, gathered on an evening around the door or the spacious hearth of a mountain venta, wrapped in their brown cloaks, and listening with grave and profound attention to the long historic ballad of some rustic troubadour, either recited with the true *ore rotundo* and modulated cadences of Spanish elocution, or chaunted to the tinkling of a guitar. In this way he may have heard the doleful end of Count Julian and his family recounted in traditional rhymes, that have been handed down from generation to generation. The particulars, however, of the following wild legends are chiefly gathered from the writings of the pseudo Moor, Rasis; how far they may be safely taken as historic facts, it is impossible now to ascertain; we must content ourselves, therefore, with their answering to the exactions of poetic justice.

As yet every thing had prospered with Count Julian. He had gratified his vengeance; he had been successful in his treason, and had acquired countless riches from the ruin of his country. But it is not outward success that constitutes prosperity. The tree flourishes with fruit and foliage while blasted and withering at the heart. Wherever he went, Count Julian read hatred in every eye. The Christians cursed him as the cause of all their woe; the Moslems despised and distrusted him as a traitor. Men whispered together as he approached, and then turned away in scorn; and mothers snatched away their children with horror if he offered to caress them. He withered under the execration of his fellow men, and, last, and worst of all, he began to loathe himself. He tried in vain to persuade himself that he had but taken a justifiable vengeance; he felt that no personal wrong can justify the crime of treason to one's country.

For a time, he sought in luxurious idleness to soothe or forget the miseries of the mind. He assembled round him every pleasure and gratification that boundless wealth could purchase, but all in vain. He had no relish for the dainties of his board; music had no charm wherewith to lull his soul, and remorse drove slumber from his pillow. He sent to Ceuta for his wife Frandina, his daughter Florinda, and his youthful son Alarbot; hoping in the bosom of his family to find that sympathy and kindness which he could no longer meet with in the world. Their presence, however, brought him no alleviation. Florinda, the daughter his heart, for whose sake he had undertaken this signal vengeance, was sinking a victim to its effects.—Wherever she went, she found herself a by-word of shame and reproach. The outrage she had suffered was imputed to her as wantonness, and her calamity was magnified into crime. The Chris-

tians never mentioned her name without a curse, and the Moslems, the gainers by her misfortune, spoke of her only by the appellation of Cava, the vilest epithet they could apply to woman.

But the approbrium of the world was nothing to the upbraiding of her own heart. She charged herself with all the miseries of these disastrous wars; the deaths of so many gallant cavaliers; the conquest and perdition of her country. The anguish of her mind preyed upon the beauty of her person. Her eye, once soft and tender in its expression, became wild and haggard; her cheek lost its bloom, and became hollow and pallid, and at times there was desperation in her words.—When her father sought to embrace her, she withdrew with shuddering from his arms, for she thought of his treason and the ruin it had brought upon Spain. Her wretchedness increased after her return to her native country, until it rose to a degree of frenzy.

One day when she was walking with her parents in the garden of their palace, she entered a tower, and, having barred the door, ascended to the battlements. From thence she called to them in piercing accents, expressive of her insupportable anguish and desperate determination. "Let this city," said she, "be henceforth called Malacca, in the memorial of the most wretched of women, who therein put an end to her days." So saying, she threw herself headlong from the tower, and was dashed to pieces. The city, add, the ancient chronicler, received the name thus given it, though afterwards softened to Mataga, which it still retains in memory of the tragical end of Florinda.

The Countess Frandina abandoned this scene of woe, and returned to Ceuta, accompanied by her infant son. She took with her the remains of her unfortunate daughter, and gave them honorable sepulture in a mausoleum of the chapel belonging to the citadel. Count Julian departed for Carthage, where he remained plunged in horror at this doleful event.

About this time, the cruel Suleiman, having destroyed the family of Muza, had sent an Arab general, named Alahor, to succeed Abdalasis as emir or governor of Spain. The new emir was of a cruel and suspicious nature, and commenced his sway with a stern severity that soon made those under his command look back with regret to the easy rule of Abdalasis. He regarded with an eye of distrust the renegade Christians who had aided in the conquest, and who bore arms in the service of the Moslems; but his deepest suspicions fell upon Count Julian, "He has been a traitor to his own countrymen," said he, "how can we be sure that he will not prove traitor to us?"

A sudden insurrection of the Christians who had taken refuge in the Asturian mountains, quickened his suspicions and inspired him with fears of some dangerous conspiracy against his power. In the height of his anxiety, he bethought him of an Arabian sage named Yuzo, who had accompanied him from Africa. This son of science was withered in form, and looked as if he had outlived the usual term of mortal life. In the course of his studies and travels in the east, he had collected the knowledge and experience of ages; being skilled in astrology, and, it is said, in necromancy, and possessing the marvellous gift of prophecy or divination. To this expounder of mysteries Alahor applied to learn whether any secret treason menaced his safety.

The astrologer listened with deep attention, and overwhelming brow, to all the surmises and suspicions of the emir, then shut himself up to consult his books and commune with those supernatural intelligences subservient to his wisdom. At an appointed hour the emir sought him in his cell. It was filled with the smoke of perfumes; squares and circles and various diagrams were described upon the floor, and the astrologer was poring over a scroll of parchment, covered with cabalistic characters. He received Alahor with a gloomy and sinister aspect; pretending to have discovered fearful portents in the heavens, and to have had strange dreams and mystic visions.

"O emir," said he, "be on your guard! treason is around you and in your path; your life is in peril. Beware of Count Julian and his family."

"Enough," said the emir. "They shall all die! Parents and children—all shall die."

He forthwith sent a summons to Count Julian to attend him in Cordova. The messenger found him plunged into affliction for the recent death of his daughter. The count excused himself, on account of this misfortune, from obeying the commands of

the emir in person, but sent several of his adherents. His hesitation and the circumstance of his having sent his family across the straits to Africa, were construed by the jealous mind of the emir into proofs of guilt. He no longer doubted his being concerned in the recent insurrections, and that he had sent his family away, preparatory to an attempt, by force of arms, to subvert the Moslem domination. In his fury he put to death Siseburto and Evan, the nephews of Bishop Oppas, and sons of the former king. Witiza, suspecting them of taking part in the treason. Thus did they expiate their treachery to their country in the fatal battle of the Guadalete.

Alahor next hastened to Carthage to seize upon Count Julian. So rapid were his movements, that the Count had barely time to escape with fifteen cavaliers, with whom he took refuge in the strong castle of Merctello, among the mountains of Arragon. The emir, enraged to be disappointed of his prey, embarked at Carthage, and crossed the straits to Ceuta to make captives of the Countess Frandina and her son.

The old chronicle from which we take this part of our legend, presents a gloomy picture of the countess in the stern fortress to which she had fled for refuge; a picture heightened by supernatural horrors. These latter, the sagacious reader will admit or reject according to the measure of his faith and judgment; always remembering that in dark and eventful times like those in question, involving the destinies of nations, the downfall of kingdoms, and the crimes of rulers and mighty men, the hand of fate is sometimes strangely visible, and confounds the wisdom of the worldly wise, by intimations and portents above the ordinary course of things. With this proviso, we make no scruple to follow the venerable chronicler in his narration.

Now so it happened, that the countess Frandina was seated late at night in her chamber in the citadel of Ceuta, which stands on a lofty rock, overlooking the sea. She was revolving in gloomy thought the late disasters of her family, when she heard a fearful noise like that of the sea breeze moaning about the castle walls. Raising her eyes, she beheld her brother, the Bishop Oppas, at the entrance of the chamber. She advanced to embrace him, but he forbade her with a motion of his hand, and she observed that he was ghastly pale, and that his eyes glared as with lambent flames.

"Touch me not, sister," said he, with a mournful voice, "lest thou be consumed by the fire which rages within me. Guard well thy son, for blood hounds are upon his track. His innocence might have secured him the protection of heaven, but our crimes have involved him in our common ruin." He ceased to speak and was no longer to be seen. His coming and going were alike without noise, and the door of the chamber remained fast bolted.

On the following morning a messenger arrived with tidings that the Bishop Oppas had been made prisoner in battle by the insurgent Christians of the Asturias, and had died in fetters in a tower of the mountains. The same messenger brought word that the Emir Alahor had put to death several of the friends of Count Julian; had obliged him to fly for his life to a castle in Arragon, and was embarking with a formidable force for Ceuta.

The countess Frandina, as has already been shown, was of courageous heart, and danger made her desperate. There were fifty Moorish soldiers in the garrison; she feared that they would prove treacherous, and take part with their countrymen. Summoning her officers, therefore, she informed them of their danger, and commanded them to put those Moors to death. The guards sallied forth to obey her orders. Thirty-five of the Moors were in the great square, unsuspecting of any danger, when they were severally singled out by their executioners, and at a concerted signal, killed on the spot. The remaining fifteen took refuge in a tower. They saw the armada of the emir in the distance, and hoped to be able to hold out until its arrival. The soldiers of the countess saw it also, and made extraordinary efforts to destroy these internal enemies before they should be attacked from without. They made repeated attempts to storm the tower, but were as often repulsed with severe loss. They then undermined it, supporting its foundations by stanchions of wood. To these they set fire, and withdrew to a distance, keeping up a constant shower of missiles to prevent the Moors from sallying forth to extinguish the flames. The stanchions were rapidly consumed, and when they gave way the tower fell to the ground. Some of the Moors were crushed among the ruins; others were flung

to a distance and dashed among the rocks; those who survived were instantly put to the sword.

The fleet of the emir arrived at Ceuta about the hour of vespers. He landed, but found the gates closed against him. The countess herself spoke to him from a tower, and set him at defiance. The emir immediately laid siege to the city. He consulted the astrologer Yuza, who told him that, for seven days his star would have the ascendant over that of the youth Alarbot, but after that time the youth would be safe from his power, and would effect his ruin.

Alahor immediately ordered the city to be assailed on every side, and at length carried it by storm. The countess took refuge with her forces in the citadel, and made desperate defence, but the walls were sapped and mined, and she saw that all resistance would soon be unavailing. Her only thoughts now were to conceal her child. "Surely," said she, "they will not think of seeking him among the dead." She led him, therefore, into the dark and dismal chapel. "Thou art not afraid to be alone in this darkness, my child," said she.

"No, mother," replied the boy, "darkness gives silence and sleep. She conducted him to the tomb of Florinda. "Fearest thou the dead, my child?" "No, mother, the dead can do no harm, and what should I fear from my sister?"

The countess opened the sepulchre. "Listen, my son," said she. "There are fierce and cruel people who have come hither to murder thee. Stay here in company with thy sister, and be quiet as thou dost value thy life!" The boy, who was of a courageous nature, did as he was bidden, and remained there all that day, and all the night, and the next day until the third hour.

In the mean time the walls of the citadel were sapped; the troops of the emir poured in at the breach, and a great part of the garrison was put to the sword. The countess was taken prisoner and brought before the Emir. She appeared in his presence with haughty demeanor, as if she had been a queen receiving homage. But when he demanded her son, she faltered, and turned pale, and replied, "My son is with the dead."

"Countess," said the emir, "I am not to be deceived: tell me where you have concealed the boy, or tortures shall wring from you the secret."

"Emir," replied the countess, "may the greatest torments be my portion, both here and hereafter, if what I speak be not the truth. My darling child lies buried with the dead."

The emir was confounded by the solemnity of her words; but the withered astrologer Yuza, who stood by his side regarding the countess from beneath his bushy eyebrows, perceived trouble in her countenance and equivocation in her words. "Leave this matter to me," whispered he to Alahor, "I will produce the child."

He ordered strict search to be made by the soldiery, and he obliged the countess to be always present. When they came to the chapel her cheek turned pale and her lip quivered. "This," said the subtle astrologer, "is the place of concealment!"

The search throughout the chapel, however, was equally vain, and the soldiers were about to depart, when Yuza remarked a slight gleam of joy in the eye of the countess. "We are leaving our prey behind," thought he, "the countess is exulting."

He now called to mind the words of her asseveration, that her child was with the dead. Turning suddenly to the soldiers he ordered them to search the sepulchres. "If you find him not," said he, "draw forth the bones of that wanton Cava, that they may be burnt, and the ashes scattered to the winds."

The soldiers searched among the tombs and found that of Florinda partly open. Within lay the boy in the sound sleep of childhood, and one of the soldiers took him gently in his arms to bear him to the emir.

When the countess beheld that her child was discovered, she rushed into the presence of Alahor, and forgetting all her pride, threw herself upon her knees before him.

"Mercy! mercy!" cried she in piercing accents, "mercy on my son—my only child! O emir! listen to a mother's prayers, and my lips shall kiss thy feet. As thou art merciful to him so may the most high God have mercy upon thee, and heap blessings on thy head."

"Bear that frantic woman hence," said the emir, "but guard her well."

The countess was dragged away by the soldiery

without regard to her struggles and her cries, and confined in a dungeon of the citadel.

The child was now brought to the emir. He had been awakened by the tumult, but gazed fearlessly on the stern countenances of the soldiers. Had the heart of the emir been capable of pity, it would have been touched by the tender youth and innocent beauty of the child; but his heart was as the nether millstone, and he was bent upon the destruction of the whole family of Julian. Calling to him the astrologer, he gave the child into his charge with a secret command. The withered son of the desert took the boy by the hand, and led him up the winding stair case of a tower. When they reached the summit Yuza placed him on the battlements.

"Clasp not to me, my child," said he, "there is no danger." "Father, I fear not," said the undaunted boy, "yet it is a wondrous height!"

The child looked around with delighted eyes. The breeze blew his curling locks from about his face, and his cheek glowed at the boundless prospect; for the tower was reared upon that lofty promontory on which Hercules founded one of his pillars. The surges of the sea were heard far below, beating upon the rocks, the sea gulls screamed and wheeled about the foundations of the tower, and the sails of lofty carracks were as mere specks on the deep.

"Dost thou know yonder land beyond the blue water?" said Yuza.

"It is Spain," replied the boy, "it is the land of my father and my mother."

"Then stretch forth thy hands and bless it, my child," said the astrologer.

The boy let go his hold of the wall, and, as he stretched forth his hands, the aged son of Ishmael, exerting all the strength of his withered limbs, suddenly pushed him over the battlements. He fell headlong from the top of that tall tower, and not a bone in his tender frame but was crushed upon the rocks beneath.

Alahor came to the foot of the winding stairs.

"Is the boy safe?" cried he.

"He is safe," replied Yuza; "come and behold the truth with thine own eyes."

The emir ascended the tower and looked over the battlements, and beheld the body of the child, a shapeless mass, on the rocks far below, and the sea gulls hovering about it; and he gave orders that it should be thrown into the sea, which was done.

On the following morning, the countess was led forth from her dungeon into the public square. She knew of the death of her child, and that her own death was at hand, but she neither wept nor supplicated. Her hair was dishevelled, her eyes were haggard with watching, and her cheek was as the monumental stone, but there were the remains of commanding beauty in her countenance, and the majesty of her presence awed even the rabble into respect.

A multitude of Christian prisoners were then brought forth; and Alahor cried out—"Behold the wife of Count Julian—behold one of that traitorous family which has brought ruin upon yourselves and upon your country." And he ordered that they should stone her to death. But the Christians drew back with horror from the deed, and said—"In the hand of God is vengeance, let not her blood be upon our heads." Upon this the emir swore with horrid imprecations that whoever of the captives refused should himself be stoned to death. So the cruel order was executed, and the Countess Frandina perished by the hands of her countrymen. Having thus accomplished this barbarous errand, the emir embarked for Spain, and ordered the citadel of Ceuta to be set on fire, and crossed the straits at night by the light of its towering flames.

The death of Count Julian, which took place not long after, closed the tragic story of his family. How he died, remains involved in doubt. Some assert that the cruel Alahor pursued him to his retreat among the mountains, and, having taken him prisoner, beheaded him; others that the Moors confined him in a dungeon, and put an end to his life with lingering torments; while others affirm that the tower of the castle of Marcuello, near Huesca, in Arragon, in which he took refuge, fell on him and crushed him to pieces. All agree that his latter end was miserable in the extreme, and his death violent. The curse of heaven, which had thus pursued him to the grave, was extended to the very place which had given him shelter; for we are told that the castle is no longer inhabited on account of the strange and horrible noises that are heard in it; and that visions of armed men are

seen above it in the air; which are supposed to be the troubled spirits of the apostate Christians who favored the cause of the traitor.

In after times a stone sepulchre was shown, outside of the chapel of the castle, as the tomb of Count Julian; but the traveller and the pilgrim avoided it, or bestowed upon it a malediction; and the name of Julian has remained a by-word and a scorn in the land for the warning of all generations. Such ever be the lot of him who betrays his country.

Here end the legends of the conquest of Spain.
Written in the Alhambra, June 10, 1829.

KOSCIUSZKO IN AMERICA.—Kosciusko reached the new world utterly unprovided with letters of recommendation or introduction, and nearly penniless; he however asked an audience with Washington, to whom he had boldly presented himself.

"What do you seek here?" inquired the general, with his accustomed brevity.—"I come to fight as a volunteer for American Independence," was the equally brief and fearless reply.—"What can you do?" was Washington's next question; to which Kosciuszko, with his characteristic simplicity, only rejoined, "Try me." This was done—occasion soon offered, in which his talents, science, and valor were evinced, and above all his great character was duly appreciated. He was speedily made an officer and further distinguished himself.

"He had not been long in America, when he had occasion to display his undaunted courage, as captain of a company of volunteers. Generals Wayne and Lafayette, notwithstanding the heat of the battle in which they themselves were fully engaged, observed with satisfaction the exertions of that company, which advanced beyond all the rest, and made its attack in the best order.

"Who led the first company?" asked Lafayette of his comrades on the evening of that memorable day (the 30th of September.)

"The answer was, 'It is a young Pole, of noble birth, but very poor; his name, if I am not mistaken, is Kosciuszko.' The sound of this unusual name, which he could hardly pronounce, filled the French hero with so eager a desire for the brave stranger's acquaintance, that he ordered his horse to be immediately saddled, and rode to the village, about a couple of miles off, where the volunteers were quartered for the night.

"Who shall describe the pleasure of the one, or the surprise of the other, when the general, entering the tent (would it not rather be a room or a hut in a village?) saw the captain covered from head to foot with blood, dust and sweat, seated at a table, his head resting upon his hand, a map of the country spread out before him, and pen and ink by his side. A cordial grasp of the hand imported to the modest hero his commander's satisfaction, and the object of a visit paid at so unusual an hour.—[Foreign Quarterly Review.]

DEATH AND MONUMENT OF KOSCIUSZKO.—Kosciuszko's end was now at hand, but its approach was cheered by the sight of the object of his early and constant attachment, now Princess Lubomirska.

"The Princess, who was travelling to Geneva and Italy, stopped at Solothurn to spend some weeks with Kosciuszko, cheering the already declining old man by her agreeable pleasantries, and her rare gift of social wit. Kosciuszko had a presentiment that he should not see her again, and, when she bade him farewell with a promise to return the following spring, tears swelled into his eyes, and the agitated hero asked for a token of her remembrance. The princess accordingly sent him, from Lausanne, a ring, with the motto, 'Friendship to Virtue.' But when the ring reached Solothurn, Kosciuszko was no more!

"On the 1st of October, 1817, he was seized with a nervous fever, then prevalent at Solothurn, which in spite of his struggles, confined him to his bed. Foreseeing the event, he made his will, bequeathing ample legacies to his friends, the Zeltners, especially to Emilie, and others to the town hospital, the orphan house, and the poor of Solothurn. . . . He left 1000 francs for the expenses of his funeral, upon condition that his body should be carried to the grave by six poor men. . . . He ordered all his Polish papers to be burnt.

"After signing this will, he laid down the pen, raised his eyes towards heaven and said, 'Now I

am easy!" He spoke often and long of his approaching end. His mind grew calmer and calmer, and voice and look bespoke the peace of his soul. . . . His parting with his beloved friends, the blessing he bestowed upon Zeltner, his wife, and children, had all the august solemnity of a religious ceremony. According to the custom of heroic times, he asked for his sword, that which had been shattered in his hand at Macziewice. To this broken sword he committed the guard of his ashes. The sabre of John K. Sobieski, which he had received in the year 1799, from his brothers in arms, he directed to be sent to Poland, and there preserved for other times and other deeds.*

"He retained the full possession of his faculties to his last breath; but his pulse grew fainter. On the morning of the 15th, he awoke from a heavy sleep, and his eyes fell upon the whole Zeltner family, assembled round his bed. He seemed stronger, cheerfully stretched out his hand, and bade them good morning, with his wonted cordiality. But whilst he spoke his voice nearly failed, and he himself asked for his physician.

"Towards ten o'clock he raised himself, as though wishing to say something which required all his energies. He gave Zeltner his right hand, Madame Zeltner his left, smiled to his little friend Emilie, who stood at the bed's foot, and thus taking leave of three beloved beings at once, he sank slowly down, sighed—and his pure soul was in the presence of his Maker."

The body was embalmed, and, as he had directed, borne to the grave by poor old men, relieving each other. The funeral was attended by all Solothurn, for he was mourned by the whole canton, especially by the class so indebted to his liberality. His death was lamented, and his praises were celebrated by poets and orators in all languages. In Poland, the grief and mourning was universal: and at Warsaw, the funeral oration was pronounced by the national poet, the friend of his youth, Wiemcewicz.

But Poland grudged the remains of her noblest son to a foreign land, and Alexander readily sanctioned the national desire to bring them home.—The body was asked of Switzerland by a formal Polish embassy, which having obtained, escorted it to Poland. At Cracow it was received by the Senate, and with all military and civil honors interred in the cathedral. But the Polish Senate and the Polish nation wished to raise to their heroic champion a more peculiar and more enduring monument than other men can boast, at least in modern times.

"A monument that might be an object of general enthusiasm, of heart-felt veneration to all Poles. The senate decreed the raising of a mound (in fact a barrow,) upon the eminence called *Bronisławka* (meaning the guardian of fame,) which commands the Vistula. At this mound, young and old, senators and citizens, nobles and peasants, even the magistrates of the realm, and the most delicate ladies, labored with their own hands. A countryman, who came from Volhynia to assist, accidentally received a severe wound; and in the fear that he might bleed to death, several persons were carrying him in quest of surgical assistance, when he resolutely exclaimed, 'Oh, let me bleed here! it is the only tribute I can pay to the great *Naczelnik*.'"

"From the 16th of October, 1820, to the 16th of October, 1823, the labor continued. The *Mogila Kosciuszki* (Kosciuszko's Mount,) measures 276 feet in diameter at the base, and 300 feet in height. It is the largest ever formed by human hands.

"The sepulchral mound of Queen Vanda, and of St. Cracus, respectively on the left and right banks of the Vistula, meet the traveller's view at some distance from Cracow, reminding him of the origin of the actual inhabitants of the country.—Kosciuszko's monument completes the triangle, and connects the present with the past. . . . A convenient road, paved and planted with trees, for pedestrians, leads thither; for, since the beginning of the work, this has been the favorite promenade of the Cracovians. . . . From the ample contributions of the whole country, an adjoining piece of ground was purchased, upon which, close to the old chapel of St. Bronisława, houses were built for

* It was preserved by Princess Czartoryska, in her noble collection of arms and other Polish antiquities, at her castle of Pulawy, until the year 1830; since then, who can tell its fate?

four peasants, who had served under Kosciuszko. It is their duty, and that of their families for ever, to plant the mound as pleasure grounds, and to take the greatest care of the *pomnik* (monument.)

"The management of the purchase, of the construction, and of the whole affair, was intrusted by the Cracow senate to a committee of twenty persons, with General Franciszek Paszowski as president. * * * The expense was defrayed by contributions, not only of the most considerable families of Poland, but likewise of peasants, artisans, and private soldiers. Count Arthur Posocki alone gave 10,000 *gulden*, with which (we presume the expense of the monument being paid) three orphan kinswomen of Kosciuszko, whose existence had been but recently discovered, were portioned."—[Foreign Quarterly Review.]

[From the *Schoharie Republican*.]

KNOX CAVE.—The difficulties and dangers with which nature has surrounded many of her most magnificent works, seem, in the present age, to present no obstacles to the daring enterprise of man,—that spirit of inquiry in the cause of natural science, which has presented to the literary world, so many interesting operations of nature in her gloomy solitudes, has been recently stimulated by the discovery of objects for new investigation and redoubled effort.

A cavern, situate in the town of Knox, Albany county, on the land of Jacob Van Auker, about 11 miles east of Schoharie Court-house, has been recently explored—first by Mr. Thaddeus Chapman, who resides in its vicinity, and subsequently, Sept. 4th, 1835, more particularly, by Mr. Peter Osterhout and Doctor L. Hubbard, of this village, in company with Mr. Chapman.

The following is given as the result of their discoveries:

The first depression resembles the section of an inverted cone, three-fourths of the circumference being nearly perpendicular, the remainder gradually sloping until it meets the opposite edge; the distance of this descent is about forty feet. The second descent is perpendicular in the rock, thirty-eight feet. The walls on either side are regular, with the exception of a few slight projections.—The opening at the top forms nearly a triangle, the sum of whose sides is not far from 12 feet, three-fifths of which is covered by a large stone that has fallen from the overhanging rock; the opening at the bottom of this passage is about the same as at the top. The third passage is sloping, (occasionally interrupted by perpendicular spaces of a few feet,) for the distance of about 65 feet; this descent will form an angle with the horizon of not less than seventy degrees, and runs directly south. The fourth passage is about 6 feet in length, inclining to the west, a little sloping through a curiously wrought hole in the partition wall. This wall separates the two apartments of the cave. Were it not for this provision of nature, what remains below must have forever remained among the hidden secrets of its Maker. The hole is nearly round, and just large enough to admit a person either head or feet foremost. The fifth passage extends both to the north and the south of the fourth, running parallel with the second and third; to the north the passage is free for about fifty feet, when it is choked up by clay, which has been washed from above; this passage is from three to four feet wide, and probably not less than 100 feet in height.—To the south it extends about forty feet, and terminates in a beautiful colonnade: the columns are arranged in a circular form, including a space of about fifteen feet in circumference; the columns are formed of calcareous spar, and are from ten to twenty feet in length, and from 6 to 14 inches in diameter; on the west side the columns are straight and regular, on the east they are interrupted by a mass of spar which has formed under them; this mass has an oval form, 8 feet in length and 10 in height, and three in its greatest diameter; the sides are fluted out and formed into the resemblance of pillars; the whole mass has the appearance of being supported on pillars; the top is flat and circular, resembling a lady's toilet table; the surface is beautifully cushioned over with an oval burr-like formation, and the border or edge is hung with numbers of flat stalactites of different lengths, the edges are notched out so that they resemble fringe; the walls rise from the top of this beautiful formation, about fifteen feet, and meet the roof, which is considerably lower than the roof in the fifth passage; the sides of the columns rising from the table, are hung with an immense number of

stalactical formations; so also the roof above.—The colonnade opens into a hall, (so called to designate it from the room we shall presently describe,) the floor of which is about 8 feet lower than that of the colonnade; it is about 30 feet long, 15 wide and 30 high. These walls are also ornamented with various formations of spar; great numbers of stalactites are seen pending from the roof and sides; at the south western angle of the hall is a crevice, extending about 15 feet, at the extremity of which, is a stalactical formation resembling in form and size, a large lamp, (such as are used for lighting cities,) the bottom is curiously fringed with small flat stalactites; at the northwestern angle of this hall is a passage descending to the north; it has been explored for about 30 feet; the mud prevented us going farther. From this we pass into the large room, (or as it was fancifully called by young Chapman) the grand saloon. This room is about forty feet long and twenty wide, and from fifteen to twenty feet in height; the hall and roof are remarkably regular and encrusted with spar on all sides; the roof is pierced with three rows of holes, passing nearly its whole length. These holes are placed at nearly equal distances, and have the appearance of being placed there for ornament.—At the northern extremity of the room, the roof parts at the centre, and forms two large prongs; the one passes to one side of the colonnade and the other to the opposite side, and apparently resting on its columns; about the middle of the western side of this room, is a passage extending about 150 feet to the west, this passage varies in width from 6 to 8 feet; in some places the roof is very high, and in others, the rocks fall within a few feet of the floor. This passage is lined with sparry incrustations from one end to the other; stalactites, stalagmites, and alabaster, of the purest kind are found here. We procured a stalactite from this passage 4 feet 5 inches in length, the top of which very much resembles a man's head with a warrior's helmet; here we also procured the fragments of a stalactical formation of about 6 inches in diameter, and 8 feet in length, which had fallen from a crevice and broken; other pieces of the same mass were seen lodged in the crevice above; and judging from the piece we have, and those in sight, we should say that it could not have been less than 11 or 12 feet in length; this mass is formed of the purest alabaster, with the exception of a streak of about 2 inches wide and 1 1/2 thick, (which appears to have traversed its whole length) which is formed of the purest kind of satin spar.

The above is given by the gentleman from this village, as a very hasty and deficient account of this interesting cavern. Doct. L. Hubbard, who first entered Ball's Cave in Schoharie, pronounces that much celebrated cavern far inferior in grandeur of appearance to the one above mentioned, and gives it preference only in novelty, resulting from its subterranean navigation.

LATER FROM ENGLAND.—By the packet ship *Britannia*, Waite, from Liverpool, we have received our regular files of London and Liverpool papers to the 1st of September.

The accounts from the Continent are not so late as previously received: the *Sully*, from Havre.

In the House of Commons, on the 29th August, the Chancellor brought forward a bill, to amend the bill, for the tithe owners in Ireland. It was to have been considered on the Monday following.

Accounts from Bombay of the 27th April, state that, in consequence of the failure of the crop, Cotton had taken a great rise in that market. It was estimated that the shipments to Great Britain and China would not exceed 40,000 bales, and the stock then on hand was only 1000 bales.

For markets, &c. see Commercial intelligence.

LONDON, Aug. 29, Evening.—The consideration of the appropriation clause in the consolidated fund bill, has been again postponed by the Chancellor of the Exchequer. The corporation bill was brought back to the Commons, with its mutilations, on Friday. Mr. Spring Rice, on behalf of the Government, moved that the bill, with its amendments, be printed, and taken into consideration on Monday, for which day he bespoke a full attendance of members, expressing his conviction that the subject would then receive a calm and deliberate, but at the same time resolute decision. The use of the term "resolute," and the manner in

which it was caught up and cheered by the House, sufficiently indicate the temper of the House, and the intentions of Government with regard to the measure. The further postponement of the supplies also indicates a steady determination on the part of the present administration not to be undermined by their opponents. It is clear that the members of the cabinet, who, no doubt, have good information of what is passing in the enemy's camp, anticipate some desperate attempt at circumvention, and feel the necessity of guarding against surprise. The last hope of the Tories is understood to be placed in a dissolution and new election before the last registration comes into play after the circuits of the revising barristers.

LATER FROM EUROPE.—The packet ship England, has arrived, with London papers of the 8th ult. We have not received our files as yet, but are indebted to the Captain for a paper of the 7th, with Paris dates of the 5th.

The Municipal Reform Bill, and the amendments made by the Lords, had been considered in the House of Commons, with a spirit of great forbearance and conciliation, and after being further amended, the bill was sent back to the Lords on Thursday, 3d Oct. There the Peers had partially disagreed to some of these amendments—notwithstanding the great concession made by the House of Commons, for the sake of harmony.

The Times, which now strenuously supports the upper House, disapproves this proceeding on its part, and recommends most strongly, that the Bill, as sent from the House of Commons, should be past. Upon the whole the probability of this bill's now passing, without a rupture between the two houses, is much increased.

The French papers of Friday 4th, are filled with accounts from various parts of Spain. According to a telegraphic despatch in the *Moniteur*, the Navarrese insurgents were, on the 31st, at *Organsia*, menaced by *Gurres* and *General Pastor*. Madrid appears tranquil.

The British Legion, under General Evans, had their first affair on the 29th, at *Orumendi*, where they attacked and carried some buildings fortified by the Carlists, whom they dispersed, killing and capturing some 150 of the enemy.

Don Carlos seems to have no settled plan of acting, and his movements were very uncertain.

MONEY MARKET AND CITY INTELLIGENCE.—**SATURDAY EVENING, 5th.**—Notwithstanding the difficulties by which the progress of the Municipal Reform Bill was impeded last night in the House of Lords, no effect was produced on the funds, the general impression remaining the same as yesterday, after the spirit of mutual concession displayed on both sides, that all will be amicably adjusted. The English funds have been perfectly steady, at about 1-8th per cent. lower than yesterday, consols leaving off at 90 1-8 to 5-9ths. Letters from *Genoa* mention that the savages of cholera in that city were increasing.

LIVERPOOL, Oct. 7.—On Friday last Lucien and Joseph Bonaparte arrived at the Adelphi Hotel, from Chester. Joseph is on his return to America, and will embark to-morrow on board the Philadelphia packet ship *Monongahela*, in the Prince's Dock.

Since the above, we have been favored by the Evening Post with their papers—ours having failed—to 7th ult. We have not time, however, to add details, and the above summary comprises the substance of every thing important. In the *Liverpool Advertiser*, we find the following annunciation of the death of Mr. Barry:

On Sunday, the 30th ult., at the Star and Garter Inn, Paradise street, his Excellency Wm. T. Barry, Minister Plenipotentiary of the United States to the Court of Madrid, aged 53.

IMPORTANT FROM MALAGA.

Captain HARTSHORN, of ship *Empress*, from Malaga, states that a revolution had broken out at Andalusia, Seville, Malaga, and Grenada, on the 23d and 24th August. The Constitution of 1812 was proclaimed, and all the Friars at Malaga were imprisoned on the 23d. A number were killed and wounded.

The government troops were overpowered, and all who would not declare in favor of the new Constitution were either shot or imprisoned. There was great joy on the occasion, and the entire place illuminated. Tranquility had, in a measure, been restored when Captain H. left.

Capt. Hartshorn also states that the heavy rains on the 3d and 4th Sept. had seriously injured the fruit, and that nearly all the grapes were destroyed.

COMMERCIAL BANK OF ALBANY.—The Albany Journal of last evening furnishes the following official statement respecting this bank.

THE COMMERCIAL BANK.—The disappearance of Henry Bartow, late Cashier of the Commercial Bank of Albany, has naturally created much excitement, as it did the astonishment of the Directors and persons connected with that institution, and given rise to various rumours concerning its solvency. In consequence of the publication of an article in the Journal of Commerce, of New-York, stating the capital of the Bank at \$240,000, and an embezzlement of \$210,000 by the late cashier, the Directors deem it proper to apprise the public, that the capital of the Bank actually paid in is \$300,000, together with a net surplus of \$79,263, making the total amount of capital \$379,263. The Directors are not apprised of defalcations to the amount of \$130,000; which, if it should be that sum, will leave an unimpaired capital of \$249,263. Although a partial loss is thus sustained by the Stockholders, the Directors are enabled, from the examinations made, to give the assurance that in no event can injury or loss accrue to others.

Besides, by the terms of the Charter of this Bank, the Stockholders are individually responsible to double the amount of the original capital, being \$600,000. The business of the Bank will not be suspended, and all notes, drafts, and deposits will be paid on demand.

JOHN TOWNSEND, President.

WILLARD WALKER, Vice Pres't.

GEORGE W. STANTON,

JOHN L. SCHOOLCRAFT,

WILLIAM NEWTON,

LEWIS BENEDICT,

JAMES HORNER,

JOHN GOTT,

SETH HASTINGS,

Directors.

N. B.—The other Directors are at present absent from the City.

Albany, October 13, 1835.

LANDS SOLD FOR TAXES.—In obedience to a resolution of the last Legislature, the Comptroller made a report giving a statement of all the sales of lands for taxes not heretofore reported; also the sales of lands for arrears of quit rents in 1836. This statement gives the location and description of the lot, the number of acres sold, the amount for which sold, the name of the purchaser, and the name of the person to whom conveyed. The report makes a volume of over 700 pages of the size of the legislative documents; and an extra number of copies have been printed sufficient to furnish the clerk of each town and ward with one copy. These have been forwarded to the treasurers of the several counties in the state, and each town clerk will be furnished with a copy by calling on the treasurer of his county.

In 1826, a similar report was made to the legislature, which may be referred to, (on application at the county clerk's office,) being document E. of the appendix, in the Assembly Journals of 1826.

These two reports contain lists of all the lands which have been sold for taxes in this state, and which have not been redeemed.

Persons who are interested in lands would do well to refer to these reports, and ascertain whether the lands in which they are interested have been affected by any of the Comptroller's sales. Lands are sometimes assessed and returned erroneously, and in such cases the payment of taxes annually is not sufficient to protect the land from sale: To guard against errors hereafter, every owner of lands should give the assessors the correct number and description of his lands, and as far as prac-

ticable should examine the assessment roll and ascertain for himself whether the right number and description is given to his lands in the assessment roll: if he finds one of his lots omitted in the list of resident assessments, he may be assured that although he is not called upon for the tax by the town collectors, the lot will be returned as non-resident, and in four or five years afterwards will be sold for taxes. Cases of this kind have frequently occurred.

To facilitate examinations, an index to the patents has been prepared and is annexed to the Comptroller's reports before referred to. In making examinations search ought to be made in the index, under every title by which a tract is known, although found in one or more places under the title first searched for: because tracts are sometimes returned to the Comptroller by one of their titles, and sometime by another.

¶ Lands sold for taxes in 1834, may be redeemed until the 21st day of April, 1836, and the several editors in the State might essentially serve the interests of their readers by calling attention, in an editorial article, to the Comptroller's notice on this subject, which is directed to be published in every paper in the State.—[Albany Argus.]

NEW-ORLEANS, Sept. 28.—The health of New-Orleans continues good; and we have reason to conclude with many experienced persons long resident here, that the yellow fever has ceased as an epidemic in New-Orleans.

[From Blackwood's Magazine for July.]

The Ship.

Where art thou going, mighty ship?
Thy sails are on the wind,
And the ocean, with a roaring sweep,
Is racing on behind.
The sea-birds wheel above thy mast,
And the waters fly below,
And the foaming billows, flashing fast,
Are leaping by the prow.
And midst the clouds thy fluttering flag
Is streaming strong and well,
As if to bid yon beacon crag
A last and gay farewell.
Where art thou going? "Far away,
To seek a distant shore—
Gaze ye upon me while ye may,
You will not see me more."
"My flag is dancing in the sky,
My sails are on the breeze,
And the wild bird screams exultingly,
As we bound along the seas.
"A hundred guns are on my deck,
And a thousand men below—
And my wings are spread without a speck,
As white as driven snow.
"Gaze while ye may—ye can but see
My panoply and pride—
Ye can but hear the hissing sea
Dashed gayly from my side.
"Hush! bootless sobs and yearning sighs,
Ye broken hearts be still,
Lest yonder landman's envious eyes
Dream we have aught of ill—
"Lest he should think of care or war
Amidst our gallant crew
Our souls that hear the bilboe winds blow,
With cheeks of ashen hue.
"Hurrah! hurrah! our homes we quit,
And those who are therein—
Will they be safe and standing yet,
When we cross the waves again?
"Hurrah! hurrah! a glorious land
Is rising far away
What grave upon that stranger land
Shall wrap our unknown clay!
"Hurrah! hurrah! beneath our keel
A thousand fathoms sleep—
And fleets are there—but with hearts of steel
We'll gayly o'er them sweep.
"On—on—the worm is at our heart,
But the shout upon our lip—
And who shall play the craven's part,
In our proud and gallant ship?
"And who shall let the groan be heard
Which lips are knawed to save—
Or the tears be seen, that without a word,
Are filling on the wave?
"On—on—the sea-birds heed us not—
And the shores are sinking fast—
And scarce the landman from his cot
Can see our lessening mast—
"But sighs him as he turns away
To turn his evening hearth,
That aught should be so proud and gay
Without one care of earth."

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.

Paterson, Aug. 19, 1835.

LOCK GATES, FOR CANALS.

DAVID WILKINSON, of Coboes, Albany county, State of New-York, have obtained Letters Patent for the United States for an improvement in Lock Gates, &c., invites the attention of engineers and constructors to his invention, the result of thirty years' practical experience. The chief feature of his invention is the SELF-ADJUSTING VALVE GATE, which is opened in a great degree by the force of the water, and is closed by the weight of the valve gate, rods and screws, and kept secure and close by a pall; the improvement requiring very little force, in aid of the power of the water, to raise the valve gate. The Lock Gate is kept perfectly tight, or free from sagging, by the method of adjusting the anti-friction roller upon the quadrant or circular railway. By means of a thimble on the capstan, the chain for moving the gate can never become tangled or ride on the capstan, and by means of a pall in the head of the capstan, it can never be turned the wrong way, thus effectually guarding against much danger.

There is a lock in operation at Hogansburgh, New-York, where the experiment has been fully tested, to the satisfaction of all scientific men who have viewed it, and which has a self-adjusting valve gate, opening an aperture five feet in length, by 18 inches in width, under a pressure of 84 feet lift.

Having transferred the Letters Patent to Mr. JOHN L. WILKINSON, canal contractor, rights to construct under the same, may be obtained from him by applications addressed to Coboes P. O. Competent workmen to construct the gates and put them into operation, will be supplied, if desirable, either by the inventor or the assignee.

The following letter, from Judge WRIGHT, of New-York, one of the most experienced engineers in the United States, is conclusive with respect to the character of this gate:

"Moulinette, (U. Canada,) Aug. 14, 1835.

"DEAR SIR: I have here witnessed a trial of a new paddle gate invented by David Wilkinson, Esq., for Locks, to be introduced into the gates. It is 5 feet long, by 18 inches wide; and I am certain it is the best improvement of the kind which has been tried in this country. I think it will not get out of order, and is so simple, that a 12 years' old boy will open it; and there is no danger of throwing persons into the lock, from the operation, as nothing of the kind can happen.

"I think you will be much pleased with it. It applies its use to any head which can be used in locks, and is more particularly superior in the gates of the lock, to fill and empty rapidly, as easy as you please.

"I am, very respectfully, dear sir, your obedient servant,

"BENJ. WRIGHT.

"To EDWARD P. GAY, Esq.,
"Civil Engineer, Lancaster, Pa."

To which is added the testimonial of J. B. MILLS, Esq., Engineer, who has been associated with the greatest works of internal improvement in the Union:

"Mr. Wilkinson has recently invented a VALVE for Lock Gates, which is undoubtedly of great value, and readily applied. Mr. W. has the contract for constructing the Lock Gates upon the St. Lawrence Canal, (which is the largest upon this continent,) where it is determined to adopt his valve, and his manner of working the same. Having the utmost confidence in Mr. W.'s valve, having seen it applied, I most confidently commend it to all those interested in the construction of Canal Locks.

"J. B. MILLS,

"Engineer St. Lawrence Canal.

"Cornwall, (U. C.), Aug. 21, 1835."

TO CONTRACTORS FOR EXCAVATION AND MASONRY.

PROPOSALS will be received at the Office of the Philadelphia and Reading Railroad Company, in Philadelphia, on the 19th and 20th days of October next, for the Grading and Masonry, of about sixteen miles of the Railroad between Pottsgrove and Norristown.

In this distance, a large amount of heavy work, deserving the attention of skilful and competent Contractors, is to let. The Jobs of most magnitude, are a Tunnel 600 yards long, and a Bridge across the Schuylkill, near Phoenixville.

Plans and profiles of the line, and drawings of the different constructions on it will be exhibited, and all other information in relation to it will be afforded, on application at the Engineer's Office, at Pottsgrove, for ten days previous to the letting.

MONCURE ROBINSON, C. E.
Philadelphia, Sept. 2, 1835.

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Grading and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,

Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
New-Orleans, Aug. 23, 1835.

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
38-61

New-Lisbon, Ohio, Sept. 17, 1835.

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by
HOWLAND & ASPINWALL,
35 South street.

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades.

Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
2 Liberty street, New-York.
BACKUS, AMES & CO.
8 State street, Albany.

34-ytf

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads.

R-ly feb14.

AUBURN AND SYRACUSE RAILROAD. NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road. Individuals disposed to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

EDWIN F. JOHNSON,
Chief Engineer & Agent A. & S. R. Company.
Auburn, Aug. 22, 1835.

STEPHENSON,
Builder of a superior style of Passenger Cars for Railroads,
No. 264 Elizabeth street, near Bleeker street,
New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation.

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.

JR ROGERS, KETCHUM & GROSVENOR

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 8 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.
Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

H. BURDEN.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN BUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-4f

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sep.12-1y

RAILWAY IRON.

895 tons of 1 inch by 1/2 inch, Flat Bars in lengths of 300 do. 1 1/2 do. 15 to 15 feet, counter sunk 40 do. 1 1/2 do. holes, ends cut at an angle 800 do. 2 do. of 45 degrees, with splitting plates and nails to 800 do. 3/4 do. suit.

soon expected. 250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins. Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 30, 32, 34, and 36 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. HALSTON.

9 South Front street, Philadelphia. Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splitting Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them.

dtimesowr

SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane.

J31 6t

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy; also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to the inquiries respecting the instruments manufactured by me, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of the same is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that the patterns for the Levels and Compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet received in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

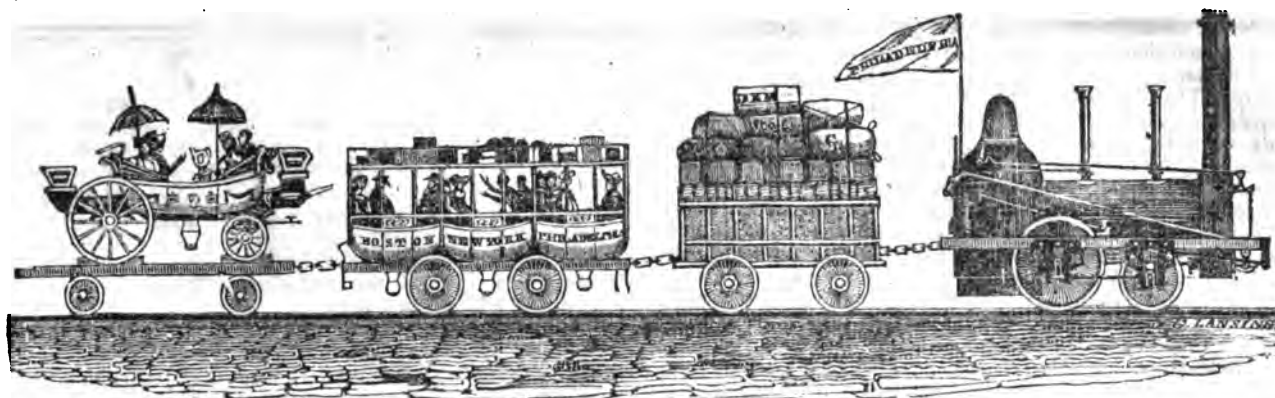
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
Germant. and Norrist. Railroad

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, OCTOBER 24, 1835.

[VOLUME IV.—No. 42.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, OCTOBER 24, 1835.

Those of our readers who are engaged in the construction of Railroads, are requested to look at the notice of the *Boston and Norwich Railroad Company*, who advertise the letting of the first section of their Road, from Norwich to Jewett City.

LONG ISLAND RAILROAD.—The proceedings of a large meeting at Williamsburgh, concerning the route of this road at its western termination, will be found in our columns—and deserve attention.

RAILROADS IN ALABAMA.—We perceive by a late "North Alabamian," published at Tusculumbia, that measures are in progress to construct a Railroad from Mobile to the Tennessee Valley—a convention is to be held at Tuscaloosa on the 4th Monday in November, for the purpose of promoting that important object. That a road will be constructed, and within a few years too, which shall extend from Mobile to the valley of the Tennessee, we have not a doubt; nor do we doubt but that other roads will be constructed to connect this road with one of the *Atlantic cities*, and also with the New-Orleans and Nashville Road, which is already in progress—and when completed will be one of the greatest roads in the Union. Such are the resources of the South,

and such its facilities for Railroads, that all great thoroughfares will eventually be by Railroads—and if fanaticism and misguided zeal does not disunite the States, we of the North will construct roads to meet theirs, when we shall become better known to each other, and have less to apprehend from sectional jealousies.

BLACK RIVER CANAL.—We find in the Lewis county Republican of the 13th inst., the following account of the proceedings of a convention called for the purpose of devising measures to forward the construction of a Canal to connect the waters of the Black River with the Erie Canal. We are gratified to find the people of that neglected section of the State moving upon the subject. It is a work of great importance to them, and they have only to *require* it to be done, and the work will certainly be constructed. They have our best wishes for its early completion, and we tender to them the columns of this Journal, if they think it can in any manner promote the best interests of the work.

BLACK RIVER CANAL CONVENTION—GREAT MEETING.

A Convention of Delegates from the counties of Oneida, Lewis, Jefferson, and St. Lawrence, interested in the construction of the Black River Canal, was holden at Lowville in the county of Lewis on the first day of October inst. in pursuance of a resolution of a public meeting previously held at that place, for the purpose of taking into consideration the subject of the said Canal, and devising such means as should be thought most efficient in procuring the passage of a law for its construction.

The object of the convention was briefly and pertinently stated by James T. Watson, Esq., of Lowville, and the convention was organized by the appointment of Patrick S. Stewart, Esq., of Le Ray, chairman pro tem.

On motion, it was resolved that a committee of five be appointed by the chairman to report to the convention suitable persons for officers to preside over its deliberations.

The chairman nominated the following committee. Mon. Charles Dayan, of Lowville, Joseph Graves, Esq., of Rutland, Oli-

ver Child, of Le Ray, Harrison Blodget, of Denmark, and Gen. Ela Merriam, of Leyden.

The committee reported the following persons: Sylvester Miller, Esq., Pres't.; Hon. Micah Sterling, of Watertown, A. L. Madison, of Gouverneur, Lemuel Hough, of Remsen, and Homer Collins, of West Turin, Vice Pres'ts; John W. Tamblin, of Le Ray, Henry Graves, of Boonville, and Hervey Brayton, Sec'ys.

On calling the lists of delegates appointed to attend the said convention, it appeared that 233 were present.

Mr. Stryker, of Rome, submitted the following resolution. "Resolved, that a committee of seven be appointed by the President, for the purpose of drafting and reporting resolutions expressive of the sense of this convention." Which was unanimously adopted.

Whereupon the President named the following persons to constitute said committee, viz. John Stryker, Elisha Camp, Eli West, James T. Watson, Ziba Knox, Lemuel Hough, and Patrick S. Stewart.

The Convention was then addressed by the Hon. M. Sterling and others.

The committee appointed to draft resolutions reported the following, which were unanimously adopted.

Resolved, That the great State of New-York which took the lead in the march of Internal Improvement, and in developing sources of prosperity to her citizens by the construction of Canals, ought not yet to stop in her course, and suffer other States to go before her. Because she is able from her productive resources to extend the benefits of Internal Improvements, which have already elevated the character of the State, and enriched a great portion of her citizens. Because she would do injustice to a section of the State whose natural advantages for constructing a Canal and whose productions are at least equal to those sections on which the bounties of the State have been freely bestowed. Because the great production and commerce of iron, lumber, and other cumbersome articles, require greater facilities of market. Because the productions of a portion of our State which now are compelled to seek a doubtful market in a foreign country, should be able by Canal navigation to reach the City of New-York, destined by nature to be the emporium of the United States. Because laudable enterprise would be stimulated, individual and national wealth increased, and

the dignity and character of the State receive additional lustre.

Resolved, That the system of Internal Improvements as heretofore acted upon, in drawing upon the common funds of the State for defraying the expense of the construction of Canals, is virtually a pledge of the faith of the State to extend equal benefit to every part, and to compensate each section with the means of prosperity which they have patriotically and cheerfully contributed to procure for others.

Resolved, That the construction of the Black River Canal ought to be among the first improvements, as this district undoubtedly suffers most for want of facilities for transportation; the great resources of the country, producing cambrous staples, must remain closed and unproductive without a Canal.

Resolved, That while we have seen with feelings of pride and satisfaction our fellow citizens of the East, West, and South, accommodated with Canals—and that while we assented to, and assisted in the enacting of laws for promoting the interest of other sections of our State to the injury of those who live in the valley of the Black River, we acted on the patriotic principle that private interest should be yielded to public good; that we are satisfied that the same principle now operates in our favor, and that right and equal justice demand a reciprocal sense of liberality and patriotic course of conduct from those who are now enjoying unexampled prosperity by accommodations constructed with our full share of expense.

Resolved, That though we have been repeatedly disappointed in our application for a law providing for the construction of said Canal, still the justice of our claim, the undoubted practicability of the project, and the great advantages to be derived from it, not only to this, but to other parts of the State, inspire us with confidence that the fostering hand of the State will no longer be withheld.

Resolved, That the immense quantities of valuable timber with which the valley of the Black River abounds, the inexhaustible beds of iron ore, the great fertility of the soil, the industrious and enterprising habits of the population, and the increased resources of revenue which will be developed, furnish a sure guaranty to the State, that the expense of its construction would be soon reimbursed.

Resolved, That a committee of five be appointed by the President to prepare an address to the people of the State—

Whereupon the following persons were appointed:

Ela Collins, of Lewis co.
P. S. Stewart, of Jefferson co.
J. H. Bronson, of Watertown,
Elisha Camp, of Sackets Harbor,
J. Hathaway, of Oneida co.

On motion, Resolved, That the proceedings of this convention be signed by the officers and published.

SYLVESTER MILLER, Pres't.
MICAH STERLING,
A. L. MADISON,
LEWEL HOUGH,
HOMER COLLINS, } V. Pres'ts.

J. W. TAMELIN,
HENRY GRAVES,
HARVEY BRATTON, } Secretaries.

NEW-ORLEANS AND NASHVILLE RAILROAD.—We find in the "Alabamian" the following article in relation to this Road, and we give it in anticipation of the Chief Engineer, Mr. Ranney's, Report, which we have been

looking for for several days, but which, owing probably to the absence of the Directors, has not yet been published.

NEW-ORLEANS AND NASHVILLE RAILROAD.—We take great pleasure in laying the subjoined letter before our readers, with which we have been politely furnished by Mr. Breedlove, of New-Orleans—now on a visit to this city—the gentleman to whom it was addressed.—It needs no comment, as the facts which it develops are well calculated to satisfy every candid mind of the entire practicability of this truly great and noble work of internal improvement.

New-Orleans, Aug. 29, 1835.

Dear Sir:—Our Engineer, Ranney, has submitted to me, as acting President, his Report; but from the absence of some members and sickness of others present, no quorum can be formed now; consequently, no action can be had on it by the Board, otherwise it would have been printed and a copy furnished.

The total distance from here to Nashville, is 565 miles—and this, together with upwards of 500 miles lateral roads, have been surveyed in the short space of about six months, and at an expense of 25,000 dollars—all contributed by individuals, and generally under the belief that it would not be refunded.

Total height to be overcome,	2649 ft.
Average descending grade towards Orleans.	
per mile,	4 2-3
Do. ascending do.	4
Length of straight line,	308 miles
Do. curve over 10,000 feet radius,	113
Do. under 10,000 and over 5,000 feet radius,	114
	554

His estimation of cost for construction of these 565 miles, ready for cars,	\$8,681,945
To which add cost of machinery, including engines, cars, &c.	882,000
Being 40 locomotives,	288,000
860 1st class cars,	252,000
1000 2d do do	200,000
1000 3d do do	150,000
Real Estate, Deposits, Water Stations, &c.	500,000
	10,063, 946

The average construction per mile, will be \$15,165; that for a single track, but graded for a double one—when, in the course of time, it should be necessary to add another, its expense will be about \$6,500 per mile.

The breadth of Railroads generally, in this, as well as in other countries, has been fixed at 4 feet 9 inches—but Ranney suggests the propriety of extending this 5 feet 6 inches, and adduces as reasons for this unusual breadth, greater stability of machinery, less liability to accident, more compact and powerful engines, and commodious cars; also, the advantage of using wheels of greater diameter by which the machine of the locomotive may be worked at a slower rate, and the same velocity maintained; the cost being the same. The Rails weigh about 55 pounds the lineal yard, and cost, with necessary fastenings, about \$400 per mile; 50 miles already contracted for, deliverable in February.

But conceive if you can, of these locomotives, all puffing and snorting, bearing in their train 2366 cars laden with 10,000 passengers; 40,000 bales cotton; hhds. tobacco, and other unnumbered arti-

cles, moving along at the rate of only twenty miles an hour!!

Is this fiction, is it romance, is it the recovery of an excited imagination? No; it is the all powerful eye of faith, turning aside the impenetrable veil that's suspended at the vestibule of futurity, enabling its possessor merely to look but a short distance down that dark vista, beyond the horizon that bounds the present, and then he finds all this, nay more, fully personified by actual fact.

As the Engineer proposes an unusual BREADTH from that generally adopted, criticism upon it, is most earnestly solicited, by every one competent to shed any light on it—and if your acquaintance authorizes, you may profitably use it for the Company, by having it noticed through the medium of the press.

Respectfully,

JOSHUA BALDWIN.

AT a numerous meeting of the inhabitants of, and persons interested in Real Estate in Williamsburgh, Bushwick, Newtown, Flushing, and North Hempstead, convened in pursuance to public notice at the house of William Ward, in Williamsburgh, on Friday, the 16th October, 1835.

The notice for the meeting having been read, the meeting was organized by choosing the following officers:

GENL. JEREMIAH JOHNSON, President.
COL. GEO. WILLIAMS, of Newtown, } Vice
SILAS BUTLER, Esq., of Brooklyn, } presidents.
CHARLES DE FOREST, of New York, }
ISAAC W. BOWNE, of Flushing, } Sec'res.

The object of the meeting having been stated, it was on motion of Edward Sanford, Esq.,

Resolved, That a Committee of seven be appointed by the President, to retire and draft a memorial to the Board of Directors of the Long Island Rail Road Company, on the subject of the location of the main route of that road, and also to report resolutions expressive of the sense of this meeting, whereupon the following gentlemen were appointed on that committee:

William R. Prince, of Flushing; George J. Rappelye, of Newtown; John Morrell, of Williamsburgh; Edward Sanford, of New York; William P. Hallett, of New York; P. J. Fish, of Williamsburgh; John Noonan, of Flushing.

The committee after retiring, reported by William P. Hallett, Esq., the following memorial and resolutions, which were unanimously adopted, viz:

MEMORIAL.

To the Honorable the Board of Directors of the Long Island Rail Road Company.

The memorial of the undersigned inhabitants of, and persons interested in real estate in the village of Williamsburgh, and in the towns of Bushwick, Newtown, Flushing, and North Hempstead, respectfully shows,

That they are informed that surveys and estimates are now in progress under your direction for the purposes of enabling you to decide upon and select the most eligible and advantageous route for the location of the Long Island Rail Road. That the undersigned, in common with their fellow citizens of other towns on the Island, feel a deep interest in the promotion of the work, and in extending and diffusing the great benefits to flow from so important an improvement, to the greatest number of individuals and the most enlarged practicable territory. That the Brooklyn and Jamaica Rail Road Company having declined to become subscribers to the capital stock of your Corporation, and unite their road with the one to be constructed by you pursuant to the act of incorporation, you are under the necessity of constructing your road from Jamaica to the water's edge at Williamsburgh and Brooklyn, without reference to the road constructed by that company, being thus left at liberty under the provisions of your charter to select such route as will combine the greatest number of advantages to your company, the travelling public and the mass of community, the undersigned would respectfully press upon your attention the great saving in distance which can be effected by locating the route of your rail road from the village of Williamsburgh, through the towns of Bushwick, Newtown, Flushing and North Hempstead.

From the cursory examination of the engineers

employed by the commissioners which have been given to the public, it appears that the eastern and western subdivisions of the road by whatever route, are on ground of the most favorable character, and free from any difficulty or obstruction whatever. The route we advocate is concededly the shortest, and on a favorable surface of ground, and to these high considerations it would seem to be sufficient to add the additional facts, that it moves through the most populous and improved section of the island, and carries its benefits to the central part of the city of New-York. The combined interests of the inhabitants of the city, and of Long Island, of the travelling public and the cultivators of the soil, whose produce is to be carried to market, of the land holders, and (as we sincerely believe) of the stockholders in the Rail Road Company, unite in calling for the adoption of this route. The opinion of the engineer, on whose judgment we are aware you will thoroughly rely is understood to be favorable to this proposed course, and when it shall be fully expressed, and the character of the work, the saving of distance and expense in the daily travel of the route, the comparative populousness and fertility of the soil, the rapidly increasing population and extension of the city of New York, shall be attentively considered by your honorable body, with a view to deciding this important question, the undersigned entertain the confident hope that you will be fully satisfied of the policy, economy and public advantage of extending the greatest benefits to the greatest number, and adopt the route. We here unite in recommending Williamsburgh.

Oct. 16th 1835.

RESOLUTIONS.

Resolved, That as citizens, we feel a lively interest in the promotion of the construction of the Long Island Rail Road. That we regard it as an extension of that liberal and enlightened policy in relation to internal improvement which has elevated the State of New York to its present standing in the confederacy, and made it first in commerce, wealth, enterprise, and population.

Resolved, That we regard the location of the route of the Long Island Rail-road as highly important in its bearings to the stock holders, and the community at large. That the selection of a direct and eligible route from such point as will afford the greatest convenience and benefit to the greatest mass of the people, without prejudice to the interests of the stockholders, and render it useful in developing the resources of Long Island and the city of New-York, is a duty which the Board of Directors owe to their fellow-citizens.

Resolved, That in the opinion of this meeting the permanency of the work is a highly important consideration in determining the question of location. That the rapid growth of the city of New-York, the present tendency to break the narrow bounds which have restricted its principal business within narrow limits, and the disposition to extend the commercial business towards the more central parts of that city support the claims of the middle section, to have the Rail-road located from some point in Williamsburgh, through the towns of Bushwick, Newtown, Flushing, and North Hempstead.

Resolved, That in the view of this meeting the addition of the two proposed new Ferries to the Village of Williamsburgh, will afford the requisite facilities to the travelling public to reach the Rail-road and the various parts of the city, while the proposed location of the Rail-road and the Ferries will extend to the people of Long Island the means of carrying their products to the most favorable market and diffuse the benefits of a great public improvement equally among the people.

Resolved, That a Committee of twenty-five be appointed by the President for the purpose of promoting the general objects of this meeting, whereupon,

The following Committee was appointed—

Hon. Nathan Sanford, of Flushing,	
William R. Prince,	do
Joseph Bloodgood,	do
Richard L. Franklin,	do
Robert Carter,	do
Jordan Wright,	do
Benjamin W. Strong,	do
Phatt Stratton,	do
George J. Rapelye, of Newtown,	
Nicholas Wyckoff,	do
Abraham Remsen,	do
Peter Gorsline,	do

Effingham Lawrence, of Bayside,	
Joseph L. Franklin,	do
John Morrell, of Williamsburgh,	
Edmund Frost,	do
Lemuel Richardson,	do
Abraham Booram, of Bushwick,	
George Douglass, of Little Neck,	
Peter V. Remsen, of Brooklyn.	
George Duryee, of North Hempstead	
William P. Hallett, of New-York	
Edward Sandford	do
John Sutphen	do
Gilbert C. Rice	do

On motion it was

Resolved, That the officers of this meeting be added to the above committee.

Resolved, That a Committee of five be appointed by the President to confer with proprietors of the land on the proposed route, who may be desirous of gratuitously ceding their land to the Rail Road Company, whereupon

The following gentlemen were appointed said committee:

John Noonan	Singleton Mitchell
Lemuel Richardson	Nicholas Wyckoff
George Williams,	

Resolved, That a committee of five be appointed by the President to confer with the Board of Directors of the Long Island Rail Road Company, and present the memorial and resolutions adopted by the meeting, whereupon the following gentlemen were appointed said committee:—

William P. Hallett,	James Connor,
William R. Prince,	Edmund Frost,
Nathan Sanford.	

Resolved, That the proceedings of this meeting be signed by the officers, and published in all the newspapers in New-York and Long Island.

JEREMIAH JOHNSON, President.

GEORGE WILLIAMS, } Vice-Pres.

SILAS BUTLER, }

Chas. De Forest,	} Secretaries.
Isaac W. Bowne,	

q19

[From the Baltimore Patriot.]

ANNUAL REPORT—Baltimore and Ohio Railroad Company. The Ninth Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad Company has just been made. The views heretofore expressed by the Board of Directors, in regard to the business that would be created by the Railroad along its course, have, we learn, been fully realized. The receipts of the transportation department, which afford unerring evidence both of the value and progressive increase of the trade thereon, will be found particularly satisfactory. These receipts for the present year, exceed those of the last by nearly 58,000 dollars, while the expenses during the same period have only increased, as we understand, about 23,000 dollars—thus showing a net increase of receipts for that department of about 35,000 dollars. The gross revenue of the Company for the year ending on the 1st inst. is stated at \$283,388 10. The expenses during the same period are \$156,204 39—leaving a net revenue of \$127,183 91.

Since the opening of the Washington Railroad, the amount of travel and intercourse between the two cities has greatly increased. The average at this time is understood to be about two hundred persons per day. Large numbers who formerly came to Baltimore by the bay route, now ascend the Potomac, and avail themselves of the Railroad. The results already fully justify the policy of taking the greater part of the stock of this road on account of the Company. The distance from city to city is now performed by the locomotive engines in about two hours and ten minutes. The improvements contemplated on a portion of the main stem of the road, will soon bring the time necessary for this journey within the limit originally proposed of two hours.

The machinery and motive power employed by the Company are such as to be quite satisfactory. As a proof of the efficiency to which the locomotive power has now been brought, under its patronage, we may mention that the "Arabian" is now in daily use—travelling 80 miles, without slackening its fires or letting the steam get down. And the "Washington," a new engine on the same plan, lately made an exhibit of its power which was quite decisive. With a load amounting to 113 tons, this engine travelled to the City of Washington, at a rate not less at any place than ten miles an hour—the average speed was much greater.

And on the level parts of the road, the rate of speed seemed entirely at the discretion of the engineer.

The reconnoissances between Cumberland and the Western waters, have established the important fact that the mountains to be traversed by the road can be passed by locomotive engines and their trains, without the use of stationary power.—The routes to Pittsburgh and Wheeling are both shown to be perfectly practicable, and all the interests involved in the extension of this great work, seem to require that both roads should be made.

Troy, our own Troy we mean, is one of the most spirited and enterprising towns in this, or any other State, going, in that particular, far ahead of its slow and cautious neighbors, of Albany.

Among other indications of this fact, is a statement we find in the Albany Daily Advertiser, of yesterday, that "the proprietors of the Troy and Ballston Railroad, have purchased the principal portion of the stock of the Schenectady and Saratoga Company, and most probably they will transfer the whole of the passenger travel to the Springs from the latter to the former road."

THE LONDON AND BIRMINGHAM RAILWAY shares, on which 50l. has been paid, are now selling for 60l.

NEW METALLIC CEMENT.—A new metallic cement, for which a patent has been taken out, consists of powdered scoria from the copper works, mixed with stone and lime. It sets rapidly, and takes a fine metallic polish. It is now being used by Messrs. Harrison, in a large building intended for an inn, at the south-west corner of London Bridge. This cement, unlike all other kinds except Frost's, is sold mixed up ready for use. The price is 9d. per bushel. If the scoria, in a state of powder, were sold by itself compressed in casks, it appears to us that it would form a very desirable cement for exportation. It may be laid on in coats as thin as the fourth of an inch, but it has not been a sufficiently long time in use to determine to what extent it will crack.—[Lon. Mec. Mag.]

DURABLE WHITEWASH.—I am enabled to certify the efficacy of marine salt in fixing whitewash made of lime. In the year 1795, when I was director of the naval artillery at the port of Toulon, I was commissioned to ascertain the utility of a method proposed by the master painter of that port, M. Maquilan, for whitewashing the ships between deck, and likewise their holds, in a durable manner, by means of lime. Our report was in favor of this process, which consists in saturating water in which the lime is slacked with muriate of soda, (common salt.) The whitewash produced by it is very permanent, does not crack, nor come off upon one's hands or clothes. The experiment was made only on wood. It appears from M. St. Bernarde's account, that it succeeded equally well on walls.—[Annales des Arts et Manufactures.]

The length of the paved streets in England and Wales is 30,000 miles; that of the roads which are not paved is 100,000 miles. The extent of the turnpike roads is about 30,000 miles.

NEW STEAM-ENGINE.—It is said the Rev. W. Morris, minister of Deanrow chapel, Wilmslow, in Cheshire, has invented a new steam-engine, expense of erecting which will be less than a tenth part of the cost of a steam-engine of equal power, and the expense of working it will be less than one-thousandth part of the expense of working a steam-engine of equal power.

The following communication is only a commencement of what we hope to be able to give in relation to the "Novelty Works" of this city. There are improvements going on there which will, when completed, astonish those who are not familiar with the operations of the distinguished gentleman spoken of in the following communication. We are not sufficiently acquainted with the works yet to speak of them in the manner they deserve, but shall, when permitted, give a full description of the works, and the improvements introduced for melting iron.

[For the Railroad Journal.]

Mechanical Improvements—Novelty Works.

MR. MINOR: Sir,—In visiting and inspecting the various mechanical improvements in this country, which have come into existence within forty or fifty years, and in learning the history, characters, and doings, of their several introducers, projectors and inventors, one is naturally at a loss which most to admire, the various inventions and improvements, or the talents and ingenuity of their authors.

In connection with the subject of mechanical improvements, I had often heard mention made of Dr. Nott. I had seen several kinds of stoves, both for heating houses and for culinary purposes, said to be invented by him, which I thought displayed ingenuity; and I had seen a steamboat, of somewhat novel construction, which also bore his name, both as inventor and proprietor. But having never yet, to my knowledge, been favored with a sight of that gentleman, and having, through the medium of common report, previously to any knowledge of his mechanical reputation, formed an idea of him as a gentleman of uncommon scientific and literary acquirements—a minister of the gospel of the most distinguished rank—and president of a very respectable collegiate institution; I could not but imagine that though he had by some lucky thought hit upon some improvements in the construction of stoves, and, perhaps, might have some vague, abstract notions respecting the nature and management of steam, in propelling boats, yet his knowledge must be altogether superficial.

But, being in New-York a few days since, and hearing of a large establishment, called the *Novelty Works*, said to be owned by Dr. Nott and others, I procured from a friend a note of introduction to a gentleman who was one of the partners, and visited the place, when, on presenting the note, I was not only permitted to examine every thing in and about the concern, but the gentleman, with the kindest attention and the utmost politeness, accompanied me through every part, and explained every thing which needed explanation.

This examination left no trace of the impression I had received about the doctor's superficial knowledge. I found an immense establishment, in which were carried on all the different branches and operations, in any way connected with making stoves, steam engines, boilers, and almost every other article of large machinery, and even steamboats; the whole divided into its proper departments, and each department furnished with the most ingenious and perfect apparatus I had ever seen. A spacious yard, which con-

tains the establishment, is enclosed to keep out idle intruders, and each department has a shop by itself. I saw in each department more or less improvements from the common modes of doing the same business, among the most important of which were a steam-boiler and a mode of facilitating the melting of iron, making a saving of heat and time; each of which, and several others, were well worthy of distinct notice. I could not but gaze with wonder on this establishment, with all its system and improvements, that the whole should be planned and directed by the head of one person, who, at the same time, was actively engaged in other avocations of a nature so widely different.

"And still I gazed, and still the wonder grew,
That one small head should carry all he knew."

There was a kind of charm that still heightened the pleasure of this interesting visit, from the recollection that I had often in former days rambled over the ground when it was in open fields, an hour's walk from any part of the city, and hardly, by a common cultivation, reclaimed from the state of nature. The spreading population of the once distant city, with all the din of business, has now reached the establishment; and it seems placed as a corner stone, or as a guide and pattern to the city, to lead them on in the road to perfection.

I quitted this place with reluctance; but if life and health permit, I shall visit it again, and shall notice the several improvements more in detail.

ARCHIMEDES.

We would ask for the following communication an attentive perusal, especially by the mechanics of this State, and others who are opposed to the present system of State prison labor. They will not, we are sure, willingly stand by and see the introduction of the silk manufacture, if, by concert of action, and a continued opposition, they can prevent it.

[For the Railroad Journal.]

Progress of Civilization and the Arts.

It appears, not only from the history of our times, but of all past ages, that the progress from the savage state to that of high improvements in civilization, with its millions of useful arts, is not by gradual advances, but by sudden starts, the effect of some accidental exciting cause; and that whatever may be the state of any portion of mankind, if no such exciting circumstance happens to take place, they will remain in that state, without any advance toward improvement for ages, and perhaps forever. We see portions of the human family which have probably always remained in as unimproved a state as human nature can exist in, and show no signs of ever being otherwise; and we also see other portions which, from time immemorial, have remained with very little improvement, at once awaking, as if from sleep, and in a few years making advances which seem to outstrip the imagination and bid defiance to impossibilities.

Fifty years ago, the various mechanic arts, and the branches of science on which they are founded, were but very little better known in this country than they were to the aboriginal inhabitants five hundred years before. It is true, we had a few men who could make and repair horse shoes and plough-shares in a clumsy manner, but machinery and the fine arts, and even the finer branches of the common arts, were wholly unknown; or, at least, unknown in prac-

tice. Even in England, where they are now probably as far advanced as in any part of the world, two or three hundred years since they had made no progress; and throughout Europe the case was nearly the same.

But the art of printing had kindled a flame which was to light the world to an immense field of discoveries, without which it would have remained forever inconceivable. This light had begun to spread and to show the outlines of useful knowledge, when the art of spinning cotton by machinery and of propelling that machinery by steam were discovered in England. These together gave an impulse to the spirit of invention, producing effects which no human foresight could have anticipated, and which no one was so credulous as to believe, if it had been foretold.

It is now forty-eight years since the first attempt, and forty-two years since the first successful one, to introduce cotton machinery into this country, and the introduction of steam power has since followed. Before that time many branches of business, which are now too common to excite notice, would have been subjects of extreme wonder; and many things we now see done every day would then have subjected the person who did them to the charge of witchcraft.

These two inventions, that of spinning by machinery and that of propelling that and other machinery by steam, may be set down as the pioneers which have introduced into this country almost every valuable improvement in the arts which we now possess; they have effected a greater change than ever took place before in any country in four times as long a period. It can be truly said, that in the above short space of time we have progressed from a state of comparative ignorance in the arts to an equal rank with any other nation. We have almost every useful art, carried on in a flourishing condition; and have made and are daily making in many of them valuable improvements. There are now but two important branches which we have not already fairly introduced and carried to a respectable degree of perfection. These are pottery and silk; and these are now in the act of being introduced under circumstances which guarantee their arrival, in a short time, to the highest degree of perfection. We possess all the materials in abundance to perfect the first, and fair specimens are already produced. For the second we have advantages decidedly superior to those of any other nation. It has been demonstrated by those whose knowledge and veracity can neither be questioned nor doubted, that the American silk is superior to that of any other nation; and a thousand facts show that the mulberry, which is the peculiar food of the silkworms, if not indigenous in our soil, thrives in it better than most other trees. The establishment of these two branches will soon make the second great and perfecting era in the history of the arts in this country. The various ornamental branches, as drawing and painting, and other minor parts of the business of manufacturing pottery and silk, will be necessarily improved and extended, and the whole compass of arts will exhibit the effects of new and powerful stimulus.

And it must, therefore, be a subject of regret to every person of patriotic feelings, who understands the subject, that the legislature of this State has, at its last session, passed an act to introduce the manufacture of silk into our state prisons, which, though it proceeded, no doubt, from the purest motives, will, if it has any effect, produce injury rather than benefit.

The business of manufacturing silk is destined, in a short time, to become a principal source of our national wealth; and

what is of infinite importance, it seems to be designed by the discriminating eye of infinite wisdom to be almost exclusively the business and employment of females. The first discovery of its use was made by an empress—the labor is more appropriate for women and children than for men, and the fabrics when completed are more particularly designed for their use than for males. Women are, in general, more industrious than men; and are willing to apply themselves more steadily to business, if they can receive adequate compensation. But the use of machinery has relieved the hands of the female community from a great part of the labor which was formerly necessary in clothing themselves and their households. They have not, however, lost their habits of industry, but would cheerfully and proudly pursue and conduct any honorable business which would be productive of profit, and their general habits of economy as well as industry would be a sure guarantee of their success. Thus, while our wives, daughters, and sisters, were helping on the road, not only to competency, but to wealth, without lessening or encroaching on our own proper field of profitable labor, their business would open an increased and extensive demand for such labor in machinery and fixtures. Instead of being taxed to support them for the sake of those charms we so much adore, and which are necessary to our very existence, they will more than compare notes with us in profit, while their charms will not only be increased by wholesome exercise and the expression of self-approbation, but still heightened by more rich and elegant clothing, wrought by their own delicate fingers.

From all these considerations the silk business ought to be hallowed, and sacredly appropriated to the department of female management. No man ought to engage in it any farther than as an assistant, to furnish the necessary fixtures, and to aid in cultivating the trees, and also to prepare the machinery necessary in manufacturing it. At the heads of this noble department our females will feel new importance in scale of being, while they are not only clothing and adorning their persons with the richest fabrics of their own making, but adding immense sums to the national wealth. Under these circumstances, will they not feel their rights invaded and encroached on—their prospects and profits interfered with? and what is still worse, will they not feel themselves insulted and degraded by the proposed competition with them in the state prisons, and by making them fellow laborers with base wretches whose crimes have deprived them of liberty, and shut them from the sight of mankind? If they do not feel all this, and feel it with the spirit of strong resentment, they are not the beings we think them.

But besides all this, there is no other branch of business in the whole compass of the useful arts so completely unfit for the employment of convicts in a state of confinement—so sure to defeat the object the legislature had in view, (which was doubtless to make the convicts earn their living without interfering with the rights of free citizens,) as the culture and manufacture of silk. The business of planting and cultivating the mulberry trees we should certainly think inconsistent with the state of confinement in which they must necessarily be kept. The feeding and taking care of the worms is much more appropriately the business of women and children than of men, even if the prices of the labor were the same. The reeling the silk has ever been, and must always be, the business of females;

the rough and large fingers of men are unfit for it. All that remains, then, is the weaving and dyeing. The weaving by the power loom is already commenced by Mr. Gay, at Providence, with the most perfect success, and all plain silk fabrics will soon be woven by it; and every man acquainted with cotton manufacturing, knows that women are better attendants on the power loom than men, independently of the difference in prices of labor. For weaving figured and other fancy articles much skill is necessary, which can only be acquired by a thorough education in the intricate branches of weaving, and will require complicate and expensive machinery. The dyeing might, perhaps, be done at the state prisons to advantage, where the goods are manufactured in the neighborhood; at any considerable distance the profits would not pay for transportation.

This is no exaggerated statement—no distorted picture of the case. It will be found on trial to be the plain truth in every particular. Who then will advocate the introduction of silk manufacturing in the state prisons? We think no one who possesses a knowledge of the facts, and who is in his sober senses.

S. B.

[For the Railroad Journal.]

To set out the Holes in the Circles of the Index to a Machine for Cutting the Teeth in Gear Wheels.

Rule. Take several convenient numbers for a circle that is most used, and find the least common multiple of them, by the rule laid down in Pike's Arithmetic, page 69.

Example 1. We will select for the first circle the numbers 12, 16, 20, and 24.

$$\begin{array}{r} 4)12 \quad 16 \quad 20 \quad 24 \\ 3)3 \quad 4 \quad 5 \quad 6 \\ 2)1 \quad 4 \quad 5 \quad 2 \\ 1 \quad 2 \quad 5 \quad 1 = 240 \end{array}$$

Example 2. We will next select for the second circle 10, 15, 21, 25, and 30.

$$\begin{array}{r} 5)10 \quad 15 \quad 21 \quad 25 \quad 30 \\ 3)2 \quad 3 \quad 21 \quad 5 \quad 6 \\ 2)2 \quad 1 \quad 7 \quad 5 \quad 2 \\ 1 \quad 1 \quad 7 \quad 5 \quad 1 = 1050 \end{array}$$

2d circle.

Example 3. For third circle, 40, 60, 80, and 100.

$$\begin{array}{r} 10)40 \quad 60 \quad 80 \quad 100 \\ 4)4 \quad 6 \quad 8 \quad 10 \\ 2)1 \quad 6 \quad 2 \quad 10 \\ 1 \quad 3 \quad 1 \quad 5 = 1200 \end{array}$$

for 3d circle, &c.

By the above rule, I have calculated the holes for several circles, which are as follows: 1st, A circle of 240 holes will cut 120, 80, 60, 48, 40, 30, 24, 20, 15, and 12 teeth. 2d, A circle of 144 holes will cut 144, 72, 48, 36, 24, 18, 16, and 12 teeth. 3d, A circle of 200 holes will cut 200, 100, 50, 40, 25, and 20 teeth. 4th, A circle of 72 holes will cut 72, 36, 24, 18, 12, 9, 8, and 6 teeth. 5th, A circle of 132 holes will cut 132, 66, 44, 33, 22, and 11 teeth.

Which is the most that is in common use.

S. A.

[From the London Mechanics' Magazine.]

PORTLAND BREAKWATER.—Sir,—I regret that my official duties have prevented my paying earlier attention to Mr. Lamb's communication, dated 4th March, No. 605; not that I think it a matter of any consequence, as affecting my late father's claim to priority of design for the

Portland Breakwater, but lest my silence should be construed as a tacit admission of Mr. Lamb's claims. I take it for granted, that if any communication on a breakwater for Portland roads shall appear to have been made by my father previous to June, 1812, (the earliest period to which Mr. Lamb can carry back his suggestion,) then the originality will rest with my father. Now Mr. Ham, with whom I have had no intercourse, directly or indirectly, for more than twenty years, until within the last fortnight, having seen the correspondence in the *Mechanics' Magazine*, unsolicitedly wrote a letter, (published in *Mech. Mag.* p. 269, vol. xxii.) in which he says, "I can add my testimony, that in the year 1800 I frequently heard him (meaning my father) speak of his plan, and give minute details of the same;" and in a subsequent letter which I have received from him, dated 24th May, 1835, he adds—"I can still recollect that he (meaning my father) appeared quite *au fait* in all the details, and delighted to explain them to the nobility and gentry, who so frequently visited his library, when George III. drew such a concourse of them to Weymouth. This allusion, you will perceive, will carry the date of your father's plan even prior to the year 1800. I soon after left Weymouth."

I can mention many other persons who were well acquainted with my father's designs, and to whom he made occasional written as well as verbal communications, in reference to the subject anterior to 1812. A communication was made to Lord A. Beauchamp, in June, 1810. Gen. Donmourier, an engineer of no common order, had also frequent interviews and conversations with my father on this subject, as being intimately connected with the improvements of our maritime competitors at Cherbourg, then in progress; from him my father received many important hints in furtherance of his own ideas. A communication was made to Lord Sidmouth in September, 1810, on the same subject. I have numerous letters to my father from gentlemen who were in the habit of frequenting Weymouth at the time of the visit of his late Majesty, George III., in which reference is constantly made to him as the person who had first suggested the idea of a breakwater at Portland. My father communicated his design to Mr. Idle, confidentially, in June, 1812, when that gentleman was a candidate to represent Weymouth. At that period the subject was generally discussed, and no doubt, from the publicity given to it, Mr. Lamb's intentions originated, as his professional connexion with Mr. Idle afforded him the opportunity of being well acquainted with every transaction, private as well as public, in which Mr. Idle had any share. The slight intercourse which then took place between my father and Mr. Lamb, was not of such a description as to require or induce him to make a confidential communication. The question of originality was never mooted, because there could be no doubt upon the subject. In all my father's extensive correspondence with

men of rank and influence, there is but one opinion expressed, namely, that the design first emanated from him. As to my father's silence, on which Mr. Lamb seems to lay so much stress, that merely shows that he was cautious of committing himself to strangers, and that he had not taken any steps to carry his design into execution, because he did not possess pecuniary means sufficient to justify his embarking in so extensive an enterprise. If Mr. Bracebridge had not known that my father had possessed plans and particulars before August, 1813, what could have induced him to apply for them? He says, under date August 13th, 1813, "Though dismissed, perhaps, for want of encouragement, from your present intention (pending a more favorable period for such an enterprise,) I am confident a mind capable of forming such a design, could never willingly abandon it. As I understand you had in your possession, plans, soundings, and various requisite materials for this great work, upon which such has been my reflection and contemplation, and consequent admiration of the plan, that I have ventured to mention it to some confidential, scientific, and, otherwise, able friends," &c. &c. Again—"These, sir, were the feelings which led me to wish it may be in my power to render you any service in this matter, and induce you to turn your mind again to a plan on which you have already bestowed so much trouble and attention." Can this be any thing but conclusive? Is there any symptom of a competitor for the credit of origination? Must it not have been known to Mr. Bracebridge, if Mr. Lamb had hinted any intention of claiming the projection of a breakwater at Portland, and would Mr. Bracebridge have thus written with such a knowledge? Mr. Lamb does not put forth his claim until the year 1834, when Mr. John Harvey, the original projector of this design, is dead. If Mr. Lamb had any pretence to originality in this matter, how happens it that even Mr. Idle, so late as 1813, wrote a letter to my father on the subject, addressing him as being not merely a principal, but the only projector of the undertaking? Indeed that gentleman, as well as Mr. Bracebridge, always considered my father as the individual with whom the design for a breakwater at Portland had originated. And so did, I may truly say, the entire population of Weymouth and its neighborhood, since no farther back than July last, 687 of the principal inhabitants signed a petition to his present Majesty in favor of a breakwater based on my father's plan, in which he was distinctly recognised as the father of the projected undertaking.

I am, Sir, your very ob't serv't,

JOHN HARVEY.

Weymouth, June 6th, 1834.

Extracts from a Lecture on the Preservation of Timber by Kyan's Patent for preventing Dry Rot: delivered by Dr. BIRKBECK, at the Society of Arts, Adelphi, December 9, 1834.

We have heard persons assert that it

appears to them almost ridiculous to suppose that it ever can become necessary, on a large scale, to perform any operation with a view to render timber durable, beyond that of properly seasoning it by exposure to the atmosphere. But is not this mere prejudice? Why should not timber be prepared by a particular process, which conveys something additional into it, and thereby effects a chemical change in its nature, as well as leather is tanned?

"A very effectual procedure has taken place, in regard to one form of animal matter, by the preservation of the skin from natural decay in a process known by the name of 'Tanning.' This process will give a very good idea of Mr. Kyan's invention. Tanning consists in protecting the leather and skin by the introduction of tannin, which is generally derived from an infusion or decoction of the bark of the oak. If no change were produced in the gelatine, which makes the largest part of the skin to be immersed in the tan pit, it would undergo certain chemical changes—it would putrify, and lose its tenacity; but if a portion of animal jelly is dissolved in water, and a little of the substance added, similar to the tannin, a combination will take place between the gelatine; a precipitate will follow of the animal matter, which is the tanno-gelatin, or a compound of tannin and gelatine, and is precisely that substance which is formed in the leather, and gives to it durability and power to resist the causes of decay. The same intention exists in the process of Mr. Kyan. It is true he does not act on the gelatine of animal matter, but he does on the albumen: one of the approximate principles of vegetable matter, which appears to have been slightly perceived by Fourcroy, but which was actually discovered by Berzelius, about the year 1813.

"In order to obtain this vegetable matter (*albumen*), there are various substances which may be employed. The *Hibiscus esculentus* yields it in considerable abundance: it is a West Indian plant, which Dr. Clarke mentions as adopted in Demerara, for the same purpose, as, in other Islands, the white of eggs and blood are employed in the process of clarifying sugar. The *figus indica*, also, if divided at the stem, will exude a considerable quantity of this matter. If the solution of the bichloride of mercury (which is the agent adopted by Mr. Kyan) is added to the vegetable matter, albumen, it will be found, when they come in contact, that decomposition occurs."

"Mr. Kyan, who had been a series of years (since 1812) engaged in trying a variety of experiments on the preservation of timber, was led to the present experiment by having, as he conceived, at length ascertained that *albumen* was the primary cause of putrefactive fermentation, and subsequently of the decomposition of vegetable matter. Aware of the established affinity of corrosive sublimate for this material, he applied that substance to solutions of vegetable matter, both acetous and saccharine, on which he was then operating, and in which albumen

was a constituent, with a view to preserve them in a quiescent and incorruptible state, and obtaining a confirmation of his opinions by the fact that, during a period of three years, the acetous solution openly exposed to atmospheric air had not become putrid, nor had the saccharine decoction yielded to the vineous or acetous stages of fermentation, but were in a high state of preservation; he concluded that corrosive sublimate, by combination with albumen, was a protection against the natural changes of vegetable matter."

"The mode in which the application of the solution takes place, is in a tank similar to the model on the table. They are constructed of different dimensions, from 20 to 80 feet in length, 6 to 10 in breadth, and 3 to 8 in depth. The timber to be prepared is placed in the tank, and secured by a cross beam to prevent its rising to the surface. The wood being thus secured, the solution is then admitted from the cistern above, and for a time all remains perfectly still. In the course of 10 or 12 hours the water is thrown into great agitation by the effervescence, occasioned by the expulsion of the air fixed in the wood, by the force with which the fluid is drawn in by chemical affinity, and by the escape of that portion of the chlorine or muriatic acid gas which is disengaged during the process. In the course of 12 hours this commotion ceases, and in the space of 7 to 14 days (varying according to the diameter of the wood) the change is complete, so that as the corrosive sublimate is not an expensive article, the albumen may be converted into an indecomposable substance at a very moderate rate."

After stating the result of various experiments, Dr. Birkbeck concludes by observing that this discovery is yet in embryo, but that the public benefit that will result from it is beyond calculation. In an *Appendix* the various purposes to which the process is applicable are detailed: such as preventing dry rot, seasoning timber, protecting from insects, applying the process to Canada and British timber, and preserving canvass, cordage, &c. from mildew.

"Canada timber is much more liable to decay than that grown in the northern parts of Europe, and for this reason is never used in buildings of a superior description. The principle of decay being destroyed, as above shown, this objection is no longer in existence; and this kind of timber may now be employed with as great security as that of a superior quality and higher price.

"The same observation applies with great force to timber of British growth, particularly to that of Scotland, much of which is at present considered of very little, if any value for durable purposes, on account of its extreme liability to decay, whether in exposed situations or otherwise. The present process will, therefore, render of considerable value plantations of larch, firs of all kinds, birch, beech, elm, ash, poplar, &c., which are the chief products of the great wooded estates, and which, when prepared, may be

advantageously employed to most useful purposes."

*"Purposes for which the Prepared Timber, &c., would be highly useful.—*Houses, farm houses, out houses. Large timbers, floors, roofs, gutters, &c., furniture, and all joiner's work, preserved from dry rot, and perfectly seasoned. Posts, rails, gates, park paling, fences, hop poles, felloes, spokes, shafts, &c. &c. For these purposes any kind of timber may now be used, instead of the more expensive kinds. It will also supersede, in many cases, the employment of iron, from its acquired durability and greater economy."

The additional expense of preparing timber for buildings, such as farm houses, out houses, &c. in Mr. Kyan's manner is estimated at the very moderate sum of 20s. per load.—[Arch. Mag.]

Specification of a Patent for a new and improved mode of constructing a Mill Bush, or Spindle Box, for Flour Mills; and also of making and fixing a Ring and Bale in the Eye of the upper Stone. Granted to WARREN P. WING, of Greenwich, Hempstead county, Massachusetts, February 20, 1835.

To all whom it may concern, be it known, that I, Warren P. Wing, of Greenwich, in the county of Hampshire, and State of Massachusetts, have invented certain improvements in the manner of fixing the mill bush, or spindle box, and of constructing a ring and bale to be fixed in the eyes of millstones for the grinding of flour, or other articles; and I do hereby declare that the following is a full and exact description thereof.

I make a box, usually of cast-iron, which I adapt in size to the eye of the stone. For the sake of facility of description, I will give the dimensions of one which I have made, and which, after a fair trial, has been found to answer well in practice.

The box has a top, which top fits on to it, like a snuff-box. It is ten inches in diameter, and five inches in depth, the outer rim being three-fourths of an inch in thickness. The bottom and top are both perforated in the centre, so as to allow the mill spindle to pass through them. This box is to contain three bearing pieces, of block tin, or of any proper mixed metal, which are to be simultaneously forced up against the spindle, and which are in contact with it for about three-fourths of its circumference, the remaining fourth being exposed to the cooling influence of the air. These metal bearings are cast into a follower of cast-iron, a birds-eye view of which resembles the letter H, the outer end of which receives the cam, or eccentric, by which the bearings are to be forced up against the spindle. Cells to receive these followers are formed within the box, by six wings, or cheeks, extending from the top to the bottom, the sides of each of the three cells thus formed being parallel to each other, that the followers may slide readily and truly therein; these wings are, of course, cast with the box. The void space between them admit of

the contact of air with the spindle, and one of them is to be used for another purpose, to be presently described.

Between the rim of the box, and the crossbars of each of the followers, the bottom is perforated to allow the passage of round rods of iron, the upper ends of which are formed into cams, or eccentrics, for forcing up the followers, and, for this purpose, extend up through the whole depth of the box. The lower ends of the above named round rods, or spindles, extend down sufficiently below the bed stone to allow of their being acted upon conveniently, as they are all to turn at the same time. The turning them simultaneously may be effected in various ways, but that which I deem the most simple is by attaching each of the spindles to a ring, by means of a jointed crank, so that, when the ring is made to revolve, the followers will all advance at the same time; other modes will occur to any skilful mechanician, and need not, therefore, be specified.

The cover of the box I make somewhat convex; it need not be more than one-fourth of an inch in thickness; besides the perforation in its centre for the spindle, I usually drill, or cast, holes through it, near the inner edge, which I fill with wood, in order to nail the elastic collar thereto.

In order to lubricate, or oil, the spindle, I drill a hole through the bottom of the box, near the periphery, and in one of the angles formed by it, and one of the before named wings, or cheeks, in one of the void spaces. A rod extends down through this hole, in the manner of those attached to the eccentrics, and this carries a leaf within the box, to which a sponge containing oil, or a lump of grease of any suitable kind, may be attached. By turning this rod, the oil, or grease, is brought into contact with the spindle, and lubricates it; and this may be done in a moment, as often as it is found necessary.

My improvement in the bale and ring consists in casting them in one entire piece, in such way that the ring may be let into, and firmly affixed in, the eye of the stone. The bale rises as a semicircle above the ring, or forming such other curve between two opposite points on the diameter of the ring, as shall adapt it to the cock heads of spindles already made. Gains, or notches, are made under the ends of the bale, in the ring, to receive the driver.

What I claim as my invention, is the construction of a spindle box, in which the followers are moved up by eccentrics, or cams, without the necessity of stopping the mill, and operating substantially in the manner described.

I also claim the arrangement for lubricating, as herein described, and likewise the manner of constructing the ring and bale in one piece, as therein set forth; not, however, intending to confine myself to the exact form which I have described, but to vary the same in any manner which I may think proper, whilst the like ends are attached by means substantially the same.

WARREN P. WING.

[From the London Repertory of Patent Inventions, &c.]

Specification of the Patent granted to JOHN ASTON, for an Improvement in the Manufacture or Construction of Buttons.—Sealed July 10, 1834.

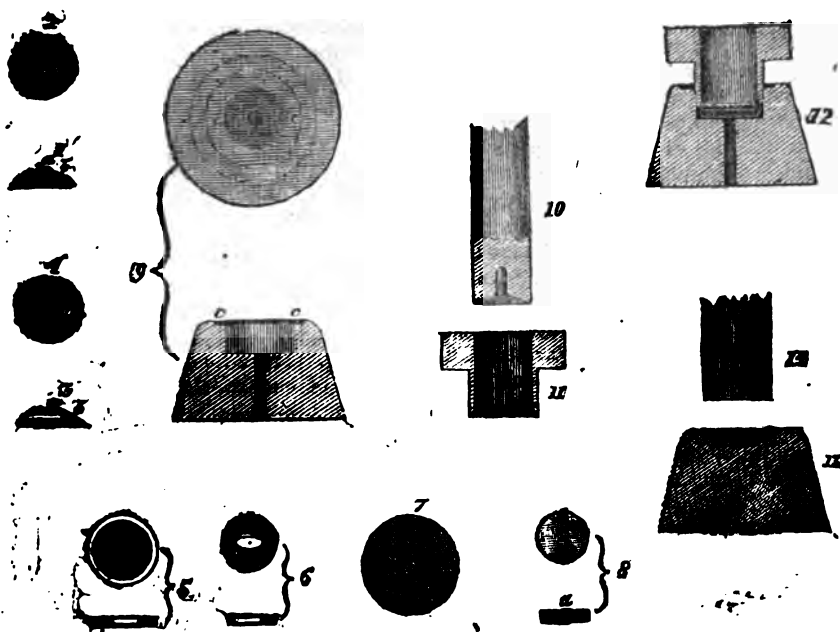
My invention (says Mr. Aston) relates to that description of buttons commonly called "flexible shanks," wherein a tuft of thread or woven fabric is made to pass through an opening in what is called a collet, such tuft protruding outwards for the passage of the needle when in the act of attaching this description of buttons to a garment.

Fig. 1 is an edge view, and fig. 2 a plan of one of the old construction of buttons, *a* being the protruding tuft of thread or woven fabric; *b*, the ordinary collet. Objections have been raised against these buttons, owing to the flexible tuft, by which the button is attached, coming in contact with the sides of the button-hole, and quickly wearing the same away, and making it have a shabby appearance; and this has been found to be the case to a much greater degree than with the covered buttons which were formerly very extensively in use, and in which the covering was performed by hand with the needle. Now the intent of my invention is to obviate the objection above mentioned, by an improvement in the construction of the metal collet to be used in the making such description of buttons, by which I am enabled to use a flexible shank which does not protrude, and thus admitting of such buttons being set more closely to the cloth to which they are attached, and as there are no protruding shanks, the only parts which will be within the button-hole of the garment will be the threads by which the buttons are sewed or attached, and in this particular they will very much resemble the buttons covered by hand and with the needle.

My improvement consists in giving to the metal collet of the button an oblong hole, having the threads which act as the flexible shanks laid across the short axes of such oblong hole, as shown in figs. 3 and 4, there being a soft substance or padding below the threads, which comes in contact with the face of the garment to which such button may be attached.

Fig. 3 represents an edge view of a button constructed according to my improvement.

Fig. 4 is a plan thereof. In both of these figures it will be seen that the hole formed in the collet, *b*, is oblong; whilst it will further be seen, that the threads, *a*, which act as the flexible shank in this button, are held across and at right angles to the length of the oblong hole, at the same time such threads do not protrude, but lie close on the surface of the padding, which forms part of the back of the button. It will be evident, that by having the hole formed oblong, the needle may with facility be passed under the threads of the flexible shank in the direction of the length of the hole of the collet, as is shown by the dotted lines, and it is the facility thus offered of passing the needle in that direction, which renders the pro-



trusion of the flexible shank unnecessary, and it is with this view that the hole in the collet is made oblong. The threads which form the flexible shank will be securely held down across what may be called the shorter axis of the oblong hole, only a very small part being left uncovered, and, consequently, will not be liable to stretch.

Having thus described the nature of my invention, I will describe the best manner in which I am acquainted for making buttons according to my improvement.

Fig. 5 represents a metal shell, similar to those which are ordinarily used for making this description of buttons.

Fig. 6 shows the metal collet, the difference between which and those heretofore used is, that the hole is oblong, for the purpose before described. I would here remark, that these shells and collets are made by the fly-press, as is well understood.

Fig. 7 represents a piece of silk, or other woven covering of the button.

Fig. 8 is the padding which lies under the collet, and it has wound round the thread, *a*, as shown in the drawing, which acts as the flexible shank to the button. This padding consists of several layers of soft paper, having a piece of silk or other fabric similar to the covering of the button: this piece of silk, or other fabric, forming the surface which comes in contact with the face of the garment to which the button is attached.

Fig. 9 represents a section and plan of the die or mould into which the parts of the button are first put, in order to bring the parts properly together previous to their undergoing the final pressure by which the button is completed.

Fig. 10 is the punch to the die or mould, fig. 9, which is shown partly in section, by which it will be seen to be countersunk.

Fig. 11 is a hollow tool by which the edges of the covering of the button, fig. 7, are gathered together and laid over the edges of the shell, fig. 5. When the covering, fig. 7, and the shell, fig. 5, are at the bottom of the die or mould, fig. 9,

which will be clearly seen in fig. 12, where these parts are shown together ready for receiving the collet and the padding, having the threads, *a*, wrapped around it, and lying at right angles to the length of the oblong hole of the collet. In forming a button, the circular piece of silk or other fabric, fig. 7, is to be first placed on the face of the die or mould, fig. 9, at the points, *c c*, the face of the die or mould being sunk to receive it; a shell, fig. 5, is then to be placed on the surface of the covering, fig. 7, and the two together are to be pressed down to the bottom (by the punch, fig. 10,) of the die or mould, fig. 9, in doing which the punch will enter the shell and guide it down. The punch is then to be removed, and the hollow tool, fig. 11, is to be forced down into the die or mould, by which the edges of the silk or other covering of the button will be forced towards the centre of the die or mould, and, consequently, overlap the edges of the shell; the collet, fig. 6, containing the padding, is then to be dropped into the mould or die through the hollow tool, fig. 11, the collet being uppermost. The punch, fig. 10, is the next to be forced down with pressure through the hollow tool, by which means the collet, the padding, and the edges of the outer covering of the button, will all be forced into the shell, fig. 5, which will retain them sufficiently secure till the button undergoes the final pressure for completing it. The button thus far produced is to be removed from the die or mould, fig. 9, by a wire, which is passed up through the mould for that purpose, as is the usual practice.

Fig. 13 is another die, and fig. 14 is a punch, by which the final or completing pressure is given to the button. The nature of the counter-sinking of this die will be evident on inspecting the drawing; and it will be seen that the punch, fig. 14, has a plain face. The button, on coming from the die or mould, fig. 9, is to be placed with the collet downwards, and the same is pressed into the die, fig. 13, by the punch, fig. 14, at the same time

the workman holds a piece of tissue paper between the button and the punch, to prevent the face of the button being injured in appearance by the punch.

Having thus described the nature of my invention, and the manner of carrying the same into effect, I would have it understood, that I lay no claim to any of the tools or dies or parts of the button herein shown and described, they being similar to those heretofore used in making like kinds of buttons; nor do I claim the making of the flexible shank (or part by which the button is attached) of thread; but I would have it understood, that what I claim as my invention of an improvement in the manufacture or construction of buttons, is the manufacturing or constructing covered flexible shanked buttons with collets having oblong holes, by which the flexible shank is not required to protrude, but the button may with facility be sewed or attached to the garment by passing the needle under the threads, *a*, in the direction of the length of the oblong hole as above described.

Enrolled January 10, 1835.

JUST TRIBUNE.—The tragical fate of a meritorious engineer, *Phineas Davis*, who was crushed by an accident on the Baltimore Railroad, was noticed some days ago in this paper.

In the ninth annual report of the Chesapeake and Ohio Railroad Company, the following just tribute is paid to the character and services of this ill-fated individual:

Phineas Davis was the first who constructed an engine, capable of being used on the road, in which anthracite fuel was successfully employed. With untiring patience, he bore disappointment after disappointment; and the eminent and splendid results, which ultimately rewarded his efforts, are ample testimonials of his genius, and will identify his name, most honorably, with that great system of internal improvement, which is yet to work so many and such important changes in the relations of society. Of a quick and clear conception, in matters relating to his profession, he possessed a calm discriminating judgment. The warmth and energy of inventive talent were tempered by a prudent foresight and great practical skill. He seldom, therefore, took a step, which was not a secure one; and the success of his suggestions, when put into practice, gave them, from the first, almost the same weight as if they had been the dicta of experience. His private worth and unassuming manners, were not less remarkable, than his rare abilities. The Board deeply regret his loss, and hold his memory in sincere respectful and consideration.

[From the New-England Farmer.]

Poor Laws of Great Britain.

We received the Edinburgh Quarterly Journal of Agriculture for June, some weeks ago; and now proceed to take some notice of its contents.

The first article is an elaborate comparison of *The Poor Laws of Great Britain*, from which it appears that the poor have been much more judiciously managed in Scotland than in England. We select one paragraph to show the difference between the laborers of those two countries.

"The mode of living in Scotland has been lower than in England; and hence it is less expensive to provide for a poor man here than in the south. An English laborer thinks himself starved, if he does not daily eat butcher-meat and white bread, and drink malt liquor; whereas in Scotland milk and meal (oatmeal) make a plentiful house, and our ablest ploughmen take nothing more. Potatoes, which the children of our gentry prefer to bread, are re-

garded with considerable scorn by laborers in the south of England. What an English laborer spends on his bacon, beer, and white bread, is in the hilly parts of Scotland spent by the Scottish laborer on the education of his children. Nay, the most intelligent and popular of the English periodical writers, William Cobbett, M. P. seems to have no idea that better can be done for English laborers than to feed them well with bacon, bread and ale. He does not appear to think them capable of rising to intelligence, or finding their highest enjoyment in the cultivation of their minds, as religious and moral beings, and in the ambition of educating their children to the possession of accomplishments not enjoyed by themselves."

An eloquent advocate of Temperance in our own country, has said, "The drunkard knows that when he shall have spent his all and become a pauper, he will have a better claim to your property than you have; and that his support will be provided for, whether your estate can support you or not." In some parts of England, this principle has been carried out into an alarming extent; and the following startling facts will prove that pauperism has there become an intolerable burden:

"Out-door relief to able bodied persons is also given in money, and first without requiring labor in return. The applicant pleads that he has been unable to obtain full work, that he has lost a day or two, &c. On such pretexts, young men demand from the unlimited resources of the parish an indemnity for their loss. Young men in this way often receive 2s. 6d. or 3s. per week; and employing their time in depredations of various sorts, do no work whatever.

"In winter generally, a laborer in the country comes on the parish, whatever he may have earned in summer. It is enough that he is now in want, having no work, or short work and short wages.

"Many parishes oblige the occupiers of property to employ the applicants for relief at a rate of wages fixed by the parish; and depending, not on the services, but on the wants of the applicant, the employer being paid out of the poor-rate all that he advances in wages above a certain sum.—The conduct or ability of the laborer as a workman is not regarded.

"Parishes sometimes employ in actual labor, and pay wages to the applicants for relief who say they have not found employment. They are set to dig gardens or fields, or to work on the roads. Such labor has in all cases proved most unprofitable; little or nothing is done; the men have indulged themselves in utter laziness; and usually become so infamous, that no body will employ them. Whatever his previous character may have been, parish employment of an individual though occasionally on the roads, ruins him as a laborer. Every principle of industry is violated. When the single man gets 5s. the married man for the same work gets 10s, so that they are made to feel that the work and the wages have no true connection. The sense of shame is soon obliterated by habit and example. Attempts to treat the deserving better than others, have always done harm. It excites murmuring, and ultimately to satisfy the clamors of the undeserving, the scale of relief is raised.

"By subsistence in a poor house, the paupers in England usually remark that they live better there than they ever did before.—They have excellent apartments, good beds, and abundance of the richest food. They live no doubt in the society of many bad or profligate persons, but to this they become accustomed; and children brought up in the

workhouse are extremely apt, when places have been got for them, to desert their service and return to the workhouse. In general the workhouse is a large almshouse in which the young grow up in idleness, ignorance and vice; the able bodied are maintained in sluggish sensual indolence; the aged and more respectable exposed to worthless society; and the whole body of the inmates subsist on food, far exceeding both in kind and amount, not merely the diet of the independent laborer, but that of the majority of the rate payers.

"It will not appear surprising that this system of poor laws is popular with the inferior orders of society. The laborer feels that it gives him perhaps low wages, but always easy work and independence. He need not bestir himself to seek work; he need not study to please his master; he need not put any restraint upon his temper; he need not ask relief as a favor. He has all a slave's security for subsistence without his liability to punishment. As a single man indeed, his income does not exceed a bare subsistence, but he has only to marry and it increases.—If he abscond and desert his children, he knows they will be well taken care of.

"In consequence of this perpetually increasing evil, the English nation, for the year ending 25th March, 1832, paid in poor rates the sum of £7,036,968; although in that year the price of corn was extremely low.

"It appears that in one parish, that of Cholesbury in Bucks, the collection of the poor rates in 1832 suddenly ceased in consequence of their enormous amount. The landlords gave up their rent, the farmers their tenancies, and the clergyman his glebe and his tithes. It was found that even by dividing the whole land of the parish among the able bodied paupers, these able bodied paupers would be unable to get their bread out of it without aid, during two years, from the neighboring parishes; and that after all, the aged and impotent must remain a permanent burden on these neighboring parishes. In other quarters, farms became untenanted, or the rent reduced to a half or less, on account of the poor rates. The Commissioners* mention a farm in Kent of 420 acres of good land, tithe free and well situated, which had just been thrown up by the tenant on account of the poor rate. Near Aylesbury they mention forty-two farms untenanted. At Thornborough, Bucks, 600 acres unoccupied, and the greater part of the other tenants had given notice that they were to quit their farms. Many other places are mentioned as in a similar state from the same cause.—Generally after 1820 this disastrous result was proceeding gradually over England, in consequence of the increasing burden on the possessors of land.

"The soil of England has of late been hastening fast to become the inheritance of the poor, without enriching them, because the same poor rates keep them down which had brought down the former proprietors.—Divide the land of a parish among the poor, and they are speedily oppressed by the necessity of supporting the progeny of improvident marriages whom the poor laws oblige them to maintain in affluence.

"Good ploughmen are not to be found. The laborers say they do not care to plough, because that is a kind of work which if neglected will subject them to punishment; and if properly done requires constant attention, and the lads do not wish to learn. Nine

* Appointed by his Majesty "to make a full and diligent inquiry into the practical operation of the Laws for the relief of the Poor in England and Wales."

able bodied young men were in the workhouse last winter; such was their character that they were not to be trusted with thrashing. When the bad season is coming on, the laborers frequently dispose of any little property they have, such as a cow or a pig, so as to entitle them to parish wages. The workman tells his employer he does not want his work or his wages, he can do better on the parish.—By an old experienced laborer it was supposed that one laborer forty years ago, would do more than two of the present day.

"One great evil has been that those laborers who retained their independence could get no employment, because the farmers were constrained to employ the bad workmen. Take the case of Wm. Williams, a hard working industrious married man, who had acquired two cows, and a sow and ten pigs, and saved £70; he also got a legacy of £46. The consequence of this was that no one would employ him, although his superior character as a workman was well known. He told me (says the employer) at the time I was obliged to part with him, 'while I have these things I shall get no work; I must part with them all; I must be reduced to a state of beggary before any one will employ me.'

"Matters soon came to this, that mothers and children would not nurse each other in sickness until they were paid for it by the parish, which was accordingly done.

"But all these effects of the English poor laws seem slight compared to their effects on the morals of the female sex of low station.—

"In Great Grimsby, the overseer says that most of the relief is altogether unnecessary; but he is convinced that if an abatement were attempted, his life would not be safe; he looks to the farmers for support which they dare not give, considering that their lives and property would be in danger.

"At Great Gransden the overseer's wife told Mr. Power that two paupers came to her husband, demanding an increase of allowance; he refused them, showing at the same time that they had the full allowance sanctioned by the magistrate's scale; they swore and threatened that he would repent it; and such was their violence, that she called them back, and prevailed with her husband to make them further allowance.

"The question is apt to occur, Why did not the English Legislature at once adopt the Scottish system? The answer is, that the pretended omnipotence of parliament would have been unequal to the task of carrying such a reform into effect. To withdraw five millions sterling from the subsistence of able bodied persons in England, would have produced a convulsion, to encounter which the resources of the state, either civil or military, must have proved unequal."

In our selections, we have omitted many disgusting details, and now willingly turn from this dismal picture to the urbanity and pleasantry of our author's concluding lines:

"We of Scotland wish every degree of success to our bretheren of England in their attempt to heal a gangrene of 250 years' endurance, which appears after all, not so pernicious to the rich, whose wealth only it effects, as to the poor, whom it sinks into a state of intellectual and moral degradation; and who but for this evil in their institutions, form naturally the best, the bravest, the most generous, and the noblest race of human beings that have hitherto appeared on this globe,—excepting always, of course, their northern neighbors and admirers."

NEW-YORK AMERICAN.

OCTOBER 17—23, 1835.

LITERARY NOTICES.

THE NORTH AMERICAN REVIEW, Number LXXXIX; Boston, CHARLES BOWEN; New York, G. & C. CARVILL & Co.—It has already been announced in the journals, that the editorship of this Review has been transferred to Mr. Palfrey, who, upon all hands, is admitted to be admirably qualified for such a station. We know not, whether this number is of his preparation and supervision, but are sure it is a very good number. We annex a list of the contents.

ART. 1. Gurley's Life of Ashmun; 2. Modern Law of Nations; 3. Matthias and his Impostures; 4. Classic Mythology; 5. The Laboring Classes in Europe; 6. Dr. Channing; 7. Study of Natural History; 8. Mrs. Sigourney and Miss Gould; 9. Thomas Carlyle; 10. Worcester's Dictionary; 11. Travels of Reed and Alatheson,—Colton's Four years in Great Britain.

There is variety enough in this list. Let us speak briefly of some of the articles. The first, on *Gurley's Life of Ashmun*, interested us much. We have not read that life, and know but little of the merits and character of Ashmun. We need not say that now, we shall read Gurley's book, for it treats, as the Reviewer shows, of a man, who, in any condition, and on any scene, would have acquitted himself with distinction. This volume, and its hero, are thus introduced by the Reviewer:

This volume is both a just and generous tribute to the memory of a good man;—one of the martyr school,—whose names "smell sweet, and blossom in the dust." The capacities of his character were such, that had he lived in any age or country, their energy must have hurried them into development, and distinction too, as inevitably as the waters flow to the sea. They did so as it was; regardless indeed, apparently, of their destiny for a while, and wavering here and there by "many a winding bout," through subterranean realms of shade; yet true to themselves, through all things,—purified by the filtration they encountered,—accumulated,—accelerated,—and so struggling, and still struggling, onward and farther on, till finally the daylight gleamed, and they poured themselves forth to the sunshine, in the rejoicing rush of the cataract. Obscurity, poverty, persecution, disaster, passion,—what a history of them is recorded here; and how vainly do they, each and every one and all together, contend with the unconquerable will!

These things, we know, have become comparatively common in our times,—almost commonplace. It is emphatically the adventurous age we live in. The Argonautic was not half as much so. The Roman was tame in comparison. The Chivalrous was sluggishness itself. The spirit which belonged then to individuals, belongs now to the era. That which was little above the physical propensities,—the blind impulse of ambition or acquisitiveness, or both,—and was busied almost exclusively, of course, like the strong man's phrenzy, with wreaking its vengeance and wasting its vigor in sightless strivings to pull down the pillars of the great sanctuary of society, even over his own head, that spirit (if it can be called such,) is subdued at length in some good degree into subordination of the intellectual, social, spiritual instincts of man.—New avenues are opened to his energies in these departments; the world is no more divided between a camp and a charnel-house. Mind, instead of force, has become the arbiter of nations; mind is the medium of influence, the measure of advancement, the minister to the gratification of those old longings of humanity, which, though never to be reasoned out of it, may yet be, and have been a thousand times refined. A diligent minister it is,—indefatigable indeed, but willing and discretionary,—admitted to the privilege of advising and to the participation of results,—a companion and counsellor, more than a slave.

The spiritual instincts, strictly, are included in the catalogue of resuscitated powers. The manifestations of these are in their nature noiseless, and void of ostentation; and their achievements are the same; but they are none the less real, nor the

less considerable, for the want of those qualities which most attract the admiring gaze of men. The missionary spirit, alone, were sufficient to characterize the age. It is the missionary age, not less than the mechanical, or the mental as those have severally described it who chanced to be engrossed by its changing aspects;—it is the age of each and all,—the age, as we began with saying, of adventure. The application of steam to purposes of navigation was an adventure. The railroad was another. Every discovery of science, and every application of it in art and in practice, were others. So was the American Revolution; and so was the French. So was the Temperance Reform; and so was the Bible Society, and the whole organization of the Public Benevolence; and the scheme of the Education of the People;—all of them and myriads more, harmonious issues of that stupendous source of sublime events and experiments,—the mind of man,—fairly awakened at last from its slumbers, and as a giant refreshed, relieving its panting energies with the luxury of adventure.

The life of Ashmun lay in an important division of this great field of enterprise. He devoted himself early to the cause of African Colonization,—itself one of the noblest demonstrations of the enlightened intellect, and courageous but considerate enthusiasm of the times. At a critical period in its history, he became its ruling director; and for years afterwards,—the pregnant years of the formation of its first character,—the responsibility of its whole regulation depended upon him alone, as the Colonial Agent of the Institution. Nor is it too much to say, that the absolute preservation of the Colony, and its present existence, may be ascribed to his incredible exertions of an equally incredible energy; united, indeed, with an extraordinary firmness in other respects, for the place he was found in, at the momentous juncture referred to.

In the following reflections, there is matter of warning, as of regret. It is sometimes said, jeeringly, that few persons die of too much application to study, but in many an instance, besides that of Ashmun, the stamina of the constitution, have been undermined by too earnest and constant application:

The young man's incessant application, as might have been expected, soon compelled him to abandon his studies altogether for a time, and to travel through Connecticut and other sections, for the restoration of his health. Doubtless, though he apparently succeeded in its recovery to a tolerable extent, it was but just tolerable after all; and there can be no reasonable question that at this period were established the incurable sources of that irritability and feebleness which covered so much of his after life with gloom, and so much thwarted his most anxious desires, and finally, in the prime of his days, forced him to yield to the trials of a foreign climate and a laborious station, after struggling for years with both, through mere exhaustion of this early enfeebled frame. How filled are the annals of American Colleges with cases of this kind! What hundreds of young men, with bodies and minds like those which Ashmun possessed at the outset, and with such character too,—such energy, ambition, zeal to be useful;—have thus broken themselves down in the fine flower of a noble vigor, that, duly husbanded, might have made them the blessing and praise of the world. Who can estimate the loss to literature, liberty, religion;—the loss from disease, and from death, alike—the loss in what has been done, and what has not been, and in how it has been done; to say nothing of the misery endured, and the imbecility entailed, and of the ultimate incalculable influences of all, including the contagion of evil example, on the generations yet to follow us!

ART. II. presents a rapid sketch of the origin and growth of that international code, called the Law of Nations. A code by which, it is assumed, that civilized peoples do govern themselves in their intercourse with each other—but which, more than any other, is liable to be affected by that sort of make-weight, which the Gauls especially, from the time of Brennus have been accustomed to throw into the scale—the sword.

ART. III. justly pronounces the history of Matthias's imposture to be a "bitter satire upon the

age and country." Would only that the exposure of the delusions and villanies it records, might have the effect of abating the fanaticism in which they alone can live.

ART. IV., on the Classic Mythology, is a paper of merit, research, and originality. We subjoin an extract that will strike our readers.—[Omitted for want of space.]

And here, for the present at any rate, we must stop with this Review.

AN ATLAS OF OUTLINE MAPS; intended for the use of Students in Geography. New York, H. GRIFFIN & Co.—The object of this small *folio* Atlas, containing eight skeleton maps, viz: the two Hemispheres—the four quarters of the Globe—dividing America into two maps—and the United States—is, we presume, by giving the outline or form of each division, to afford to students the opportunity of filling up the sheet; so that, by thus ascertaining for themselves the relative position of different countries, and setting them down in their proper places, the facts may be the more indelibly impressed upon the mind.

NORMAN LESLIE, a Tale of the Present Times. 2 volumes. New York, HARPER & BROTHERS.—These volumes, it is sufficiently known, by reason of excessive preliminary announcements and flourishes in the newspapers, are from the pen of Mr. Fay, one of the Editors of the N. York Mirror, and known too favorably, by previous writings, to make it, one would have thought, a matter of good taste, or of expediency, to precede their appearance by such indefatigable puffing as we have witnessed.

This fancy sketch, founded in part on real incidents, is dedicated to a name new in letters, Colonel HERMAN THORNTON! New, did we say, in letters? Not so—for his countrymen have within a few months been edified by the publication of a diplomatic correspondence undertaken by him, in order to vindicate the right of every free American to be presented at foreign courts! These letters, not less by their literary merit than their patriotic and truly republican! design, made the name of their writer familiar as household words—and now, when both *Colonel* and *Mæcenas* are added to that name, it cannot wholly die.

But to our book,—shall we truly say, what we truly feel, that it disappointed us? It is even so. It lacks discrimination in delineating character; and its women, especially, are such as the world it treats of, could not know. The story is unskilful and artificial. The incidents, either very commonplace, or hugely impossible, and the tone of conversation, male and female, bad, decidedly bad. In all that makes, or aims to make, this a story and painting of real life, it is, in our judgment, a failure. But when the author surrenders himself to the revellings of his own feelings and imagination,—when, as in more than one fine chapter in the second volume, he speaks with the true unction of an artist, of the enthusiasm, the mortifications, and yet the alluring excitements of an artist life, we feel that he is no common writer.

The following reflections, after a feverish and heated ball, whence the hero of the tale, *Norman Leslie*, had just come forth, into the stillness and lifeliness of a great city, wrapped in darkness and slumber, though not remarkable for any thing particularly original, are natural and impressive:

The young man walked on; there was a fever on his cheek and in his heart. There is a singular power in the calmness of night, and in the holy silence and order of nature, upon the imagination of one suddenly freed from the giddy throng and glare of a revel. How it hushes the ordinary passions! The mind, which has been like a stream disturbed, settles into a wonderful clearness; and

you see defined thoughts and minute feelings far down in its transparent depths. But night is nowhere so impressive and solemn as in the worn haunts of a mighty city. You behold the abandoned paths with something of the feelings with which you pause among the ruins of an ancient town. True, in the one case ages have rolled away since the solitude was broken by eager and thoughtless steps; and in the other, only hours: yet the effect upon the observer is strangely alike. The human sea has washed from its shores, and left the marked and naked channels exposed to the eye. The clash and roar of worldly interests have died away; you tread the solemn aisles, half-disengaged from earthly anxieties and excitements, with the cold and passionless loneliness of a spectre. Are there those sleeping around who have awakened your hatred? how its secret fires seem dimmed and burned out! Can you look upon the heavens, strown with mysterious and eternal worlds, lying in the same bright places for ever!—on which all the great of history, Homer, Socrates and Alexander, Sylla, Cæsar, and Pompey, Mohammed and Jesus, have fixed their eyes—upon which the startled imagination cannot conjecture for how many thousand years to come, other immortal heroes and poets may gaze,—can you look upon them, and hate one of the myriads who are floating away with you, beneath their calm faces, like the specks that hang in their beams? Can you—exalted, purified as your mind then is—hate any less object than those evil principles, those tremendous passions and vices, which have clouded the paths of human beings with darkness and woe?

But if you have been guilty of a rash action, if you have been the yielding victim of some momentary impulse or local interest, how wondering and abashed are you in those holy moments! How noble then does virtue appear! How vast and high seems love! How unutterably insignificant and mean those motives and influences which tempt the energies and guide the destinies of the human race!

Of his power of description, we subjoin this sketch of Rome during the carnival.

Whoever has not witnessed the festivities of the carnival week at Rome will scarcely lend credit to the burlesque extravagances even to this day committed by all classes. It is a page of reality resembling one of old romance; and the stranger wonders to see its antique and remarkable leaf thus bound up in the prosaic volume of common life.—The grave and sensible Englishman, the observing and intelligent American, is astonished at the spectacle of a whole people abandoned to the maddest freaks of frolic and fancy—disguising themselves in grotesque habits, masking their faces, altering their gait, form, and demeanor—entering with lively ardor into the wildest folly. From the violent gesticulations and various costumes it appears as if the theatres of the world had emptied their wardrobes, and sent forth their performers to play each in the face of Heaven those thousand parts in other countries—at least in ours—reserved for the midnight stage. Here a brigand stalks in the full glory of arms and equipments, with flowing tresses, dark mustaches, and a countenance of more than human ferocity. He steals along after the rolling carriage, and aims his carbine at some beauteous victim. There a Spanish lover, with his graceful cloak, broad hat and feathers, and love-breathing guitar, sings his serenade to each passing fair: sometimes, for the occasion excuses all civil familiarity, he murmurs a soft air to an English belle in her carriage; sometimes whispers love to the gay French girl; sometimes kneels to the *Contadina* in the street; and again, directs his strain to a bright face peeping from a palace window, or leaning and laughing over a balcony. Behind him stalks a knight glistening in armor, who bears upon his lance the favor of his lady-love, or hands a letter on its point to the first pair of eyes that take his fancy—stranger or native, high or low. The fierce Saracen stalks through the throng, brandishing his cimier and twirling his mustaches. The copper-colored Indian with his tomahawk threatens swift destruction to each shrinking maid. Old lords and ladies, in dresses of antique magnificence, recall the splendors of the most celebrated courts. The frolicsome sailor reels along, as if the light Italian wines had been too strong for his brain.—The lover sighs—the warrior shouts—the spectro glides; and many striking characters are correctly dressed, and represented with serious accuracy and excellent effect. Others there are who delight to

fling over the whole the broadest possible air of ridicule. Humpbacks swelled into mountains—eyes glaring like moons—huge mouths—bald pates—overgrown stomachs—statues of twice the ordinary size—deformed foreheads—and noses of such ponderous dimensions, magnified proportions, and rubicund colors, as may chance, if you eat too heavy a supper, to haunt your late slumber in the shape of an incubus—all that mirth and ingenuity can invent to distort and caricature, here floats upon the vast and ever-moving tide, rising and sinking in the dense, universal commotion—disappearing, and appearing again; carriages loaded with double numbers—horses rearing with two and four—women seven feet high, and sweet girls in uniform of banditti. Those whose ambition does not seek to support distinct and memorable rôles content themselves with the simple smooth common mask—a pretty girlish countenance, whose everlasting repetition at length wearies the eye, and becomes no theme of curiosity or distinction.

Some, too—so picturesque are the inhabitants of Rome—even while wearing their every-day habiliments, can with difficulty be distinguished from the maskers; and the bare-footed and cowed monks and friars—the long-bearded mendicants, covered with rage and wrinkles—the fat priest, and the stern soldier, are only known from the giddy surrounding concourse by their unmasked faces, their steady step, and their grave demeanor. Nearly all the town join in this sport; or, if they do not actually participate, at least throng together by thousands and thousands to witness it and swell the extraordinary spectacle. Countless numbers of ladies, both natives and foreigners, may be seen either in their carriages or at the windows—gentlemen and noble, young and old, peasant and duke, all mingled and blended together in a wild, excited, half-familiar, half-merry, half-mad mass of human beings—crying, laughing, screaming, gesticulating, leaping, dancing, singing, shouting, and pelting each other with flour sugar-plums, or oats steeped in plaster of Paris resembling them, and covering the air, the street-walks, and all the population, with the white of a universal snow-storm. A hundred thousand people are not unfrequently assembled, either as actors or audience, upon the scene of action, which is in the Corso and the adjoining streets, squares, and avenues.

Our readers, on either side of the ocean, need not be reminded that the Corso is the Regent-street, or Broadway, of modern Rome, straight and exceedingly narrow, built up closely on both sides with highhouses, or gloomy, but immense and magnificent, old palaces, all of which are crowded upon every point; where men and women sit, stand, or climb from roof to basement, cornice, pedestal, and balcony. Through this principal thoroughfare two processions of carriages and pedestrians go slowly, in opposite directions, pelting each other, and all around them and all above them, with snowy tributes; and receiving in return discharges in showers from every quarter. The middle of the street presents a tide of the gayest and gaudiest colors, and the most lively motion—not unlike the rapid stir and agitation of a fierce battle. On either side, tiers of seats—a most lucrative profit to the proprietors—are provided for the thousands who desire, stationary and secure, to behold the giddy scene. A sloping bank of faces thus rises on either hand of those moving in the procession, leaving only a passage sufficiently wide for the two rows of carriages to pass each other.

LEGENDS OF A LOG CABIN; by a Western Man; 1 vol., New York, Geo. DEARBORN.—So much has recently been written about the west, that the appearance of this volume did not awaken the interest in us, which the publication of a new native work seldom fails to create; and we confess that it has now lain for three Saturdays, upon our table, without our having even turned over the leaves, until the last moment. When opening it for the first time, however, we at once discovered its claims to consideration, upon recognizing some passages of thrilling power, which were copied into our columns, from the *American Monthly*, in which they originally appeared. A subsequent examination of the volume sustains the estimation which we had formed of the author from these specimens of his skill. He is certainly a writer of no common powers; and if this

work be the harbinger of future literary efforts our "western man" is destined to an enviable place among the most popular authors of the day. Vigor and versatility, a flowing and energetic style, touching pathos and racy humor, eminently characterize this collection of tales, and with these elements of good writing, practice alone is wanting to make their possessor a master of his craft.

The "Hunter's Vow," which is the chief of these legends, is decidedly the best back-woods story that we recollect to have met with, though the peculiar powers of the author are displayed with equal force in both the story of the "Frenchman," and "The Wyandotte." His forte lies in a certain familiar and naked way of relating the most appalling incidents, so as to invest them with a horror, which, as in the last moments of *Orestes*, and the frightful fate of poor *M. Girond*, who "left town suddenly," approaches to the grotesque.

The hero of the principal story, is a youth of twenty, whom ill health has prevented from learning the wood-craft necessary for the education of a backwoodsman. The 'doctor' of the settlement had lent him books to beguile his long sickness. "And these," in the words of an old borderer, who tells the story, "were in the end, the means of ruining the boy; for as he grew stronger, instead of taking to the woods and earning his bread like a man, Ham Cass was forever poring over old musty books." The reproaches of his sweet-heart because he will not put in for the prize in rifle-shooting, are launched in vain, against the wilful student: His old father, too, takes it very much to heart, that he has no companion upon his hunting excursions, and he grieves, as the cares of age thicken upon him, at having no one to assist in sustaining his household.

One morning as he was getting ready to start for Fletcher's Island, where he had some 'coon traps, the old man seemed very low; at last he broke out,—"If it had pleased God to spare James, I would not need to go alone to risk my old scalp among the red skins."

At these words, Ham jumped up from the stool where he had been, as usual, poring over a book—"Let me go with you, father. I will go with you."

"You, boy!" said the old man with a sigh—"No! no! that will never do. You do not take kindly to the woods, and it's no use forcing nature. No! no! stay you at home, and help Betsy."

For the first time in his life Ham seemed to feel some shame at being thus turned over to help at women's work. He begged hard to be allowed to go, and was so earnest that the old man consented. He still would cherish the hope that the boy might yet take to the rifle; a father does not readily give up hope of his only son. They both entered the canoe, and went down the creek. To encourage the boy in his new found spirit for the woods, the old man began to tell one of his early hunts in Virginia, but he had not yet warned in his story, when, on looking up in his son's face,—'twas clear the boy was day-dreaming—he watched for a moment, then sighed. "Well," thought he, "it is no use forcing nature, the boy does not take to the woods, nor to the rifle, nor to any thing that is of use, as I see. We may as well let him have his own way, and if all goes well, some day or other he may make a schoolmaster if they ever want any thing of the kind in the settlement." With these thoughts in his mind, they arrived at the first trap, which was on the main land, near the mouth of the creek; here they found a large otter and two 'coons. The old man was in high glee with his luck, and they were soon busy taking the skins.

Ham was not very good at the work, and before he had half finished skinning the 'coon, he cut the pelt in so many places it was hardly worth the trouble of taking off, and finished by planting the knife pretty deep in his own hand. This, of course, put an end to work for that day; and when he had washed and bound up the cut, Ham set himself down on the bank, took out and old volume, and was soon deep in his book as usual. The old man finished his work alone, and having got all ready

to start for the island, he gave Ham a call to step into the canoe. Three times calling roused Ham from his book, evidently very loth to leave it. The old man saw that his son did not care to be disturbed, and wishing to please him in every thing, proposed that the boy should sit on the bank and wait his return. Ham caught at the word, and before his father had fairly pushed off, he was fast as usual to his book. How long he remained there it would be hard to say, for Ham Cass was not very apt to measure the time when he had a book in his hand; he was roused by the sharp crack of a rifle, a loud whoop, and a scream of mingled fear and pain. He looked up; the island, which at the near end was about one hundred yards from where he sat, was covered for the most part with tall rank grass, very few trees, and no brush-wood of any consequence; so that from the high bank he could command a view quite across the island. Through this grass he saw his father running for life, pursued by a tall Indian. The old man gained the shore opposite to where his son stood, the Indian, tomahawk in hand, close behind. "Fire! fire! boy," shouted the old man. The boy seized his father's rifle, which the kind old man had left behind lest harm should come to the boy, and he having nothing to defend himself; he fired, the ball skipped along the water, far below the island and twenty yards from the mark. The Indian raised a shout of triumph, the white man a shriek of despair; still he had one chance for his life, he might reach the canoe, and push off before the savage could overtake him; he gains it, but the Indian is close at hand; one push, the light bark floats upon the stream, he springs in, grasps his paddle, but ere it touched the water, the tomahawk came, whizzing through the air, and buried itself deep in the old man's skull. With an exulting shout the savage sprang upon his falling enemy, and plunged the knife into his heart; and while the poor boy was trying in vain to fire the rifle which he had hastily loaded, he saw the scalp torn from his father's head by the Indian, who again raised his loud war-whoop. Then, as if in mockery of the attempts of the boy at revenge, he tossed the scalp into the air, catching it as it fell; repeated the feat again and again, shouting and whooping all the while in the full enjoyment of gratified ferocity.

Ham Cass stood gazing on the murderer of his father as if the frightful spectacle had turned him into stone; and it was not till he heard the ramrod of the Indian ring in the barrel of his gun, that the boy recollected that his own scalp could only be saved by putting the high bank betwixt him and the Indian's rifle. He ran, without knowing whither, chance directed—he took the road towards Harmer, the settlement four miles below; but ere he had passed half the distance, at a sudden turn in the road he came upon a scouting party—Bill Taylor, Jim Johnson, and myself, who were out on a tramp. "Halloo! Ham Cass," said Taylor, "is that you? What brings you so far from your books and cousin Betsy? a rifle in hand, too! Have you taken to the woods at last like a man? Why Ham Cass," continued he, observing that the boy made no answer, "what is the matter, that you stand there staring like a stuck pig; are you dreaming?"

"Dream!—Dream!" murmured the boy, in a low unnatural voice. "Dream; yes it was a dream; that shout, that yell of agony, the tomahawk that crushed his skull, it was a horrid dream, a fearful dream." "Boy, you are dreaming yet, and talking in your sleep, wake up;" and Taylor gave him a rude shake. I could not bear to see the old fellow use the boy so roughly, and spoke up; "Let him alone, Bill Taylor, let him alone, he will come to himself in a bit; sure something is wrong, see how his eyes stare, his hair is wet with sweat, the veins on his forehead are like whip cords, and look how his face works. Something has gone wrong. I pray God that old John Cass and Betsy may be safe and well. Hamilton, my poor boy! what ails you? speak out we are all friends." "Friends! friends!" shouted Ham, catching a hand of each; "are you my friends, true, good friends? then you may yet save him; come, come to the river,—to the river. Oh! for a canoe; where—where shall we find one?" "Why, if that is all, Ham, our canoe is hid not twenty rods from here; but tell us, boy, what has happened?"

Hamilton had now sufficiently recovered his senses to give a confused, though pretty intelligible account of his father's fate, hurrying us all the while towards the river. The story was not ended when we arrived at the bank. Taylor and I

soon dragged our canoe from under some brush-wood where we had hid her, and we all took to the river. Ham now finished his strange story, and Bill Taylor broke out, "Did you fire only once, Ham?" "Only once," said he, "I tried to fire again, but the old thing—and he gave the rifle a push—flashed in the pan again and again." "Flash-ed," said Taylor, "that's queer, too; old Swiftsure did not use to behave so, let me look at the load." He fixed the screw, and drew the charge. "No wonder," said he, "Swiftsure did not go off. Why, boy! did you ever hear of a gun going off when you had put the ball and wadding first, and the powder on top? Look!" turning towards Johnson and me; "did mortal man ever see a gun loaded in such a way? Old John Cass's life has been fooled away by a poor slip of a boy that don't know how to load a rifle." Bill Taylor's compassion was all lost in vexation and contempt for a grown man who could not load a rifle. "I never thought so much book learning would come to any good.—Twenty years old and not know how to load a rifle!" Taylor went on grumbling and moaning, but after the first word Ham seemed not to hear him; he started when the mistake was first pointed out to him, and looked eagerly at the charge, but in a moment his face became calm and stern, he sat in the bow of the boat immovable as a rock, his eyes fixed on Fletcher's Island, which was now in sight. A short pull brought us to the spot; the Indian had gone off in the canoe, but we soon found the body of old Cass. He was quite dead, the rifle had hit him in the side, it was only a flesh wound, and did not prevent his running for life; but the tomahawk had done for him, and the knife pushed in just under the long ribs, would no doubt have taken the life, if life had remained. We all feared that the sight of the body would drive Ham quite crazy, but it did not; indeed, to my eye he seemed not to mind it at all; he looked cold and indifferent, and only spoke once when we proposed to take the body to the house. "No! no! to the settlement!—to the settlement!" We agreed. Taylor said it should go to his house, and be taken to the grave from thence. They determined to land Ham and me at the creek so that we might go up to the cabin to look after Betsy, while Taylor and Johnson took the body to the settlement; they promised to send a wagon for us and the few things of value in the cabin. We landed accordingly, and took, in silence, the path to the house.

The old man is buried, and a bitter interview ensues between his niece and the youth, who were betrothed. The latter disappears from the village, but returns in the evening to have an interview with the hunter who tells the story.

The good-natured settlers become concerned about the fate of the young Cass, and a scouting party is made up to overtake and bring him back, if possible. The expedition gives rise to a variety of wild-wood incidents, which enliven the action of the story, and develop more than one striking character with the most happy originality. Some of these animated episodes we shall take another opportunity of quoting. The fulfilment of the vow we leave our readers to learn from the book itself, to which these extracts will be a sufficient recommendation.

At that moment some one touched my arm; I turned, it was Ham Cass. "This way," said he, and he walked rapidly towards the woods. I followed, we were soon deep in the woods on the way towards the Cass cabin; I tried to say something to him, but when he turned his cold stony eye upon me, I could not speak. I had known that boy from a child; he was always gentle and shy, but very kind-hearted, and willing to do any thing that did not take him too long from his books; but now there was a something about him I could not understand—a firm determined look, a cool, decided, self-confident way, not at all natural to him, and which I confess, daunted me a little. At length we came to the cabin; Ham stopped in front, and took a seat, I sat down beside him. "Balt Williams," said he, "you are the only one that has not cursed me for my folly and my wickedness in the murder of my father. I will prove to you, that, bad as I have been, I am not so bad as she called me,—I am no coward. But first, Williams, show me how to load the rifle," and he handed me his father's gun. I took it, and did as

he desired; he watched me closely; when it was done, "Now," said he, "let me see you fire at a mark." I showed him the sights along the barrel, and explained, as well as I could, how it was done. "It is too dark now, Ham, for a small mark; you see that blaze on the tree, I will hit that;" I fired and hit it. "Now," said Cass, "let me try." He took the gun and loaded it carefully, and as well as the oldest hunter in the territory could have done. I was surprised; we shall see, however, I thought, when he comes to fire; he has camped out somewhere or other last night, and his hand must needs tremble. I was mistaken; he raised the rifle to his shoulder, and as his eye ran along the barrel, the gun was as motionless as though it lay upon a rock; he fired, the ball hit the very centre of the mark. "That will do," said he; "and now, Williams, good bye." "But Ham, where are you going? you must not leave me, you must return to the settlement and see cousin Betsy." "See her! never;—she called me a coward, said I had no feeling, no heart, I that loved her as my own soul. This she said when my heart was broken with sorrow." Here I interrupted him; "Nay, Hamilton, you must think no more of this; she has said she was sorry; she was crazy, but now she longs to see you, and to beg your pardon, for she is sure you will forgive little cousin Betsy, to whom you have always been so kind." "Did she say this?—God bless her for it, but I must be gone; look here, Williams, I have provided for a hunt." He turned to the corner of the hut, and showed me his powder horn and bullet bag well filled, a small bag of parched corn, and a venison ham. "But where are you going, what, are you to hunt?" said I. "Where am I going?" echoed Ham, "what am I to hunt? Balt Williams, I am going to the woods to hunt revenge. You thought me a boy, an unfeeling idiot, who could stand by and see his father murdered, and never strike a blow in his defence. Now hear me: may the curse due that murder rest on my soul forever, may disease and premature decay waste my body, and remorse and everlasting despair prey on my spirit, my name be abhorred while I live, and my memory accursed when I die, if I have not my revenge. No human threshold will I cross, with no living being will I hold friendly intercourse, or claim companionship, till my knife drinks his blood. I know him well, I saw his face and figure when he did the murder, and this morning I marked his tracks upon the sand; I will hunt him to his death; he tore off my poor father's scalp,—let him look to his own!" and he ground his teeth fiercely. "Nay, Ham," I replied, "this will never do; a young hunter like you to take to the woods alone; the very beasts will destroy you, to say nothing of the Indians." "Beasts destroy me!—beasts! they shall be my companions, and each one shall learn from me some new and bloody lesson. I'll teach the hungry wolf ferocity; the bear that is robbed of her whelps, I'll teach revenge; with the beasts will I live, and like them will I die, unless I have my revenge." With these wild words Ham caught up his bags, shouldered his rifle, and was gone. I watched him for a moment till he sprang into the woods, and I lost sight of him.

[From the Legends of a Log Cabin.]

THE HUNTER'S PERILS.—On the fourth day, about noon, being then about forty miles direct distance from H——, we came upon the trail of a large body of Indians, who had passed there the day before, and were going up river. It was not a war party, as the tracks of women and children were mingled with those of grown men. We followed four or five miles, when, at a soft piece of ground, I caught sight of a foot-mark I knew right well.—'Twas the broad flat foot of the Indian, whom we called Broadfoot. I showed it to Johnson, who agreed that there could be no doubt as to whom it belonged. We traced it along till at the top of a ridge the party separated, Broadfoot and four others taking a course directly out from the river; and the others, principally old men, women, and children, still following up the stream. Here Johnson and I called a halt, and consulted whether we should follow Broadfoot and his gang, or the larger party.—Johnson was for the latter plan, saying, that where there were so many women and children, they must needs move slowly, and we should easily overtake them, and like enough take a scalp or two. I wanted to track Broadfoot still, both because I longed to take the scoundrel's scalp, and because I could not but think we stood the best chance of finding the

boy, by keeping on the trail of the enemy of whom he was in search. Finally, Johnson, gave in, and we followed the smaller, or war party.

Poor Jim grumbled a good deal at what he called my wrong-headedness. "There were twenty or thirty tracks," he said; "they were going slow, and by night we could have overtaken them, and taken a scalp or two at least. Even a squaw's scalp would have been some satisfaction; nay, a child's would have been better than nothing."

"What on earth do you want with a squaw's scalp, much more with a poor popoose's, Jim Johnson?" said I.

"Why, Balt, I don't want a squaw's scalp, nor a popoose's, if I can get a warrior's; but surely half a loaf is better than no bread. Here we have been on a range four days, and have not had a shot at a red skin—man, woman, or child—though we all know the woods are full of them. It is too bad; I vow it is a disgrace to the settlement there has not a single scalp been brought into Harmer in a month." Johnson went on grumbling and complaining, but I did not mind him, but kept a sharp eye on the trail. We followed it steadily and pretty rapidly till night-fall; we then camped, lighted our fire, cooked a bit of bear steak, and went quietly to sleep. Next morning we were early on the trail, and followed it steadily till near noon; then a new foot-mark joined it; I gave but one glance, 'twas Mam Cass. The sight of the foot-marks warmed my heart; I gave a glad shout, and followed the trail with renewed energy. I did not lose the chance of bragging over Jim.

"See, Jim, wasn't I right after all? I knew the boy was true breed, the genuine old hunter blood is in him, and for all his book learning it will show itself; you see he is on the right scent now, and my word for it, he will tree the game." Just as Johnson began some light and joking reply, I heard the sharp crack, crack, crack—three rifles. Johnson, who was a step or two in front of me, gave one bound right up into the air, and fell dead at my feet. At the same time I felt a numbness in my right leg; I too was hit. I looked up the hill side, five Indians were bounding down at a great rate. There was no time to lose, I ran for life. Luckily the ball had not touched the bone; in a moment they were all after me at full speed. I gave one glance over my shoulder to see how they were coming; only one was very near me, and if I could but escape him, I had no fears for the rest, for on level ground, even with my hurt leg, I could leave any Indian far behind me on a short race. In a minute more I heard another rifle; I glanced behind. The Indian who was nearest me—and he was fearfully near—stood still, groping in the air with his hands for a moment, and then fell. One of his companions had hit the wrong mark; the Indians saw the fatal error, and filled the air with their yells. I ran on; making for a creek we had passed in the early part of the day, I soon found that no one was after me, but there was little safety in that; the savages could not look at my trail without finding that I was wounded, and this would encourage them to hunt me down. My wound, too, began to be very painful, and I felt that it would be impossible for me to reach the creek without a rest; yet I scarce dared stop, till at last I came to a sycamore tree, which was hollowed out by rot. Here I determined to make my resting place; in the upper part of this hollow I can probably remain concealed, or, if discovered, sell my life dearly. The only opening to this tree was about four feet from the ground, scarce large enough to permit a man to crawl in; once in, the space would easily permit a dozen men to stand at ease. I crept in and began to take a regular survey of my little fortress. I found there were several small holes, the size of a dollar, and one, near twenty feet from the ground, where a limb had broken off, which was larger than that at which I had entered. Here I rested for some time, and having plucked some leaves as I went through the woods, I now chewed and applied them to my wound with great relief. You may well suppose I kept a good look out all the while, lest the savages should come on me unawares. I had watched there for more than an hour, when I caught sight of them following my trail. The first was a chief, a large, tall, powerful fellow, with a feather in his high tuft of hair, medals on his breast, and Wampum beads hanging in strings from his dress. At his belt hung a fresh scalp, which I knew could only be poor Johnson's. He was followed, in Indian file, by six others; slowly and cautiously they advanced on the trail, till they came within fifty feet of the tree.

Here they halted, and I could have picked one off very easily, but I thought I would wait and see what plan they would adopt. After some whispering and gesticulating, two of the Indians were detached, and made a circuit round the tree, apparently to discover whether the trail led beyond it. When they had completed their round and joined their companions, they held another long talk; finally, three raised their rifles and fired at the hole in the tree. One of the balls only entered the hole, but as I took good care to be out of range, it did no harm. Again they held a talk; they seemed irresolute what to do, and I began to think they would leave me, but such was no part of their intention. I saw them again raising their rifles for a shot, when a plan entered my head by which I hoped to get two lives at least; so when they fired I gave a furious scream, as though wounded, and then began to groan; at first very loud, and finally slowly and softly, as though just dead. The stratagem had its effect. At the first scream the Indians gave a shout of triumph, and then, as they heard the groans, they advanced towards the tree. Still their natural craft did not entirely desert them, for they crept on very slowly, stopping every now and then, and listening with eager attention. Finally, the head man stood beside the opening, he poked in his rifle, moving it about; then he thrust in his head; and just as he was fairly in, I fired, and blew the top of his head all off. He fell forward, his body blocking up the hole. In an instant I sprang on him, wrested the rifle from his dying grasp, pointed it from one of the small loop holes, fired, and another Indian was dead beside his Chief; the others gave one yell of despair, and took to trees. There was now, for a while, a cessation of our warfare. The Indians, each hid behind some neighboring tree, were concealed from me, and did not seem very much inclined to leave their covert. In the mean time I was busy rifling the dead Chief. The gun I had taken, and which had already done me such good service, I found, on looking at it, was Johnson's; the savage had a well filled bullet pouch and a horn of powder; the ammunition was of immense importance to me, as I had not above a dozen charges left, and there was no telling how long this fight might last. I also got a large bag of parched corn, and a small (pity it was so very small) flask of whiskey. Having secured these valuable spoils, I resumed my quiet watch of the savages.

The sun was near setting, when I saw them, at a signal, fly each from his tree, and take refuge behind a small rise in the ground about twenty or thirty yards from my tree. Here they were out of my sight, and what was worse, they could creep round, and approach on either side without my knowing where to look for them. "This," thought I, "will never do; I'll see if I can't break up the council they are holding, or at least get an idea of what they are about." I began to climb the sides of the tree. As the rot had eaten irregularly, it left a good many knots and knobs; so that, notwithstanding my lame leg, I made out finally to reach the upper hole. Cautiously I poked my head out, and was rejoiced to find that I could command a full view of my enemies. There lay the whole five, their heads together, talking and pointing, evidently hatching some plan for my destruction. Having satisfied myself that from the top of my fort I could hit one of the savages, I descended again, and fastening one end of my belt to my side, and tying the two rifles, ready loaded, to the other, I ascended again. Just as I caught sight of the savages, two of them made off, rolling and creeping along till they were out of range of my rifle; then they took to the woods, and I saw no more of them. Here was another hint to me to be in haste, as the varmin were sending for reinforcements. Slowly and carefully I pushed out my rifles, and resting one in the crotch of the tree, I took deliberate aim at the nearest Indian. He lay flat on the ground, and my ball hit the very centre of his head. His companions sprang on their feet, gazing all around, evidently at a loss to tell whence the blow came. As they stood there I could take perfect aim, and in a moment another fell, with a ball through his body. The second shot roused the remaining Indian to the necessity of putting shelter between him and me. He sprang behind a tree. Here he remained a long time, till finding he was not likely to move, and knowing that their reinforcement could not be far distant, I determined to be off. I went to work with my tomahawk, cutting a hole in the tree opposite to where he lay, and in half an hour's time I could creep out. I then hid Johnson's rifle,

took my own in hand, and crept softly out. Taking advantage of the ground, I was soon out of sight of the Indian; then I sprang to my feet, and made towards the creek with my best speed. I walked more than an hour undisturbed, and began to indulge the hope of reaching the creek without further danger. I had gained the top of the last hill, and the creek lay in the valley below; I paused for a moment, and looking back, I saw four stout Indians on the opposite hill, not more than a mile behind me. They must have seen me at the same moment, for their loud war-whoop rang through the woods. I did not wait for another look at them, but made for the creek. I gained the bank, plunged into the stream. Oh! how pleasant was that cool water to my parched skin and burning wound. I swam with the current, which was pretty rapid, till at a turn in the stream I saw a large raft of drift wood. I struggled towards it, and diving, came up between two of the largest logs. They lay so close together, that I could barely get my eyes, nose, and chin, out of the water; and as the logs touched a few inches above my face, I was in nearly total darkness. Here I lay, half dead with fatigue and pain, waiting the coming of the savages. I soon heard by their shouts that they were near—were descending the stream. One of them came on the raft; he stood for a moment on the log that concealed me; his weight pressing my head under water—had he remained many minutes, I must have perished. He moved onwards, however, and then, like an old otter, I poked my nose out of the water to blow. For near an hour I heard their shouts near the raft, then they began to grow more and more faint, and finally died away. I waited some time, lest some straggler might have remained behind. At last, hearing nothing of them, and being nearly exhausted, I left my hiding place, and swam into the open stream. It was quite dark; I was wet, hungry, and lame; still I dared not rest, there was no hope of safety but in instant flight. By hard tugging I detached a large log from the raft, and drew it into the middle of the stream, then laying myself at full length upon it, I began to float down the stream.

PROFESSOR SILLIMAN'S APPEAL IN BEHALF OF THE AMERICAN JOURNAL OF SCIENCE.—We noticed some months ago this appeal, which went to show, that unless more liberal support were extended to the *only* American scientific Journal, it was in danger of perishing. See how a British periodical takes it up.

[From *English's (British) Mining Review* for July.]
AMERICAN JOURNAL OF SCIENCE, Vol. 28, RICH.
—We are induced to notice this volume, which our want of space would have otherwise compelled us to defer until a future opportunity, from the circumstance of its containing an Address to the friends of science and knowledge by the Editor, from which we are given to understand that the patronage bestowed on the work is insufficient for its support.

The talents of Professor Silliman, and the character of the American Journal, are too highly appreciated on this side the Atlantic to need our testimony, and it is with feelings of deep regret and astonishment we learn, that a nation professing a regard for literature and philosophy, should have been so indifferent to the success of a periodical, which has materially conduced to raise America to the rank it now holds in the scientific world.

The appeal is addressed to his own countrymen; but Professor Silliman is entitled in the highest degree to be considered as a Citizen of the World, there being few parts to which his reputation has not extended, and if by quoting the following extract from his address we can promote his views, it will afford us sincere gratification.

Then follows the Address of Prof. S. alluded to above.

THE SUBMARINE VESSEL.—The experiment with this machine took place at St. Owen, as proposed. The vessel was repeatedly sunk to the depth of ten or twelve feet, and re-appeared on the surface at different points. M. Godde de Laincourt got into it, and remained there a quarter of an hour. He stated that he did not experience the least difficulty of respiration during his voyage under water. An official report upon the subject is about to be submitted to the French Government.—[Athenaeum.]

SUMMARY.

PORT OF LIVERPOOL.—The immense intercourse between the ports of the United States and that of Liverpool, will dispense us from the necessity of any apology for inserting the annexed article, detailing officially, some important improvements as to the lights and buoys off that port.

[From the *Nautical Magazine*, for September.]
IMPROVEMENTS IN THE LIGHTS, BUOYS, &c. AT THE ENTRANCE OF THE PORT OF LIVERPOOL.
Compass Bearings.

Dock Office, Liverpool, June 30th, 1835.

The Trustees of the Liverpool Docks and Harbor hereby give notice, that, in accordance with the recent survey of Capt. Denham, R. N. the following improvements in lighting, beaconing, and buoying, of the approaches to the port, will be in operation on and after the night of the first of August next, viz:

Point Lynas Light.—This light, hitherto so situated as to preclude seeing it seaward, and merely shown by a single reflector upon the long-shore aspects, will be advanced to the pitch of the point, and exhibited from a castellated building (with white basement) recently erected thereon, with a powerful steady light, of the natural color, produced by 13 argand lamps and reflectors, ranging over 211 degrees of the northern and south-eastern horizon, at an elevation of 128 feet above half tide level, rendering it visible, in clear weather 6 to 7 leagues from a ship's deck; or within 1 league of taking up the N.W. light ship of Liverpool. This light is so masked for local inshore effect, as to obscure itself when brought eastward of S.E. 1-4 E. which clears the *Middle House* 1-4 of a mile, or northward of N. by W. which clears the *Dallas Rocks* 1-4 of a mile, and indicating when you ought to tack out of *Red Wharf Bay*.

The *Formby Floating Light* will, on and after the same night, show its natural color with increased power, in lieu of the red light hitherto exhibited.

The *Rock Lighthouse* will exhibit a black ball above its balcony, whilst 12 feet water remains in the "Rock Gut" by day; and a steady light (from a lower chamber in the western aspect) will indicate the same by night.

A *Floating Beacon* will be moored in the place of the present fairway buoy, at the new channel entrance; presenting a black conical figure, bearing this inscription: "To New Channel E. 3-4 S." and surmounted by a large black ball, elevated 23 feet, with a self-acting Bell.

New Channel Land Mark.—In order to render the line of leading objects into the New Channel more available in hazy weather, or accidental absence of the light vessel; a dark bulky frame-work has been erected on the high-water shore of *Formby*, in line of the light-vessel and light-house.

Hoyle Lake Lighthouses.—These buildings, in order to distinguish them more effectually from the neighboring houses, will henceforth be painted white.

Dove Beacons.—Two beacons will appear on Dove Point, instead of one, affording a leading mark when brought in line upon the bearing of S. by E. for passing between the Dove Spit and East Hoyle, in reference to the eastern entrance from Hoyle Lake.

The buoys will henceforth be distinguished by the initial of the channel or bank they respectively occupy, i. e. F. *Formby*, C. *Crosby*, N. *New Channel*, H. F. *Half-tide Swatchway*, H. *Horse Channel*, H. E. *Helbre Swatch*, R. *Rock Channel*, L. *Lake* (*Hoyle Lake*) B. *Beggar's Patch*, K. *Knol*, (*New-come*). They will likewise be numbered in rotation. No. 1 always denoting the outer, or seaward buoy of the channel its letter indicates; and the turning point, or elbow, of each channel will be distinguished by a perch buoy; bearing in mind that red buoys lie on the starboard hand, and black upon the larboard, when running in.

Additional Buoys.—Eighteen additional buoys will be laid down by the above date (making 56 in all) and thus disposed. One (red) and one (black) on each side of the New Channel, between the present buoys. One (red) on the eastern edge of *Jordan Bank*, between the present buoys. One (black) on the edge of *Formby Bank*, next northward of *Crosby* buoy. Two (black) on the Low-water edge of *Bootele sands*. One (red) on edge of *Rip-raps*. One (red) on edge of *Mockbeggar Wharf*, between the Dove Spit of West Wharf Buoy. One (black and white) on west end of *Beggar's Patch*. Two (red) on east edge of East

Hoyle Bank, within the present buoys. Two (red and white) on the west side of *Helbre Swatch*. Two (black) on the east side of ditto. One (white with black stripe) showing the fairway of *Half-tide Swatchway*, 1 mile westward of *Formby* fairway buoy. One (red) on the end of *Hoyle*, in *Hoyle Lake*, abreast of the church. And a black (Nun) buoy, (marked K. 1.) upon that part of a shoal now called *Newcome Knol*, which has lately grown up so as to have but 14 feet water upon it at low water springs. This buoy bears from the N. W. light-ship E. 1-2 S. 2 1-2 miles; and from the New Channel floating beacon S. S. W. 1-2 W. 2 miles.

The whole of the foregoing will be clearly shown and explained in the forthcoming completed edition of Capt. Denham's Survey, of which the dock trustees published an exact chart last year, under sanction of the Right Hon. the Lords Commissioners of Admiralty.

By order of the Liverpool Dock Committee,
H. M. DENHAM.

Marine Surveyor to the Dock Trustees.

N. B.—The navigation of the port will be further assisted by an arrangement which will enable the light-vessels to act as telegraphs, whereby ships' numbers or casualties will be more readily transferred to the town.

"ALL BAGGAGE AT THE RISK OF THE OWNERS."

—It has lately become very common for incorporated rail road and steam boat companies to advertise conspicuously, in the above words, in order to screen themselves from liability, in case of the loss or miscarriage of any baggage entrusted to their care. To test the legality in regard to the operation of such an advertisement, two suits have recently been instituted against the Camden and Amboy Rail Road Company, in both of which full and ample damages were given for the plaintiffs. An action was tried on Thursday of last week, in the Superior Court, before Chief Justice Jones, in which the above company were defendants, and Mr. Ralston Belknap was the plaintiff, for the recovery of a trunk entrusted to their care for transportation to Philadelphia.

It was urged on the part of the defendants, that the missing property had not been left in the care of any of the agents of the company, but was merely placed in the office, while the plaintiff was paying his fare as a passenger; the advertisement announcing that the company were not responsible, &c., was also read in court. On the part of the plaintiff, it was contended that although the defendants did give notice that they refused to be responsible for the loss of property, falling into their possession in the regular course of their business operation, under the sanction and by the authority of their charter, yet their edicts were utterly futile and of no avail, and they were liable, both in equity and law, for the loss or destruction, under such circumstances, of any chattels, or goods belonging to other persons. In his charge to the jury the learned judge coincided with the arguments of the plaintiff's counsel, and the jury awarded damages in the sum of three hundred dollars, for the plaintiff. So that, all baggage is not at the owner's risk.—[Mer. Adv.]

NAVAL.—The U. S. frigate *Constitution*, Com. Elliott, arrived at Gibraltar, in 23 days passage from New York, officers and crew all well.

The *St. Louis* and *Vandalia* were to sail on a West India cruise from Pensacola about the 10th inst.—[Gazette.]

The ship *Meridian* at Baltimore, on the 15th Sept. lat. 45 53, long 60, passed a New York Pilot Boat, standing east—no doubt the John D. Aymar in pursuit of Mr. Bowen, who sailed in the *Caledonia* on the 1st ult.—[Gazette.]

We learn that the Commissioners appointed to treat with the Western Indians, have returned to Fort Gibson, after having successfully accomplished the object of their mission. A treaty of amity was concluded by them, between the United States and the Cherokees, Creeks, Choctaws, Osages, Senecas and Quapaws. Nothing occurred to interrupt the general harmony, and all parties separated with good feelings.

There is no doubt but that this arrangement will be productive of happy effects. It is the first time these wild Indians have met upon such an occasion. They have heretofore kept the frontier in a state of alarm, and have attacked with equal impartiality, citizens of the U. States and the Indians.

We learn that there are three families, or divisions, of these Indians, who inhabit the great

Western prairie. These are the Camanches, who are the most numerous, but who have no fixed or permanent villages, and follow the herds of buffaloes, with their moveable lodges, sometimes North and sometimes South of Red River.

The *Wichetas*, consisting of several bands, some living North and others South of Red River. Those North are the *Towecash* and *Wachos*.—They have fixed villages, and raise corn and vegetables.

The *Kioways* are the third family.—They have no fixed residences, but wander from the Cross Timbers on the Arkansas, Canadian and Red River, to the Rocky Mountains; and are sometimes, though not often, found south of the Red River. As many different terms have been used in designating these Indians, we have thought it would be acceptable to remove the confusion occasioned by an imperfect knowledge of them, and give their divisions as reported by the Commissioners.

From some cause not known, the *Kioways* did not attend; but we learn that a deputation of their Chiefs was expected at Fort Gibson, to give their concurrence to the arrangement made.

We further learn, that the Commissioners have very judiciously inserted a provision in the treaty, inculcating the desire of the United States upon the Indians, that they remain at peace with Mexico.—[Globe.]

We were told a few days since in Washington, that a gentleman of Paris had left, by his will, about ONE MILLION of dollars, for the purpose of endowing a National University in that city. We learned also that the constituted authorities of the city had received official information of the fact, with a copy of the will. The *Alexandria Gazette* alludes to the rumor. Could not the National Intelligencer satisfy public curiosity on the subject? —[Fredericksburg Arena.]

We have the pleasure to inform our friend of the Arena, that we believe his intelligence is substantially correct. We learn that information has been received by the government, that such a bequest was made by some English gentleman of fortune, and that the sum of 200,000 pounds sterling will in all probability inure to this city for the erection and endowment of a University. The money, we understand, was bequeathed in the first instance to the only son of the testator, but in case of his death without heir, to go to the City of Washington for the purpose above stated. That contingency occurred, and the princely legacy accrues to the city. It is probable that the President will communicate the fact to Congress early in the next session.—[Nat. Intel.]

The *Intelligencer* of Saturday also contains the following paragraph respecting the legacy: We understand that it would be more accurate to say that the English legacy of 200,000, was bequeathed "to the United States, for the purpose of establishing an University at the Seat of Government for the promotion of the arts and sciences." The money, we are informed, is in the hands of the Lord Chancellor of England, ready to be paid over conformably to the will, which fact he has communicated to our government, with a copy of the will.

SALE OF STATE LANDS AT OSWEGO.—On the 15th inst., the Surveyor General sold, at Oswego, the piece of land on the west side of the river, embracing the site of the old fort, and also a block on the west side of First street. The land between First street and the river, consisting of about three acres, sold for \$108,175. The block between First and Second streets was divided into 12 lots, 66 by 100 feet each, and the whole sold for \$46,460—total amount of sales, \$154,635.—[Argus.]

CANAL TOLLS.—The tolls collected on the New York canals for the first week in October, amount to the sum of \$60,034 93. The whole sum received for tolls from the opening of navigation to the 7th of October, has been \$1,154,000.—[Argus.]

ACCIDENT.—Yesterday as the agent of a train of cars, on the Boston and Providence Railroad, was imprudently standing on the outside guard of one of the cars, leaning over too far, came in contact with the railing of a bridge, over which the road passes, with such violence as to cause his instant death.

[From the *Oswego (N. Y.) Observer*.]

CENSUS.—Agreeably to the return of J. H. Wright, Marshall, the census of the town of New Haven, is as follows:

Total number of inhabitants, 1651. Males 785. Females 766.

[From the Chicago American.]

Of the numberless letters received at the Post Office, of inquiry relative to this town and country, one has been handed us to answer, that the information here given, may be also satisfactory to other strangers who are making similar inquiries, as well as to the writer of the following, who dates from Tuscaloosa, Alabama. Few intelligent persons have resided here many months, without being severely taxed with letters of this description. Jonathan, in particular, draws largely upon their liberality—is minute in his inquiries—and most unconscionably tedious.

The writer asks,

1. "What is nearly the amount of the population of Chicago at the present time?"

Four thousand. Three years ago it was perhaps three hundred. Two years ago, six or eight hundred. One year, 9000. And now, as above, about 4000.

2. "How long are goods generally getting from the Atlantic cities to your's?"

They are now from twenty to thirty days from the city of New York. The commerce of this important metropolis, will soon induce the proprietors of lines upon the Lakes to provide some other facilities than those now possessed for expediting the passage of vessels, such as steamboats stationed on some parts of the route for towing them through difficult channels, &c. Circumstances will render expedient the adoption of such conveniences as will place the average time of transportation from New York at less than twenty days.

3. "How great a portion of the year is your navigation closed up by ice?"

The Lakes are generally ready for navigation about the first or middle of April, although vessels did not sail from Buffalo last Spring (which port is closed a month later, generally, than others on the Lakes) until the 15th of May. Navigation usually closes about the last of November or first of December.

4. "How is the climate of your town compared with, say, Albany, New York?"

The latitude of Chicago is the same with West Point, (N. Y.) The climate, as is the case with the West generally, is milder than that of the East in the same latitude. The cold season is shorter, and the autumn more serene and less rainy. The sky is purer, and the twilights long and beautiful.

5. "What is your highest temperature and your lowest; and how low did the thermometer sink during your coldest weather in the last cold winter?"

The highest temperature which we have known since our residence here, was 94 degrees. The winter before last, it sunk to 28 degrees below zero. Last winter to 22 degrees, while in N. York in sunk to 34 degrees. We have never seen a series of observations by the Thermometer, by which we might learn the mean temperature here.

6. "How is the health of your town and the region of country round about?"

Chicago is doubtless the most healthy town of any in the State of Illinois. In the months of August and September fevers are frequent, such as are common to the West generally; chiefly bilious and fever and ague. In the winter and spring there are some cases of pleurisy. Consumptions are not indigenous in Illinois. The country at present is more subject to diseases than the town.

7. "How many schools have you, and of what description?"

We have three public schools, besides a private school for ladies, the former of which are supported by the interest of the town fund arising from the avails of the sixteenth section in this township, which fund amounts to \$40,000 bearing interest at 10 per cent. per annum. In respect to means for the support of education, Chicago is more bountifully supplied than any town or city in the west, or in the nation.

8. "How many churches, and of what denomination?"

There are five, the Episcopal, Presbyterian, Baptist, Methodist, and Roman Catholic.

The above are some of the inquiries which are reiterated by almost every mail, and it is thought an answer given in a public manner, might satisfy many such inquirers, and be of general service.

We learn by the Chicago American, that good were received in that place, twenty days from New York, by the brig Indiana, of the Eagle line, and twenty-one days by the schooner Agnes Barton—

These we believe to be the quickest trips which have been made from New York, via the Erie Canal and the Lakes. The distance is over two thousand miles, and the passage would average about one hundred per day, including the time of transshipment at Buffalo, and other stoppages on the Lake.

The schooner Grecian, Captain Stubbs, of Bucksport, arrived at that place on Friday last, with a few goods from the ship Eagle, stranded at Sable Island. The Grecian lost an anchor, sprung some of her spars, and drove over the shoal at the west end of the Island. A small schooner fitted out at Orland, Maine, to go to the wreck, was lost near Goldsborough, in a gale last Tuesday; five persons drowned, one saved.

About 30,000 dollars in value of dry goods, sent from the Eagle to Bucksport and Castine, the chief part of which was advertised to be sold this day, at Bucksport, are coming to this port under a new arrangement, which will afford the owners an opportunity of identifying their goods.

BITUMINOUS COAL IN MASSACHUSETTS.—The Taunton Gazette states on the authority of a letter from Mansfield, that a bed of bituminous coal has been discovered, on the land of Mr. Alfred Eldred in that town, about half a mile from the Providence Railroad. It was discovered in digging; a well, ten feet below the surface of the ground, the vein being more than six feet in depth. It is added that a blacksmith in the neighborhood has made trial of the coal, and pronounces its quality to be good.

PITTSBURG, Oct. 9.—THE RIVER.—We walked down this morning to look at the river, which we found in excellent condition, and saw that our business men were improving the opportunity afforded them. We counted twenty-three steam boats lying along the shore. Nine of these were entirely new—some not quite finished, and some just being finished. Eleven others were engaged either in receiving or discharging cargoes. Among others there were boats for Louisville, Nashville, Florence, St. Louis, and other places.

OFFICE BOARD OF HEALTH.

Charleston, 16th Oct., 1835.

The Board of Health deem it expedient, in order to remove any misapprehensions which may exist abroad, in relation to the health of the City of Charleston, publicly to declare, that no disease exists in the city of a character calculated to excite the least alarm; and that the Strangers' Fever which lately prevailed in a portion of the City only, has entirely abated.

ROBERT ELFE,
Chairman of Board of Health.

HEALTH OF THE CITY.—Within a few weeks past we have had many cases of fever, but not sufficient to cause alarm, or to amount to an epidemic. We have been told by eminent physicians of this city, that the cases of yellow fever which have fallen into their practice this season have been more mild in its form than has occurred for many years past. We trust that the rain which has fallen yesterday and to-day, will enable us to announce shortly that our city is free from all disease. Many of our city papers, actuated, no doubt, by good intentions, have been rather premature in inviting strangers back to this city, but we do not think it advisable for some two or three weeks to come.—[New Orleans Union, Oct. 5.]

[From the Newark Daily Advertiser.]

INTemperance, GAMBLING, FIRE AND DEATH!—A horrible climax, but as natural as the connection of cause and effect. A shocking illustration occurred yesterday. Between 12 and 1 o'clock last night, the town was alarmed by the cry of fire, proceeding from two dwelling houses in Quarry street, occupied by several Irish families. So far as we have been able to learn, the fire probably originated in carelessness, resulting from gross intemperance and rioting among the occupants.—About nine o'clock in the evening, (it being Sunday,) one of the Constables, with a citizen, in pursuit of an Irishman who escaped from the Bergen County Jail on Saturday night, entered one of the houses unexpectedly, and surprised a party round a table playing cards! Other circumstances lead to the belief that the house had been during the day a scene of carousal and drunkenness.

The fire originated in the garret, where it was probably communicated to clothes hanging to dry, by a drunken woman who had been up several

times during the evening and night with a light.—The boys asleep in the garret were waked by the smoke, and communicated the fact to the miserable inmates below, some of whom were still over their cups. One of the number, we hear, was so beastly drunk, that it was necessary to drag him out in order to save his life. Two young women, we are told, were found in very little better condition.

Another female—the wife of Patrick Doyle, a tenant—it appears, met the just retribution of the loathsome habits of the house. Instead of running out when the alarm was communicated, she went up stairs, and probably becoming bewildered in the smoke, perished in the flames! Such are some of the fruits of an Irish wake in Newark.

MARK WINSLOW.—This man who has grown gray in crime, was lately convicted at Boston of having in his possession a large amount of counterfeit bank bills of different denominations, some of which were of the banks of this State. He was sentenced to the State prison in Charlestown for the term of his natural life. On Thursday morning, he committed suicide by opening the jugular vein, in the Leverett street jail. That forenoon he was to have been conveyed to the State prison. The Boston papers of yesterday inform us that he left in his cell the following letter to his wife. How true it is, that "the way of the transgressor is hard."

My dear wife—(thou best of women)—most deeply do I regret and repent that I had not lived agreeably to your good and sound advice. If I had I might now have been enjoying your good society with the rest of my friends. Oh! how I could be hurried on, and unbeknown to you, I cannot conceive—but, alas! so it is. I freely forgive all my enemies, as I hope to be forgiven, and I hope we may meet in another and a better world.

From your affectionate and loving husband,

MARK WINSLOW.

N. B.—Farewell all my living friends.

Thursday morning, Oct. 15th, 1835. M. W.

A PANTHER.—On Saturday last, Leonard North the son of A. North, Esq. of Champlain, went fit to the woods in pursuit of deer. His dogs soon started one which the young man immediately shot. He directly found his dogs on another track, and from their noise and running, he soon discovered that they had started some uncommon game. He had gone but a short distance from the spot where he first killed the deer, when he espied a large panther in a tree, looking most wishfully first at the hunter and then at his dogs—wagging his tail ready to leap down upon his pursuers.—North lost no time to retrace his steps, and coolly and deliberately climbed up into a small tree with his gun in his hand, and taking sight at the head of this furious beast, put a ball through his head, entering under one of his eyes and coming out upon the neck near the shoulder.

The panther came down the tree and attempted to escape—the dogs pursued him so close that he took refuge in another tree. The young man again discharged his gun at the foe, and brought him to the ground badly wounded, still the panther kept the dogs at bay, nor was he so far disabled as to render it safe to come near him until a third fire from North had tamed his ferocity, so that his dogs could prevent his escape. He was killed and taken out of the woods, and weighed one hundred and forty two pounds—one of the largest sized panthers ever killed in this country.—[Plattsburg Whig.]

The Statue.

She lieth bare, in unweild loveliness,
Yet nothing naked; for the perfect charm
Of beauty and of symmetry doth dress
Her figure in a raiment bright and warm—
A garb most spiritual, which doth repress
The sensual eye of sense: with one fair arm
She leaneth on a pillow, softly sinking,
And her sweet face upturns to some voluptuous thinking.
The other, bending with a rainbow grace,
Plays with the hindmost tresses of her hair,
Over her shoulder. Oh! that love-tuned face!
It beams a passionate pleasure on the air,
And makes us crave some silent dwelling-place,
To gaze and live on it for ever there!
A love-thought stirs her mouth; and o'er her eyes
Appears the memory of a thousand sighs.
Her rich-swelled bosom, toward her white couch turn'd,
Spell takes the eyelids; and her limbs, extended
In animate perfection, are discern'd,
In all the harmony of structure blended,
Pressing each other's beauty: there each burn'd
A dream of fire about her, which hath melted;
And now she looks reposing from that vision,
And from love's dream to love inviting soft transition.

[From the Boston Token and Atlantic Souvenir for 1835.]

The Bride.—By Mrs. Sigourney.

I came, but she was gone.
There lay her lute,
Just as she touch'd it last, at the soft hour
Of summer twilight, when the woodbine cups
Filling with deeper fragrance, fondly press'd
Through the raim'd casement, uttering tender thanks
To her who trained them. On her favorite seat
Still lay her work box open, and the book
That last she read, and careless near its page
A note, whose cover her slight pen had trac'd
With lines unconscious, while her lover spake
That dialect which brings forgetfulness
Of all beside. It was the pleasant home
Where from her childhood she had been the star
Of hope and joy.

I came, and she was gone.
But this I know, for I remember'd well
Her parting look, when from the altar led,
With silvery veil, but slightly swept aside,
How the young rose leaf deepened on her cheek,
And on her brow a solemn beauty sat.
Like one who gives a priceless gift away.
And there was silence. Mh! that stranger throng,
Even strangers, and the hard of heart, and draw
Their breath suppress, to see the mother's lip
Turn ghastly pale, and the tall stately sire
Bow with a secret sorrow, as he gave
His darling to an untrod guardianship,
And to a far-off clime. Perchance his thought
Travers'd the moss-grown prairies, and the shores
Of the cold lakes—or those ever-changing cliffs
And mighty mountain tops, that rose to bar
Her long-reared mansion from the anxious eye
Of kindred and of friend.

Even triflers felt
How strong and beautiful is woman's love,
That, taking in its hand the joys of home
The tenderest melodies of tuneful years,
Yea, and its own life also, lays them all
Meek and unblenching on a morbid breast
Reserving naught, save that unspoken hope
Which hath its root in God.

Mock not with mirth
A scene like this—ye laughter loving ones—
Hence with the hackney'd jest. The dancer's heel—
What doth it here?

Joy, serious and sublime,
Such as doth nerve the energies of prayer,
Should swell the bosom, when a maiden's hand
Fresh from its young flower gathering, girdeth on
That harness, which the minister of death
Alone unlooseth—and whose power doth aid
Of our journey of the soul to Heaven.

AUBURN AND SYRACUSE RAILROAD.

NOTICE TO CONTRACTORS.

Sealed Proposals will be received until the 15th day of October next, at noon, by the undersigned, Chief Engineer and Agent of the Auburn and Syracuse Railroad Company, for the Grading, Masonry, and Bridges on said Road. Individuals disposed to contract for the execution of the whole or any part of the work, will be furnished on application at the Office of the Company in Auburn, with blank forms of proposals, and printed specifications.

The contracts will be formed in the usual manner—a specific price being stated for each item of work, which price is to include the cost of material and labor required in rendering the work complete.

The proposals to be accompanied with the names of sureties, and where the parties are unknown to the undersigned or resident Engineers, the usual certificates of character and solvency will be required.

Individuals who have been employed on other works, must furnish satisfactory recommendations from the Engineer or Superintendents of the same. A rigid adherence to the conditions of each contract will in all cases be required.

It is desired that all the work in each section, including Grading, Culverts, and Bridges, should be embraced in the same contract, and it is requested that the proposals be made accordingly.

The plans of the different structures will be ready for examination at the Office aforesaid, by the 1st day of October next.

Chief Engineer & Agent A. & S. R. E. Company.
Auburn, Aug. 23, 1835. 37—1150

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Grading and Bridging of the same. The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,
Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
Aug. 23, 1835. 37

BOSTON AND NORWICH RAILROAD.

NOTICE TO CONTRACTORS.—Sealed Proposals will be received at the office of the Boston, Norwich and New London Railroad Company, in the city of Norwich, until the 14th of November next, for the Grading and Masonry of the first division of their Road, extending from Norwich to Jewett city, a distance of nine miles.

The road will be divided into sections of various lengths, to suit contractors, and will be ready for examination by the 5th of November.

Plans and profiles will be exhibited, and the line pointed out, on application at the Engineer's office, in Norwich.

The work to be constructed without the use of spirituous liquors.

Contractors will be required to present with their proposals the usual certificates of character and ability to perform the work.

J. P. KIRKWOOD, } Engineers.
JAMES LAURIE, }
Norwich, Conn., Oct. 14, 1835. o23 dms

VALUABLE FARM.
FOR SALE, one of the best Farms in the county, containing 200 acres; 60 acres of which are the finest interval land, annually overflowed. In point of advantages, beauty and healthiness of situation, the place is not exceeded; and it may be permanently leased for a rent equal to at least seven per cent. on the price demanded. Inquire, (if by mail, post paid,) of D. K. Minor, Esq., office of the American, New York. o19 dms

TO TUNNEL CONTRACTORS.
Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
38—6t

New-Lisbon, Ohio, Sept. 17, 1835.

TO TUNNEL MINERS, DRILLERS, &c.
Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred), 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New-York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN BUTTER, Contractor.
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—tf

RAILROAD IRON.
300 tons of Railroad Iron of the T pattern, just imported and for sale by HOWLAND & ASPINWALL,
285 10t 53 South street.

AMES' CELEBRATED SHOVELS, SPADES, &c.
500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades,
Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
2 Liberty street, New-York.
BACKUS, AMES & CO.
8 State street, Albany.
34—yt

RAILROAD IRON WORK,
Of all kinds, made to order by GODWIN, CLARK & CO.,
Paterson; New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices. Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.
Paterson, Aug. 19, 1835. 34—ly

RAILROAD CASTINGS.
MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads.
R-ly feb14

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory. Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMASTURNER, at the Factory, Troy, N. Y. sept.12-ly

STEPHENSON,
Builder of a superior style of Passenger Cars for Railroads,
No. 264 Elizabeth street, near Bleecker street,
New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J26 tf

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.
J6 ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

35 tons of 1 inch by 4 inch, Flat Bars in lengths of 300 do. 14 do. 14 to 16 feet, counter sunk
40 do. 14 do. do. holes, ends cut at an angle
800 do. 2 do. do. of 45 degrees, with spli-
800 do. 24 do. do. cing plates and nails to
soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 28, 31, 33, 34, and 34 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d7lmcowr

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

Troy, N. Y. July, 1831.
HENRY BURDEN, Agent.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brewer, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrad & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.
H. BURDEN.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.
Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES F. STABLER, Sup't of Construction
of Baltimore and Ohio Railroad.
Philadelphia, February, 1832.

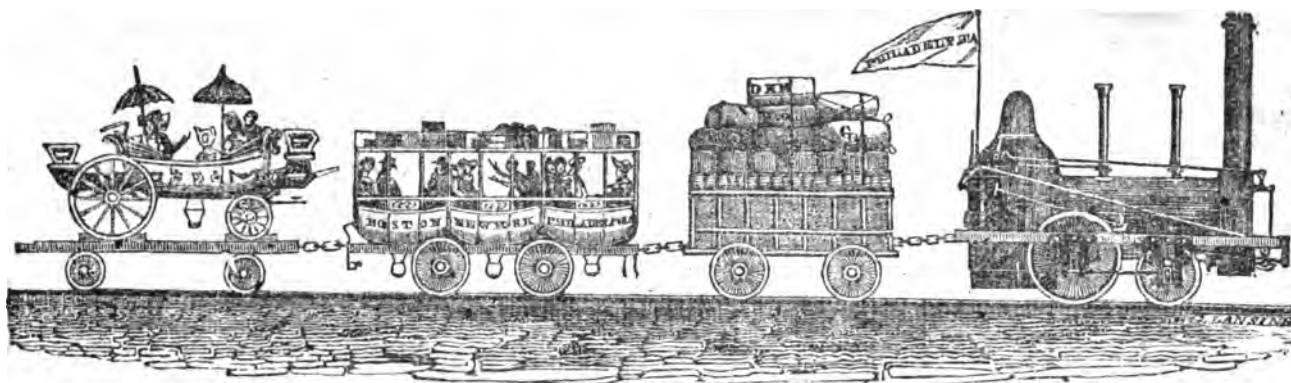
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.
Germantown, February, 1832.

For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY A. CAMPBELL, Eng. Philad.
Germantown, and Norristown Railroad.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, OCTOBER 31, 1835.

[VOLUME IV.—No. 43.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, OCTOBER 31, 1835.

SEE LAST PAGE.

FIRST ANNUAL REPORT OF THE NEW-YORK AND ERIE RAILROAD COMPANY.—We are highly gratified to be able to lay before our readers the First Annual Report of this Company. When we take into consideration all the circumstances which have tended to retard the progress of this truly magnificent work, we are only surprised that, with all the perseverance, industry, and ability of those few firm friends, who have stood by it through good, and through evil report, so much progress has been made. It is no small matter, in a work like this, and through a section of country so little known, (and less cared for by many of the more favored,) to make good the first campaign. There are always timid and doubting friends, who often do more injury than open and bold opponents. There are almost always innumerable private interests to be adjusted, and strong prejudices to be overcome, which tend to retard the progress of such works. Yet, notwithstanding all these, and the powerful opposition of the Canal interest, or of many of the inhabitants living in the vicinity of the Canal, the Company is now ready to put 40 miles of the Road under contract, and probably as much more will be ready this fall or early in the spring.

By this Report it will be seen that the obstacles to be surmounted are not of the magnitude which has been apprehended,

and, even by many, asserted. The Company intend first to construct those sections which may be used in connection with other improvements to best advantage, before the whole line is completed, that the investments may, at an early period, become productive. This is undoubtedly the true policy, as it will not only give value to the stock, but also confidence in the early completion and ultimate success of the work.

The Report of the Board of eminent Engineers, which accompanies that of the Board of Directors, must, we feel confident, remove the doubts of all intelligent and reasonable men, as to its *entire* feasibility, whether they be in favor or opposed to the construction of the work; and it will, most assuredly, stimulate to renewed activity, those of its friends who have never, even in the darkest period of its history, relaxed in their efforts to enlighten those who doubted, and to insure its early completion. We ask for this Report a candid and dispassionate perusal, especially by those who have heretofore given the subject any thing but the light of their countenance, and the aid of their ability.

THE RAILROAD AND CANAL MAP.—The period at which the *second* edition of this Map was to be published, has long since passed; but the work is not yet even ready for the press. We regret exceedingly this delay, as daily calls are made for it. Yet we have not been able to obtain, except in a few instances, from the Engineers and other gentlemen having the charge of the various Railroads, such statements as we desire to publish.

As it is about the season for the publication of the *Annual Reports* of the different Companies, it is much to be desired that duplicate copies of each Report should be forwarded to us, at the earliest possible period, as well for publication in the Journal, as for the use of the Map; and we would therefore respectfully request our friends,

on each Railroad and Canal, who have not already furnished a description of the work under their care, to forward such a description as will give a correct idea of the work as it now is, and also as it is designed to be when completed. We ask this *precise* information not only for our own use, but also for the use of others; and especially for the use of gentlemen abroad, who look with much interest to this country for improvements in the construction of Railroads, as will be seen by the annexed extract of a letter from a gentleman at *Leipzig*.

"Leipzig, 26 Aug., 1835.

"The writer of these lines being a member of the Board of Directors of the Leipzig and Dresden Railway Company, feels much interested to know what is going forward with you in this line of undertaking, and would thank you very much for gathering and forwarding the new publications which appear in your country in relation to this subject; (the Railroad Journal is in our possession already.) A few days ago, we have been told that one of your Companies (the Boston and Providence, or the Baltimore and Ohio) had published a Report, like those of the Manchester and Liverpool Company, stating the receipts, expenses, &c., and it would be highly interesting to us to have it. If you have an opportunity to procure it, or any other statements of this nature, you would highly oblige us."

We shall be much gratified to be the medium of communicating the desired information, for any gentlemen who may be disposed to forward their Reports in pamphlet form; and it is our intention to publish hereafter, in the Journal, a part, or the whole of every Report, which has in it any thing which we think may be useful to those interested in Railroads.

We now have on hand many documents, from which it is our intention to make copious extracts.

TO RAILROAD CONTRACTORS.—The advertisements of the Baltimore and Susquehanna, and the Wrightsville and York Railroad Companies, published in this number of the Journal, will, we presume, receive proper attention from those of our

eaders who are engaged in that line of business.

FAIR PLAY IS THE JEWEL.—A worthy and valued correspondent of ours says, in referring to the letter of E. F. Johnson, published in a recent number of the Railroad Journal, "It struck me as singular that you should publish this criticism, without having printed the document to which it refers,"—and it was as surprising to us as to our correspondent, that we had so long omitted to republish the "Document," or Report of Messrs. Jervis, Hutchinson, and Mills, which was addressed to the Canal Board in March last.

We were indebted, at the period of its publication, to Mr. Jervis for a copy, which we marked for publication, but which was put into pigeon hole No. 1, instead of the hands of the compositor, where it securely rested until we were induced, from reading the letter of Mr. Johnson, to examine the files of the Journal for the Report of those gentlemen, when, Lo! it was not there. As our object is to elicit the truth, for the general good, and not to oblige any one man, or set of men, we shall republish, in our next number, the Report of Messrs. Jervis, Hutchinson, and Mills; and shall then reprint a few extra copies of the Journal, containing both the Report and the letter of Mr. Johnson, that those who desire may have them together.

TO CORRESPONDENTS.—We have on hand several valuable communications for the Journal, in relation to, and accompanied by drawings of, various kinds of Bridges. One of them, that giving a representation and description of Colo. Long's Patent Bridge, has been in hand, we are ashamed to say, since January last; and another, upon the subject of a *Suspension Drawbridge*, has been in hand since March—both of which deserved better things than to be crammed into a pigeon hole, there to remain through the damps of spring and the heat of summer. If the gentlemen, who were so obliging as to forward them, will pardon this long delay, we will give them an early insertion, and promise more prompt attention to future favors.

We also have a plan of an *Iron Drawbridge*, designed for Canals, to which we shall also give early attention.

In addition to the above, we have been favored with the specifications and drawing of *Lewis Wernwag's Revolving Bridge*, and *Self-adjusting Railway Car*, both of which shall be attended to at our earliest convenience.

STEAM ENGINE WANTED.—A good, second hand, Steam Engine, of 10 or 12 horse power, is wanted for a boat to be used on a Canal. Any gentleman having an engine suitable for that purpose, which he can sell cheap, may address a note to, or call upon, the Editor of this Journal, who is desired to make inquiry, and to communicate the result to the advertiser.

The Board of Directors of the New-York and Erie Railroad Company, beg leave to submit to the Stockholders, their first

ANNUAL REPORT.

The Company was incorporated by the Legislature of New-York, on the 24th day of April, 1832, with power to construct a Railroad from the City of New-York to Lake Erie,—to transport persons and property thereon,—to regulate their own charges for transportation,—and to take tolls on any part of the route as fast as sections of ten miles should be completed.

The line of the route is not otherwise fixed by the charter, save that it is to be confined at all times to the southern tier of counties of this State, commencing at the City of New-York, or at such point in its vicinity as shall be most eligible and convenient therefor, and continuing through said counties, by way of Owego, to some point on the shore of Lake Erie within this State west of Cattaraugus Creek.

In evident contemplation of the construction of the different sections of the work progressively, the Company are allowed ten years from the date of their charter, within which to finish one-fourth part of the Road—fifteen years for one half—and twenty years for the whole. By an amendment passed May 8, 1835, they are authorized to commence the Road at any point on its route, which they may deem most eligible, and to use a single or double Railway thereon.

Being authorized to construct single, double, and even triple tracks, and transport persons and property thereon, they are allowed to receive subscriptions of capital stock to the amount of ten millions of dollars; but, by an amendment passed April 19, 1833, are empowered to commence the prosecution of their objects whenever one million shall have been subscribed.

The State reserve the right, after the expiration of ten, and within fifteen years from the completion of the Road, to take it, with its fixtures, for public use, on paying the cost thereof, to the Company, with interest at fourteen per cent. per annum.

No survey of the route had been made prior to the act of incorporation, but in the summer of 1832 a *reconnaissance* was conducted under the authority of the Government of the United States, by the late Colonel De Witt Clinton, which resulted in ascertaining that the supposed difficulties of the undertaking had been greatly overrated, and in presenting strong inducements for obtaining a more complete and accurate instrumental survey of the whole line.

It was at all times deemed desirable by the projectors of this enterprise, that the State should participate, in some degree, in the enterprise, for the purpose as well of diminishing the amount of funds necessary to be raised by private subscription, as of assuring protection to the individuals who might embark their means in the work. Whether the requisite assistance of the State should be afforded by a subscription from the public treasury to a portion of the stock of the Company, or a loan of the public credit at a low rate of interest, it was deemed important, and indeed essential, that the survey of the route should be conducted under the authority of the State Government, by engineers of its own selection,—so that any doubts might thereby be prevented, which the opponents of the proposed improvement could otherwise suggest, in respect to the accuracy or fidelity of the survey. An application being accordingly

made during the Session of 1834, a bill appropriating \$15,000 for the survey, and directing the Governor to designate the engineer, was passed on the 6th day of May, in that year, though not without an active struggle, and a close vote in both branches of the Legislature. In May, 1834, his Excellency Governor Marcy appointed BENJAMIN WRIGHT, of this State, to conduct the survey. He entered on his duties immediately after receiving the appointment, and previous arrangements having secured the speedy assemblage of an active corps of assistant engineers, the work was prosecuted with such assiduity, energy, and talent, that the survey of the whole line, 483 miles in length, was finished by the 15th of December in that year, and complete maps and profiles, with the Report, and estimates of Judge Wright, and his two principal assistants, were deposited early in January, 1835, in the office of the Secretary of State.

The plan of the route, recommended by that Report, strikingly manifests the sagacity and ability of this experienced Engineer, and justifies the confidence reposed in him by the Governor. It was peculiarly important to secure the exercise of the soundest discretion in respect to an undertaking embracing so great an extent of line, in order, if possible, to lessen or avoid the lavish and unnecessary expenditures which had been too often witnessed on other public works, both in this country and Europe. To the examination of this branch of the subject, Judge Wright brought the full benefit of his long and varied experience, and it is to the successful results of his efforts in this particular, that the accomplishment of the enterprise will be mainly indebted.

The expenses of constructing a Railroad, (excepting the cost of engineering and superintendence,) may be classified under the general heads, either of Land, Graduation, or Superstructure: denoting, by Land, the cost of acquiring title to the land occupied by the Road-way and its appurtenances; by Graduation, the preparation of the Road-way to receive the Rail-tracks, by means of excavations, embankments, and bridges; and by Superstructure, the tracks and turnouts.

In the present instance, the route of the Road traverses a country where land, as yet, is comparatively cheap; and, therefore, the heavy charges incurred in purchasing the Road-way, disturbing buildings, deranging city and village lots, extinguishing turnpike rights, and the other vexatious expenses incident to a work passing through a district more densely peopled, will be greatly lessened, if not altogether avoided.

The cost of the Rail-track, on this as on any other Road, will vary according to the materials, more or less destructible, of which it may be constructed. Considering that the country, along much of the route, will afford unusually cheap and excellent supplies of timber, it has been deemed altogether advisable to adopt the plan of the iron rail to be laid upon wood, instead of blocks or sills of stones,—proceeding on the principle, that it will be better economy to replace, from time to time, the destructible portions of a work composed in part of timber, than to incur a very heavy outlay, in the first instance, in constructing it wholly of iron and stone.

The reduction of expense to be thus obtained under the heads of Land and Superstructure, is the more important from the circumstance, that it is necessary for the purpose of securing a cheap and easy gra-

duration to lengthen considerably the line of the Road.

It is under the head of Graduation, (which usually embraces much the largest portion of the cost of Railroads,) that the efforts of Judge Wright to reduce the expense of the proposed work, have been most strikingly successful. The object of the graduation, is the conformation of the natural surface, by excavation or embankment, to the artificial grade or level prescribed by the profile of the work. The expense of that operation necessarily depends upon the cubic quantity of material, more or less, which the Engineer, in arranging the plan of the grades, may render it necessary to remove or transpose. It is obvious, therefore, that true economy requires the adoption, so far as may be consistent with the objects and ultimate utility of the Road, of the existing grades presented by the surface of the country, and the selection of such course for the route, as may correspond most nearly with the line of the natural level. According to the theory of Judge Wright, it is better to avoid than to subdue great physical obstacles—to go around the hills rather than to go over or cut through them,—and to seek a cheap and easy graduation by a circuitous route, rather than encounter immense expense in shortening and straightening the line.

In laying out the proposed Road, if a straight course were pursued through the Southern counties, from the City to the Lake, it is quite probable that its total length could be brought within three hundred and fifty miles,—and if the intervening elevations and depressions were cut down and filled up to an uniform level, regardless of the expense to be thereby occasioned, a Railroad laid on such a line would undoubtedly attain the highest degree of utility, of which that mode of communication is susceptible. Such an attempt, in the present instance, would, however, be totally unnecessary,—because the objects of the proposed enterprise do not require such a work, and can be sufficiently and fully accomplished by the cheaper and easier Road recommended by Judge Wright.

The public inconveniences which have led to the present undertaking, consist of the want, at all times, of a more direct and easy access to the Hudson River from the Southern counties of this State, and the total deprivation, during four or five months of the year, of all available means of intercourse between this City and the Western States. It is obviously not necessary, in order to remedy these evils, that a Road shall be constructed, on which the transportation of persons and property, from the City to Lake Erie may be effected, at a very extravagant or excessive rate of velocity, but that a Road upon which the whole passage may be regularly made, at all seasons of the year, within forty-eight hours, will be amply adequate to all the objects of its construction. Such a Road, on a cheap and feasible grade, is now recommended by the Report of Judge Wright; and, in the judgment of the Board of Directors, it will be sufficient for the purpose.

The peculiar topography of the extensive district traversed by the route, indicates the necessity of seeking, as far as practicable, the natural levels. A considerable portion of that section of the country, without being mountainous, has an undulating surface, intersected, however, throughout nearly its whole extent, by a chain or series of Rivers, which fortunately pursue, with little deviation, the general line of direction required for the route of the proposed Road. Those

streams are, moreover, free from sudden falls, flowing at a rate of descent unusually gentle, seldom exceeding fifteen, and frequently less than two feet to the mile, and presenting, almost invariably, on their margins, alluvial flats, interrupted only in a few insulated cases, (principally occurring on the Delaware,) by projecting bluffs. It is, therefore, evident, that by selecting the banks of those streams for the line of the Road, the necessity of cutting through the hills transversely may be avoided, and a graduation obtained, already prepared, as it were by nature, for the reception of the Railway.*

It is this peculiar and striking feature in the surface of the country, as presented by the maps and profiles, now in the office of the Company, (and which the stockholders are particularly invited to inspect,) which will explain the reason why a cheap and easy route has been discovered for the Road in question. By that examination it will be seen, that more than four-fifths of the whole line of 483 miles lies immediately upon the banks of Rivers and their tributaries: that one uninterrupted section of one hundred and twenty-five miles long, is situated on the margin of the Susquehanna and its principal branches; another of eighty-three and a half miles along the Alleghany and its tributaries: one of sixty-nine, and another of thirty-nine miles along the Delaware and its principal confluent; and that other minor sections along the smaller streams, including nineteen miles in the valley of the Ramapo, make up a total amount of at least four hundred and twenty miles, in which the route of the Road obtains the advantage of following the margins of water-courses.

Of the remaining portions of the line, embracing in the aggregate about sixty miles in length, where the route crosses the valleys of the streams more or less transversely, about thirty miles are comprised in different sections within the counties of Sullivan, Orange, and Rockland,—about twenty miles between the head waters of the Delaware and those of the Susquehanna and Chenango,—and the remaining ten miles in the descent to Lake Erie; and, nevertheless, with a single exception hereafter particularly mentioned, no part of the graduation of those portions of the line is found to be uncommonly expensive. The exception is presented in the passage of the Shawangunk Ridge, in the county of Orange, on the east side of the Delaware and Hudson Canal, at the seventy-fourth mile of the route, at which point a rapid descent of three hundred and fifty feet, must be encountered in a section of three miles. To obtain an easy passage over this part of the route eventually will require, either two inclined planes, similar in size and extent to those on the Mohawk Road, and costing about \$50,000 each—or a deep cutting on the summit of the ridge, at an expense of about \$70,000—or a tunnel of nine hundred yards long, at an expense of \$175,000.

After attentively examining these different modes of overcoming the difficulties presented by this particular section, Judge

* The graduation of that part of the Baltimore and Ohio Railroad, which cuts transversely through the ridges between Baltimore and the Patuxent River, cost upwards of \$40,000 per mile; while that of the sections which follow the course of that stream, cost less than \$9,000 to the mile.

The graduation of the Mohawk and Schoenectady Railroad, not following any considerable water-course, is said to have cost at least \$25,000 per mile; while that of the Erie and Schoenectady Railroad, laid out on the bank of the Mohawk River, has been put under contract at about \$5,000 per mile.

Wright, in his Report to the Legislature, recommended, as being most economical in the first instance, the deep cutting on the summit of the ridge, and the employment, at that point, if necessary, of auxiliary locomotive or animal power,—but he referred to the probability and necessity, in case of a great amount of transportation, of the eventual construction of a tunnel.* Whichever of these plans may be adopted, the total expenditure in constructing this section will not exceed from two hundred or two hundred and fifty thousand dollars;—and it is now particularly adverted to by the Board, not as affording any reason for apprehension or discouragement, or as presenting difficulties of unusual magnitude, but because it exhibits the only considerable instance upon the whole route of the Road, in which its graduation will not be uncommonly easy, cheap, and feasible.

According to the estimates accompanying the Report of Judge Wright, the graduation of the Road, with solid embankments for a double track from the Hudson to Lake Erie, including the excavation at the Shawangunk Ridge, will cost \$2,717,518, being at the rate of \$5,626 per mile, which amount includes the cost of bridges, culverts, clearing, fencing, and, in fact, every expense whatever necessary in order to prepare the road-bed for the reception of the superstructure.

He further reported, that a superstructure of iron laid upon timber, would, in his opinion, be most expedient (at least, for the first or single track,) and would cost \$3,400 per mile; being, for four hundred and eighty-three miles, \$1,642,000

That the cost of the graduation, as above stated, was	2,717,518
To which latter item be added, for contingencies, ten per cent.	271,751
And for engineering three per cent. on the two first sums,	130,791

Being for the whole work, \$4,762,360

In the above estimate nothing was allowed under the head of land necessary for road-way, principally because the inhabitants along the different routes surveyed, had proffered, almost unanimously, to execute voluntary sessions of so much land as might be requisite. In addition thereto, several of the landed proprietors, especially on the western sections of the route, had stipulated to make liberal donations in aid of the enterprise, and to an amount much exceeding in value any sums which would probably be awarded by the Commissioners, in the few instances in which unworthy attempts might be made to exact an extortionate price for the right of way. In reference, however, to the immense amount of travel and transportation, which the Road was destined, ultimately, to accommodate, it was deemed necessary to lay out the Road-way not less than six rods wide, requiring, for that space, twelve acres to the running mile, being for the four hundred and eighty-three miles, five thousand seven hundred and ninety-six

* The construction of tunnels, within the last few years, has become familiar to the Engineers of this country, four or five having been successfully completed, during that time, within the State of Pennsylvania. The cost of their construction varies from two to five dollars per cubic yard,—the tunnel through the Alleghany mountain, on the main line of the public works of Pennsylvania, having cost \$63,700, including arching, the excavation having been less than two dollars per yard: The cubic quantity of excavation required for the proposed tunnel through the Shawangunk Ridge, will fall short of 40,000 yards.

acres. The average price of land along the route, how much soever it may be augmented by the completion of the Road, does not, at present, exceed fifteen dollars to the acre,—so that, even if it were necessary to purchase the right of way, or submit to an appraisal throughout the whole line, the aggregate expense would not exceed \$88,940.

It had become evident, at an early period in the history of this enterprise, that it was destined to encounter active opposition. In some of the villages in that part of the State traversed by the Erie Canal, apprehensions had been excited that the construction of the proposed Road might operate injuriously upon their local interests. The people of that quarter of the State had been led to suppose, however erroneously, that in order to retain and preserve the sectional advantages which they enjoyed, it was necessary to compel the population of the southern counties to seek, through the Canal, a circuitous and expensive route to the sea-board; and that it would be impolitic to allow them the means of more direct and constant access to market, which would be afforded by the proposed Railroad. When it was recollected, however, what immense benefits had been bestowed by the construction of the Canal, upon the favored districts which it traverses, in the rapid progress of their agriculture, commerce, and wealth,—what amounts of the common treasure had been expended in accomplishing that object,—with what alacrity the more sequestered counties had contributed, year after year, their proportion of the taxes rendered necessary by that expenditure,—and, above all, when it was seen, that in order still further to increase the travel and transportation through the northern portions of the State, the public treasury was called upon to expend from six to eight, and, not improbably, from ten to twelve millions in enlarging the Erie Canal, the hope was indulged, that the scanty portion of the public bounty, which the southern counties might require, in order to enable them to participate in the general prosperity, would not be withheld, and that their efforts to develop their own resources and improve their condition, would be regarded with a kind and liberal spirit.

No sooner, however, was the Report of Judge Wright presented to the Legislature, showing the feasibility of completing, at a moderate expense, the desired channel of intercourse through the southern section of the State, than a combination of local interests, singularly violent in character, was arrayed to defeat the enterprise. The most active and determined exertions were made, openly by some, and covertly by others, to prejudice the public mind, and discourage, if possible, the friends and promoters of the undertaking. The object was denounced as chimerical, impracticable, and useless. Anonymous writers were employed to pronounce the survey inaccurate and deceptive, and the estimates unsafe and fallacious. The Road, it was declared, could never be made,—and, if made, would never be used. The southern counties were asserted to be mountainous, sterile, and worthless,—affording no products requiring a road to market,—or if they did, that they ought to resort to the valley of the Mohawk, as their natural outlet. The whole enterprise, supported as it was, by great masses of the population of the State, was pronounced to be a mere scheme of stockjobbing, and stigmatized as an attempt to deceive the southern counties—defraud the public—and ruin the individuals who might embark in it.

The Board of Directors have never deemed it necessary to notice these attacks upon the great enterprise committed to their charge, further than to invite and urge the opponents of the work to point out the specific portions of the survey or of the estimates, which they might suppose to be inaccurate. The maps and profiles were deposited in the public offices at Albany, where any errors, if they existed, could easily have been detected. No attempt to do so was ever made, to the knowledge of the Directors, and they therefore dismiss this branch of the subject with the declaration, that they continue steadfastly to rely, upon the accuracy, fidelity, and capacity, of the Engineer who was selected by the Governor to conduct the survey.

The question, whether the Road when constructed, can be advantageously used for the purposes of travel and transportation, can be settled practically, and without entering at all into scientific details. It is necessary, only, to state the decisive fact that the steepest grades adopted on the plan of the work, will be less severe than those upon that part of the Baltimore and Ohio Railroad which is now finished and in successful operation. That Road is used, during winter and summer, for the transportation not only of passengers and the public mail, at high rates of speed, but also of cars, heavily loaded with flour, provisions, live stock, and other agricultural products; and a rapid increase has been experienced in its business, as the line has been extended into the interior. It will not, therefore, be deemed visionary to predict, that the proposed Road, passing over acclivities less severe, and through a country more extensive and not less fertile, cannot fail to accomplish results equally advantageous.

In view, however, of the recent improvements, in augmenting the usefulness and power of locomotive engines, enabling them to surmount increased grades of acclivity, and in reference, also, to the varied products of the country to be traversed by the route, and to the diversified character of its surface, it has been deemed important by the Board of Directors, that the plan of the whole Road, including the arrangement of the grades and of the engines to be employed, should be carefully settled under the best advice, so as to secure the utmost economy of labor and power, and thereby reduce the cost of transportation to the lowest practicable limit. In order, therefore, effectually to discharge this portion of their duty, the Board of Directors thought it expedient with the cheerful acquiescence and upon the invitation of Judge Wright, to associate with him in consultation Mr. Moncure Robinson, the Chief Engineer of several of the public works of Pennsylvania, and Mr. Jonathan Knight, the Chief Engineer of the Baltimore and Ohio Railroad, thus constituting a Board of Engineers pre-eminently qualified by experience, talents, and professional acquirements, to decide upon the matters submitted to their consideration. A conference accordingly took place in August last, and was continued at the office of the Company in this city, until the plans and profiles presented by the surveys had been fully examined; after which these Engineers proceeded in person to inspect the Shawangunk Ridge, and settle upon the most advisable mode of overcoming the difficulties in its passage, which are above adverted to.

In September following they presented their conjoint Report to the Board of Directors, which is now published for the information of the stockholders. The unani-

mous opinion which they therein express as to the practicability of dispensing altogether with stationary power,—the rate of velocity to be attained, and the weight of the loads to be transported throughout the whole line, exceeding the expectations of the most sanguine friends of the enterprise,—must dissipate effectually any further doubts as to its feasibility or usefulness; while the judicious arrangement of the grades—the admirable adaptation of different engines and rail tracks to the different divisions of the Road, and the simple, effectual, and economical mode of accumulating auxiliary locomotive power at those points of increased acclivity where it was found to be necessary—all attest the genius and judgment of those distinguished Engineers. Upon their unanimous testimony, the Board of Directors now have the gratification of announcing to the stockholders the following result, to wit:—*That loads of sixty tons gross, (or deducting the weight of the cars, forty tons net), may be drawn in a single train from the Hudson River to Lake Erie, and at an average speed from twelve to fourteen miles to the hour;—that with the rate of speed augmented one half, a locomotive engine will nevertheless suffice to transport two hundred passengers and their baggage; that no stationary engine will be requisite on any part of the work; and that one, or, at most, two auxiliary engines only will be requisite on the whole length of the line.*

Upon that consultation the plan of Judge Wright was modified only in a single particular. Instead of selecting any one particular plan of superstructure, as proper for the whole route, the Board of Engineers recommended,—in view of the necessity of employing greater locomotive power in surmounting the severer grades on the easterly sections, embraced within the counties of Rockland, Orange, and Sullivan, than would be requisite on the gentler acclivities presented on the remainder of the Road,—the adoption of the eight ton engine and the iron edge rail on the first one hundred and thirty-six miles, between the Hudson and the mouth of the Callikoon, at a cost of \$6,000 per mile, and of the six ton engine and iron plate rail, laid on timber, on the remaining three hundred and forty-seven miles, from the mouth of the Callikoon to Lake Erie, at a cost of \$3,000 to the mile.

In estimating the expense of the superstructure, Judge Wright, after specifying the cost of several plans, had stated that a superstructure, throughout the whole route, consisting of the iron plate laid upon timber, could be completed at an expense varying from \$2,800 to \$3,400 per mile, being, for 483 miles, at \$3,400, \$1,642,000

The superstructure adopted on the consultation will cost—
136 miles at \$6,000 \$816,000
347 “ “ 3,000 1,041,000

1,857,000

Being a variation of 215,000

The Engineers, on their consultation, also recommended the adoption of the tunnel through the Shawangunk Ridge, instead of the deep cutting upon its summit, which alteration will require an increase of expenditure, not exceeding

100,000

Making the total increase \$915,000

The estimate of the cost of the whole Road, upon the plan as modified on the consultation, will then stand thus:

Graduation reported by Judge Wright,	\$2,717,519
Extra expense of adopting the tunnel,	100,000
	<hr/> \$2,817,518
Superstructure as settled on the consultation,	1,857,000
	<hr/> 4,674,518
To which add for engineering and the expenses of the Company,	300,000
The cost of vehicles and other necessary apparatus, to be increased as the business of the Road shall extend, will be covered in the first instance by	500,000
	<hr/> 5,474,518
To which the Board of Directors, for more abundant caution, now add for contingencies,	525,482

Total \$6,000,000

Requiring a net revenue of \$350,000 to produce a return of six per cent. per annum.

To the great majority of the present stockholders of the New-York and Erie Railroad Company, who are merchants or landowners in the City of New-York, no incentive is necessary to secure their zealous support of this great enterprise, in addition to the stake which they hold in the general welfare of the community of which they are members. To those persons, however, who may have embarked their means in this undertaking for the purpose only of realizing pecuniary advantages on the investment, it is proper to state, that in the opinion of the Board, the income of the Road, as soon as it shall be finished, will much exceed the sum of \$360,000 above stated.

* It is evident, that the rate of revenue, whatever it may be, immediately on the completion of the Road, will undergo a steady and rapid increase, and fully keep pace with the growth of the extensive communities from which its business is to be derived. If, therefore, it be reasonably probable that the income of the Road will commence at a rate even as low as five per cent. per annum, the certainty of its speedy increase will suffice, in the opinion of capitalists, fully to sustain the value of the stock.

If the experience afforded by the Erie Canal is taken as a guide, it may be safely stated, that the accomplishment of the proposed work will add not less than one third to the present population and trade of the City of New-York, and augment in an equal degree its landed wealth;—and that it will double, if not quadruple, the present value of the extensive district embracing six millions of acres in the southern and middle counties of this State. When it is considered also,

* The Railroad now constructing between Sandusky and Dayton, will connect Lake Erie with the Ohio. A similar union will be effected farther west, by a chain of Railroads, (for most of which charters are already granted), in the State of Indiana. A Railroad has already been commenced at Alton, on the Mississippi, at the mouth of the Missouri, which it is proposed to extend from that point to Lake Erie. It is contemplated also to connect the Ohio River at Louisville with Nashville in Tennessee; and a Railroad is already commenced, extending from Nashville to the City of New-Orleans.

When the links in the grand chain shall all be completed, passengers may travel from Lake Erie to the Gulf of Mexico, (1150 miles), in four days, and from New-York to New-Orleans, (by the way of the Lake), in seven days.

that by means of this great avenue of intercourse—and its tributaries now rapidly springing up and spreading through all the great valleys of the West, bringing Lake Erie into close connexion with the Mississippi and Missouri, and extending southwardly even to the Gulf of Mexico,*—the immense inland communities upon the Western Waters, for the purpose of trade, will be rendered commercially tributary to this State and its metropolis, it becomes difficult to fix, within any moderate bounds, the value of the proposed road, or the amount of travel and transportation which it is destined to create and accommodate.

In estimating the business to be derived from the communities along the route of the Road, it is certainly a circumstance of no little moment, that the inhabitants of the southern and middle counties, remote more than one hundred miles from the Hudson River, who will resort to this channel of communication in order to find access to the seaboard, already exceed in number the population which were contained within the counties (equally remote from the river) adjacent to the Erie Canal, three years after its commencement. The animating impulse, which the disbursement of the moneys expended in the work, will impart to every species of industry in the southern counties, creating villages, cities, and flourishing communities, cannot fail to accelerate, most rapidly, their progress in population, prosperity, and wealth, and augment at the same time their capacity to supply a profitable and increasing business to the Road. The celerity and regularity of passage which it will afford, at all seasons, between the City and Lake Erie, will secure a lucrative revenue in the transmission of passengers, merchandise, and the mail,—*sufficient, in the judgment of the Board, to yield an adequate income on the whole expenditure.* During the four or five months of the year in which the severity of climate renders useless our Canals, Lakes, and Rivers, the Road will present the only available channel of communication between the City and the more central and populous portions of the interior, and at the same time will remedy the evils now suffered by the mercantile community, in being deprived of the means of transmitting merchandise to its consumers early in the spring, and late in the autumn. The rapid augmentation, which the successful accomplishment of the work will occasion in the population, extent, and wealth of the metropolis, will, in its turn, react on the interior districts, by affording them an increasing market for their agricultural products, while those supplies will serve to cheapen the price of subsistence in the metropolis, and thus the mutual and beneficial dependence between the City and the interior, and the consequent increase in the population and prosperity of both, will constantly operate to swell the amount of travel and transportation, to be borne over the Road.

The Directors of this Company, in forming their opinions as to the feasibility and productiveness of the proposed work, deeming it their duty to rely as little as possible on mere representations, have personally inspected by themselves, and their immediate officers, during the present summer, the whole line of the route. That examination has resulted in confirming their belief, that the work is singularly feasible: that it may be completed and put in operation, with all the necessary vehicles and appurtenances, at a cost not exceeding six millions of dollars;—that it will immediately enjoy a great and increasing revenue:—and that

every inducement exists for prosecuting the enterprise with undiminished vigor.

It is to be understood, however, that the above estimate of six millions does not include the expense which the Company may ultimately incur, in constructing double and triple tracks, as soon as an increased business shall render them necessary—nor the expense of continuing the Road, from a point in West Chester county, opposite the place where it will reach the Hudson, into the City of New-York. Both of these measures will undoubtedly be carried into execution, as soon as the progress of the Road westwardly shall render it expedient.

In order to obtain the above sum of six millions, the Board of Directors have resolved,

1. To issue stock to subscribers to the amount of three millions.

2. To expend that sum in constructing such sections of the Road as may most probably yield an immediate revenue.

3. To raise the remaining three millions either by a loan from the State or foreign capitalists, on a mortgage of the Road, or by issuing that additional amount of stock.

If the Company could have secured, in the first instance, the whole sum of six millions, either in subscriptions of that amount of their stock, or in subscriptions of a part, and a loan of the residue, there would have been no difficulty in putting the whole line of the Road under contract, so as to complete the work in five years from the present season.

If, however, the Company shall be compelled to confine their operations within a more limited sphere, to make contracts for work to the amount of three millions only, and await the result of that expenditure before obtaining subscriptions or negotiating a loan for the residue, they will be obliged to construct the Road by sections progressively, and in that event its final completion may be considerably delayed.

Although the Board may be well satisfied, that by constructing a portion only of the Road, a sufficient revenue would be secured, yet there can be no doubt but that the interests of the stockholders, as well as those of the public, will be greatly promoted by completing the whole line with the least practicable delay. The experience of the Erie Canal, and in fact, of all the public works in this country, has sufficiently demonstrated, that the income of each section is augmented in proportion to the progress made in lengthening the line of communication, and that, too, in a geometrical ratio; while it is evident that the public advantages to be derived by this City, in preserving, by means of the proposed work, the trade of the West, cannot be realized, to any considerable extent, until the Road shall be completed from the Hudson, at least as far west as the Alleghany River.

Notwithstanding these considerations, it is a circumstance eminently calculated to insure the ultimate success of this enterprise, that the work is divisible into separate portions, each of which, taken by itself, may become profitable; so that the stockholders may receive dividends on their investments long before the completion of the whole Road. Thus, the short section of twenty and a half miles, between Owego and Binghamton, connecting the Chenango Canal with the Owego and Ithaca Railroad and the steamboat navigation of the Susquehanna;—that of thirty-five miles connecting Owego with Elmira, and there meeting the Chemung Canal on the north, and the Railroad from the coal mines of

Pennsylvania on the south;—and that of one hundred and ten miles, connecting the Delaware and Hudson Canal with Bettsburg in Chenango county, and there uniting with the Railroad in active progress from the latter place to Utica,—may each, if completed separately and without reference to the residue of the line, become sufficiently lucrative to warrant the Company in entering upon its construction, before securing the means of completing the whole Road from the Hudson to Lake Erie. In this light, therefore, the New-York and Erie Railroad may be regarded, not only as one great avenue of communication between the Atlantic Ocean and the Western waters, but also as a connected series or chain of independent works, similar in character to those which are now in progress or in contemplation, under the direction of separate companies, between Albany and Buffalo,—possessing, however, the very important attribute of being united under one common Board of Management, and thereby guarding the public against the irregularities and vexatious delays, inevitably arising from the want of perfect union, between the several links of the chain.

The estimated expense of the whole Road may be distributed under the following divisions:—

77 miles from the Hudson River at Tappan, to the Delaware and Hudson Canal in Orange county, (including the passage of the Shawangunk Ridge.)	\$1,064,156
110 miles from that point to Bettsburg,	1,228,147
35 3-4 miles from Bettsburg to Binghamton,	418,679
20 1-2 miles from Binghamton to Owego,	183,264
35 miles from Owego to Elmira,	261,180
126 miles from Elmira to the Alleghany River, near Olean,	928,545
78 3-4 miles from that point to Lake Erie,	648,547

483 \$4,674,518
adding to each particular estimate about twenty-eight per cent. for engineering, vehicles, and contingencies, according to the ratio of the general estimate herein before stated.

In July, 1833, one million of dollars were subscribed to the stock of this Company, on which the first instalment was paid conformably to the charter. For the purpose of obtaining the advantages to be derived from having the route surveyed under the authority and direction of the State government, and under the clause of their charter which allows five years from April, 1832, within which to expend \$200,000 on the Road, the Company did not commence their field operations until the present year. As soon, however, as the very favorable results of the survey by Judge Wright were made known to the public, the Company, in February last, after some changes in their Board of Directors, made preparations for the vigorous prosecution of the enterprise. As a preliminary measure, and in order, if practicable, to provide sufficient means to authorize them to put the whole Road under contract, and thus to finish the work with the least possible delay, they presented their petition to the Legislature, at its last session, praying for a loan of the credit of the State in aid of the work. A bill was accordingly reported in the House of Assembly, authorizing a loan of two millions to be advanced, in four successive instalments of \$500,000 each, ac-

ording to the progress of the work, and to be secured, together with the payment of the interest thereon half yearly, by a mortgage on the whole Road—to which an amendment was proposed, requiring the Company, with their own means, to finish the entire section of one hundred and forty-five miles between the Delaware and Hudson Canal and Binghamton, before receiving the first instalment of the loan. While the bill was pending in the Assembly, the Common Council of the City of New-York, in view of the public importance of the proposed measure, after a full and elaborate examination of the subject, and a report setting forth the pressing necessity of completing the Road without delay, by a unanimous vote in both their branches, directed the Mayor to petition the Legislature, in the name of the city, for the passage of the bill. A similar memorial was presented by the municipal authorities of the city of Brooklyn, accompanied by innumerable petitions from the population of the long line of southern and middle counties interested in the work. The merits of the measure were ably and zealously advocated by the members from those counties—and by a portion of the representatives of this city:—but it encountered such an array of opposition, arising principally from the Canal counties, that after an animated and interesting debate of three weeks, it was defeated in the Assembly by a majority of two votes.

Immediately after the defeat of their application to the Legislature, the Board of Directors appealed to the enlightened self-interest and public spirit of the inhabitants of the city of New-York and the counties along the line, for such further subscriptions to the stock of the Company, as should secure, beyond doubt, the ultimate completion of the enterprise. They were so far successful, that 13,821 shares of one hundred dollars each, (in addition to the 10,000 taken in 1833,) were subscribed to the capital, virtually placing at the disposal of the Board the aggregate amount of \$2,382,100. In the judgment of the Directors, the subscription of that sum has insured the accomplishment of the whole work, inasmuch as it will enable the Company to finish a section of the Road sufficiently extensive to become profitable to the stockholders, and by that demonstration will afford the means of securing the funds requisite to complete the residue.

In truth, the final accomplishment of this enterprise has become a question only of time, and it will be for the community to decide how long they will choose to suffer the inconveniences which may arise from the more tardy execution of the work. The strong manifestations of public sentiment, since the adjournment of the Legislature, afford good reason to believe that the unanimous wishes of the people throughout the extensive portion of the State to be benefitted by the Road, must ultimately prevail, and that a future Legislature will deem it proper and patriotic to facilitate its speedy completion.

The proceedings of the large and respectable Convention of Delegates from the southern and middle counties, recently held at Owego, and their spirited appeal to the people of the State, manifest in a very gratifying manner, the determination of the inhabitants of those important and populous districts to sustain the efforts of the

* The thanks of the community, in this respect, are particularly due to Messrs. Roosevelt, Wetmore, and Hall.

Company, and exhibit, moreover, decisive evidence that several of the largest counties, which opposed the project through their representatives in the last Legislature, are now to be found among its most determined supporters.

Flattering, however, as the prospects of the Company may be deemed, and highly as they appreciate the generous support which they have uniformly experienced from the people of the southern counties, the Board of Directors are nevertheless bound, in prudence, not to hazard the success of the work by anticipating aid from the State, or by entering on any expenditures beyond the means actually within their reach.

The capital stock of \$2,382,100, already secured, will enable the Company to put under contract and complete at least two hundred miles of the Road; and the only duty occasioning any embarrassment is to select that portion which will most probably yield the largest immediate revenue, and thereby afford the surest basis for extending the credit and increasing the available means of the Company.

In April last, the Board of Directors appointed *Remond Wright*, Chief Engineer of the Company, and *James Seymour*, who had been one of his principal assistants in conducting the State survey, Division Engineer of the Eastern Division of the Road, embracing the counties of Rockland, Orange, Sullivan, Delaware, and part of Broome.

They have also appointed *David Ruggles*, of Orange county, their General Agent, to render such services as might be required in obtaining cessions of lands necessary for the purposes of the Company, and to discharge such other active duties in aiding the progress of the work, as should be assigned to him.

The first instalment paid in upon the 23,821 shares, amounting to \$129,105, has been deposited, temporarily, on interest, in the Phenix Bank, and other moneyed institutions in this city; out of which the Board have expended, up to the present date, \$27,351 42, principally in the expenses of Engineer Department.

The only salaried officers in the employ of the Company, are the Chief Engineer and his subordinates, the Secretary, the General Agent, and a Clerk.

The corps of Engineers, as arranged by the Chief Engineer, has been generally divided into seven, and sometimes into nine distinct parties, and diligently occupied, up to the present time, in revising and improving various parts of the line on the Eastern Division. The Report made by Judge Wright to the Legislature, adverted to the probability of shortening the line and diminishing the expense, by more minute exploration of the country. The result has realized his expectations. It is already discovered that the line between the Hudson River and Binghamton may be shortened several miles, without any material increase of expense or alteration of the grades.

In view of the public character of the work and the general accommodation of the country, and for the purpose, also, of affording satisfaction, as far as possible, to the inhabitants of the counties traversed by the route, the Directors have deemed it their duty to direct the Chief Engineer to explore every line which there could be any reasonable probability of adoption. By the last monthly report of the Engineer of the Eastern Division, it appears, that since the 1st of May last, 580 miles of line have been carefully run by the parties, under his

direction. This minuteness of examination has, however, operated to delay the Chief Engineer in making a final selection of as much of the route as the Board could have wished. The route of forty miles of the line along the Delaware, where only one of the banks of that river lies within the boundaries of this State, is, however, so far fixed by nature, that it may be definitely adopted without further delay, and the Directors have therefore ordered this section extending from Deposit down the Delaware to the mouth of the Callikoon, to be advertised for contract. The notices will expire on the 5th of November next, and although it is not improbable that the present high price of labor and provisions may affect the lettings somewhat unfavorably, the Board nevertheless believe that the whole of the graduation will be put under contract at a price below the original estimate.

By the last monthly report of the General Agent, it appears, that of the land necessary for the Road in this section of forty miles, upwards of thirty miles has already been gratuitously ceded, and that the residue will probably be obtained without any serious difficulty or delay.

With the exception of the section embracing the Shawangunk Ridge, the graduation of the forty miles now advertised, presents the portion comparatively the most expensive of the whole line, (exceeding according to Judge Wright's estimate, \$9,500 per mile), but, for that very reason, the Directors have felt the more willing to select it as the section first to be constructed, in order to encounter at once what are supposed to be the difficulties of the work, and also to test, by actual experiment, the question of its feasibility.

Whether it shall be deemed expedient, after obtaining the results of the revisory surveys now in progress, to select, as the portion of the Road on which the present capital is to be expended, the section of one hundred and sixty-six miles, extending from the Delaware and Hudson Canal (at Deerpark) to Owego, estimated at \$1,780,090,—or the section of one hundred and eighty-seven miles, from the Hudson River to Bettsburgh, on the Susquehanna River, estimated at \$2,292,303,—the forty miles now advertised, will, in either event, constitute a part of the portion thus to be selected.

The completion of either of those valuable divisions of the work will become eminently beneficial to the Company. A Railroad leading from the Hudson to the Susquehanna, will open into a very extensive grazing district, and if continued, as proposed, by the lateral Railroad from Bettsburgh to Utica, will establish, at once, a winter communication between this city and the heart of the interior:—while, on the other hand, by completing a continuous line of the Road from the Delaware and Hudson Canal to Owego, and thence by means of the latter Railroad to Ithaca, a very important channel of transportation will be opened to that Canal, from the fertile and populous districts adjacent to the inland Lakes of this State and the western tributaries of the Susquehanna, affording, also, the means of transporting passengers from the interior to a point, distant less than thirty-five miles from the Hudson River. The necessities of the community, and the certain prospect of a rapid increase of revenue, could not fail to insure the speedy extension of the line, either from Bettsburgh, westwardly, in the one case, or from the Canal eastwardly in the other.

The completion of the work from the

Hudson River to Owego, desirable as it may be deemed, sinks, however, into comparative insignificance, when compared with the importance of extending the line still further westwardly to the Alleghany River. After an attentive examination of the capabilities of that most valuable water-course, made by a Committee of the Board during the present season, and the remarkable facilities it presents for cheap, rapid, direct, safe, and early communication between the city of New-York and the great valleys of the Ohio and Mississippi, the Directors have become firmly persuaded that it is an object, if possible, of more consequence to the mercantile community that the Railroad should reach the Alleghany River, than Lake Erie itself. They have ascertained, that the descending navigation of that stream is available throughout the months of March and April, and frequently during the whole of May:—that, during that season, its channel is wide and spacious, sufficiently deep and free from rocks, bars, or any other impediment:—that merchandise placed on its banks as early as the 1st of March, may be delivered in four days thereafter at Pittsburgh, (for a price not exceeding fifteen cents per hundred,) and thence distributed throughout the populous communities along the Ohio River, at the opening of navigation;—that the merchants of New-York will thereby obtain direct and early access to consumers, nearly three times as numerous as the whole population around the Upper Lakes;—that these immense advantages may be obtained without any alteration or improvement in the natural condition of the stream, and merely by extending a Railroad to its banks from the Hudson;—and finally, that active measures are now in progress in the western portion of Pennsylvania, for the purpose of improving, still further, the navigable facilities of the River, whereby an uninterrupted channel of trade, both ascending and descending, will be opened between Pittsburgh and the interior of this State, during at least eight months of the year.

The completion of the Railroad from the city of New-York to the Alleghany River, is the only mode in which the vigorous efforts of Pennsylvania to secure to her own metropolis the trade of the West, can be effectually counteracted. Not content with establishing the line of communication between Philadelphia and Pittsburgh, and thereby controlling the commerce of the Ohio River, the enterprising citizens of that State are now constructing a Canal in the valley of the Mahoning, extending from a point near Pittsburgh, northwesterly, across the State of Ohio, and reaching the Ohio Canal, in the vicinity of Cleveland, on Lake Erie;—and it is the avowed object of that measure, to attract to Philadelphia the whole of the early trade of the Upper Lakes, and thus cut off from the City of New-York one of the most important branches of inland commerce, by which it has been hitherto supported and enriched. The pressing and urgent necessity of effecting a connection, as soon as possible, between the Hudson River and the Alleghany, in order to save this branch of our trade, will therefore be obvious: for if the merchandise of New-York can reach Pittsburgh as soon as that of Philadelphia, the Mahoning Canal will be open alike to both, and so far from affording any preference, in point of time, to either of the competitors, will operate only to expedite the transmission, in the spring, of merchandise from New-York destined for the regions around the Upper Lakes. The spirited exertions, which the mer-

chants and Board of Trade of Philadelphia have used to hasten the construction of the Mahoning Canal, will, however, insure its completion three or four years sooner than the New-York and Erie Railroad can be finished, from Hudson to the Alleghany, unless aid be afforded by the Legislature; and, in the mean time, a new channel of commerce will have been created, and new business relations established, between Philadelphia and the country around the Lakes, which it will be difficult to disturb, and which must operate very injuriously upon the commercial prosperity of the City of New-York.

Nor is this the only evil with which this metropolis is menaced by the superior activity and enterprise of its powerful and sagacious rival. The trade of a large and important part even of our own State, is also in danger of being diverted. The navigable rivers which drain a great portion of the southern counties, in descending to the ocean, flow through the State of Pennsylvania, and they naturally attract, in the same direction, an amount of exports, estimated to exceed 190,000 tons annually. The public men of that commonwealth, conscious of that natural advantage, have constantly sought to avail themselves of it, by improving the navigation of those rivers, and constructing Canals along their margins. In a Report made as early as 1791, by Robert Morris, the first President of the Inland Navigation Company of that State, the superior facilities presented by the Susquehanna, for securing a large share of the inland trade of New-York, were particularly dwelt upon. In 1808, under the administration of Governor Snyder, the route was surveyed from the Susquehanna to the Seneca Lake. In 1827, the Canal Commissioners of Pennsylvania, after reporting that "a large tract of country, within the State of New-York, rich in vegetable and mineral productions, and embracing a population of nearly 200,000 inhabitants, is drained by the Susquehanna and its tributaries," declare, that "to the territory thus watered, nature points out the valley of that noble river as its great highway to market." In 1831, Governor Wolf, in his annual Message, adverted to "the great superiority which the main line of their improvements possesses over the Erie Canal of New-York, by presenting an open and safe navigation from four to six weeks earlier in the spring, and from two to four weeks later in the autumn;" and further added, that the same observations would apply with equal force to a Canal or slack-water navigation, up the valuable region on the north branch of the Susquehanna, "as possessing all the advantages in regard to a more early and late navigation, and affording a vent through the Pennsylvania Canal for much of the produce of the great and productive State of New-York." In his Message of 1833, he describes the State as being "threatened on all sides to be deprived of the commerce which the God of nature seems to have destined for its use," and recommends it, "in its own defence, to force the waters of Lake Erie to mingle with those of the Alleghany: the Ohio Canal to become tributary to the improvements of Pennsylvania—and the waters of the Cayuga and Seneca Lakes to unite with those of the Susquehanna."

The vigorous measures recommended by the Governor, have been carried into execution by the Legislature of that enterprising commonwealth, as well by constructing public works of inland communication at the

expense of the State, as by patronizing, with a liberal hand, the incorporated companies who are engaged in similar enterprises within their territory. In pursuing this enlarged and comprehensive policy, having for its aim the prosperity of the whole of their people, the Legislature have not sought to confine within any particular section or favored district, the internal trade of the State. Thus the Union Canal, and the Pottsville and Danville Railroad, both of which were constructed by private companies, were calculated to divert some portion of the business, which might otherwise have been monopolized by the main line of their public Canals, and, nevertheless, the Legislature deemed it patriotic to assist both of those companies, (and also the Chesapeake and Delaware Company,) by loans of the public credit.

Having succeeded in establishing the main line of artificial communication between Philadelphia and the Ohio River, the efforts of the State are now principally aimed at opening an avenue of cheap, early, and rapid intercourse between that city and the southern counties of the State of New-York. By means of the chain of Railroads now in progress from Philadelphia up the valley of the Schuylkill,—and thence to Danville and Sunbury on the Susquehanna,—and the continuation of the line from the latter point to Williamsport, on the north-west branch of that River,—and thence into Tioga County, in the State of New-York, where it meets the Chemung Canal at the village of Elmira,—it is designed to establish a line of communication, which will bring the most valuable and populous portion of the southern counties of this State, (now distant by the circuitous route through the Erie Canal, upwards of 450 miles from the City of New-York,) within 265 miles of Philadelphia. The link of communication between Elmira and Williamsport, was supposed to be sufficiently important to the State of Pennsylvania, to become the subject of a Special Message from Governor Wolf. A Company has also been incorporated by that State, to construct a Railroad from the northwest branch of the Susquehanna, to the southern line of Steuben county, in this State; and, in order to encourage and expedite its completion, the Legislature of Pennsylvania, at its last Session, passed a law to guarantee to the Stockholders an interest on their investments, for twenty years, at the rate of five per cent. per annum.

Nor is this active and efficient policy confined to Pennsylvania. For the purpose of attracting the trade of the West through the State of Maryland, the Legislature of that Commonwealth, in March last, loaned their public credit to the Chesapeake and Ohio Canal Company for two millions of dollars, and also for one million of dollars to the Baltimore and Susquehanna Railroad Company. The State of Virginia has also appropriated several millions from her public treasury, in subscribing to the stock of the various Canal and Railroad Companies, prosecuting works of internal improvement within her territory.

It is, indeed, impossible to witness the zealous and well directed efforts of the enterprising Companies, in the neighboring States, so firmly upheld by the liberal policy of their Legislatures, and aiming at the object of diverting from the City of New-York, its lucrative commerce with the interior, without perceiving the urgent necessity of constructing, with the least practicable delay, the great avenue of commercial intercourse, now become so pres-

singly necessary, leading from this metropolis, directly through the southern counties, to the Alleghany River and Lake Erie.

The Board of Directors, upon whom has devolved the responsibility of conducting this important work, believing it to be the only mode of rescuing the interests of this City from the danger in which they are placed, and feeling that the exigency of the case demands their best efforts, pledge themselves to the Stockholders and the community, to spare no exertions on their part, to carry the enterprise steadily onward to a successful issue. They firmly believe that its pecuniary results will amply remunerate those who may devote their means to its accomplishment; and that, as a measure of improvement, calculated to augment the power and wealth, and exalt the standing of the State at large, it cannot but commend itself to all who value aright the public character. The unrivalled extent of the work, stretching from the Atlantic to the Western frontier, and yet lying wholly within the jurisdictional limits of this Commonwealth: the magnitude and grandeur of its relations and capabilities, occupying, by its singular felicity of position, the dividing ground between the trade on the North and of the South, reaching, by its tributaries, on the one hand, far into the fertile regions around the Northern and Western Lakes, and intercepting with the other, the rich streams of commercial wealth in their descent towards the Ocean, and the Gulf of Mexico: and above all, its commanding political influence, in securing within our own borders, both in peace and in war, the rapid transmission of the public mail, and of the military forces and munitions of the republic, providing at the same time for the general defence, and strengthening the bonds of the national union,—may well entitle its friends and supporters to claim, in its behalf, the favorable opinion and regard of every citizen of the State of New-York, and the countenance and aid, so far as may be necessary, of the constituted authorities.

But in any contingency, whether those who may direct the public counsels shall extend to this undertaking the patronage and support of the State, or shall deem it proper to leave the Company unaided to their own resources, such is the unshaken confidence of the Board of Directors, in the transcendent merits of the work,—its immense value,—its remarkable feasibility,—and its early and rapidly increasing productiveness, that they have no hesitation in declaring their unalterable belief, that the whole enterprise can and will be certainly, speedily and successfully accomplished, and that it will afford not only to the public, but also to the individuals who may embark their funds in the undertaking, all the benefits which have been anticipated by its most ardent friends and supporters.

By order of the Board of Directors,
JAMES G. KING, President.
New-York, September 29, 1835.

At a general meeting of the Stockholders of the New-York and Erie Railroad Company, held at their office in the City of New-York, pursuant to previous notice on the 29th day of September, 1835, Doctor Macneven was appointed Chairman, and Alderman Murray Secretary.

The Directors of the Company, being notified of the organization of the meeting, presented, through their President, James G. King, their first Annual Report.

The report being read,

It was Resolved, That the Directors be requested to cause copies of the report to be printed and circulated.

Resolved, That the thanks of the Stockholders be presented to the Directors, for their able and satisfactory report, and the attention which they have thus far directed to the interests of the Company.

Resolved, That the members who may be elected to represent this City in the next Legislature, be earnestly requested to give their zealous support to such measures as may be necessary to secure the co-operation of the State in facilitating the completion of this great work.

WILLIAM J. MACNEVEN, President.
JAMES B. MURRAY, Secretary.

At a meeting of the Stockholders of the Company, held at their office, on the 1st day of October, 1835, pursuant to public notice, the following persons were unanimously elected Directors for the ensuing year, to wit:

JAMES G. KING,
PETER G. STUYVESANT,
SAMUEL B. RUGGLES,
JOHN DEER,
JOHN G. COSTER,
STEPHEN WHITNEY,
PETER HARMONY,
J. GREEN PEARSON,
PELATIAH PERIT,
ELBERT J. ANDERSON,
MICHAEL BURNHAM,
JAMES BOORMAN,
JOHN RATHBONE, JUN.,
WILLIAM BRACH LAWRENCE, and
GEORGE GRISWOLD,
Of the City of New-York.
JEREMIAH H. PIERSON,
Of Rockland county, and
CORNELIUS W. LAWRENCE,
Mayor of the City of New-York.

And at a meeting of the Board, held on the second day of said October, they re-elected

JAMES G. KING, President.
PETER G. STUYVESANT, V. President.
And appointed
SAMUEL B. RUGGLES, Comptroller.

TALMAN J. WATERS, Secretary.

To the President and Directors of the New-York and Erie Railroad Company.

Gentlemen:—The undersigned have examined the plans and profiles of the lines surveyed for the New-York and Erie Railroad, and have also, in accordance with your wishes, visited together the point at which the Shawangunk Mountain is passed near Deerpark, and are gratified in being enabled to report an entire conformity in their views, as to the best mode of overcoming the different obstacles presented on the route.

On seven portions of the Road points of increased difficulty are presented, either in the increased amount of elevation to be overcome, or in the rate of graduation which will be requisite. They are,

1. In leaving the Hudson at Tappan.
2. In passing from the top of the Shawangunk Mountain, across the valley of the Basherkill, and up the Neversink.
3. In the valley of the Callikoon.
4. In crossing the summits between the Delaware and Susquehanna, and between the Susquehanna and Chenango.
5. In passing from the Canacadea Valley to that of the Genesee.

6. In crossing the summit between the Genesee and Alleghany.

7. In descending to Lake Erie.

Independently of the points above specified, it will be observed that a very marked difference exists in the character of the lines surveyed between the Hudson River and the Delaware at the mouth of the Callikoon Creek, and the lines traced west of this point. Some changes, attended perhaps with material improvements, will probably be made in the Eastern Division of the Road, but it is not believed by the Chief Engineer of the work, that the character of the Railroad east of the Delaware, compared with its Western Division, can be essentially changed. The graduation of the latter, except at the points above noted, will very rarely if at all exceed twenty-five feet per mile. On the Eastern Division, grades of forty-five, and perhaps fifty feet must, in some cases, be admitted. On the Western Division, the radius of curvature will but rarely be less than two thousand feet. On the Eastern, it will often be from seven to nine hundred, and sometimes as short as six hundred.

It seems, under the circumstances, necessarily to follow, that the same description of engines can scarcely be expedient throughout the whole extent of the Railroad; that, whatever may be the load of a locomotive which it may be most judicious to look forward to, an engine of higher power will be required for its transportation east of the mouth of the Callikoon, than will be necessary west of it; and, as a consequence, that, whatever kind of superstructure may be adopted on the Western portion of the Railroad, one adapted to the use of engines of a higher class, will be advisable on the Eastern.

The undersigned, after a careful consideration of the subject, would recommend for the portion of the Railroad west of the mouth of the Callikoon, as being sufficient, and more economical than any other, a superstructure of wood and iron, consisting as usual of the cross-sill, the longitudinal wooden rail, and the plate rail, and framed in the usual manner by notches and keys. Such a superstructure, for a single track, executed in a superior manner, would cost about THREE THOUSAND DOLLARS PER MILE, and would admit of the use of locomotive engines of six tons weight, and capable of drawing on the level parts of the Road, loads of sixty tons, at the rate of seventeen miles per hour; or on grades of twenty-five feet per mile, the same loads at a speed of seven or eight miles.

To transport such loads, at a somewhat diminished speed, on the steeper portions of the Eastern Division, would require engines of eight tons, and this weight of locomotive the undersigned deem it most expedient to employ on this portion of the Railroad. To sustain the action of such a locomotive, the plate rail does not appear to be adequate. It will be more judiciously determined after the definitive location of the Railroad, what form of bar, and what mode of securing it, will be best adapted to the character of the road-way which may be obtained. It will be sufficient at this time to say, that the malleable bar or edge rail will be requisite between the mouth of the Callikoon and the Hudson. If, on a definitive location, the line between these points should be materially relieved as to curvature, a rail nearly similar in its section to that on the Camden and Amboy Railroad, but weighing about fifty pounds to the yard, it probably be most expedient. If not, it

will be advisable to adopt, at least on the curved parts of the Road, a rail of such form as may be more easily and accurately sprung into the curves adopted at different points on the road-way.

It has been deemed thus far necessary to explain the views of the undersigned, as to the weight and power of the engines which they would recommend on the Eastern and Western portions of the Road, before entering on the subject of the increased power requisite at the points they have specified. Their views on this subject they will now briefly explain.

On a line of Railroad, as long as that committed to the Board, it will be expedient to contemplate at any rate, several changes of locomotives. Even if a single engine could generally be relied on the whole distance from Hudson to Erie, still it would be advisable to provide for accidents; and it will probably prove more economical to change engines, and make the necessary repairs, before the wear and tear of the engine shall have progressed very far, than to reserve them entirely for workshops at the two extremes of the Road.

This being the case, it is obvious that whenever the stations at which engines would be changed, can be placed near the points at which extra power will be requisite, such power may be supplied more cheaply and conveniently than under any other circumstances. It will only be necessary to reduce the graduation at such points *within the scope of two engines*, and to make use of the engine which is relieved to assist that which is substituted for it, in overcoming the difficulty, and we have at once an extra power provided, which is always in readiness at the very moment when it is wanted, and which costs nothing except during the period it is employed.

For the 3d, 5th, and 6th cases above specified, it appears to us that no better expedient can be presented to the consideration of the Board than that above suggested. Stations being placed at or near the mouth of the Callikoon, in the neighborhood of Hornellsville, and at the commencement of the ascending graduation towards the summit, between the Genesee and Alleghany, it is proposed to change the engine at these points, and (whenever the load may not be so light as to render it unnecessary) to make use of the locomotive which is relieved, to assist in overcoming the increased ascent to be encountered.

At the Hudson (case No. 1) there would of course be a station, and probably at this point the principal workshop of the Company, so that whenever an additional engine was wanted in leaving the Hudson, it could be supplied without difficulty. It may be proper to remark, however, that in this case also, the principle above referred to for cases 3, 5, and 6, may be brought into play. If the train coming east should arrive at the Hudson a short time before the departure of that going west, the engine conveying it may be used before going into the workshop or engine-house, to assist the train going west, over the difficulty presented by the graduation at the commencement of its journey. A similar difficulty is now met in the manner suggested, on the Petersburg Railroad, in Virginia.—At the point of commencement of that Railroad at Petersburg, the ascent is for about two miles, at the rate of fifty feet per mile, whilst on the remainder of the Road, the ascent in no case exceeds thirty feet. The increased rate of ascent at this point, of course, often renders necessary additional power, and this is afforded when

wanted, by making use of the engine coming in, to assist in raising the train going out.

At case No. 4, that is, in crossing the summits between the Delaware and the Susquehanna, and Susquehanna and Chenango, auxiliary power will be requisite. By timing properly the passage of trains on this portion of the Road, a single engine which should assist alternately the trains going east and west over both summits, may in the commencement suffice.—It will be necessary, however, undoubtedly in a short time, to place auxiliary engines at the foot of the summit between the Delaware and Susquehanna, and west of that, between the Susquehanna and Chenango.

It remains to consider cases No. 2 and 7, or the passage of the Shawangunk mountain,—and the descent to Lake Erie.

Were those cases presented to the undersigned on a short line of Railroad, or were they to be treated without reference to the profile and general character of the New-York and Erie Railroad, the trade to be accommodated, and the power to be employed on it, we would unanimously recommend in each case an inclined plane. In the case however of the Shawangunk, it appears to us clear that this expedient would not be advisable. Independently of the general objections to inclined planes on a line of Railroad, on which the rapid transit of passengers and merchandize is desirable, (objections undoubtedly exaggerated in consequence of defects in arrangement and management in some of the planes now in use, but certainly to some extent well founded,) an inclined plane or planes at the point in question, *would not reach the whole difficulty*. It will be observed on reference to the profile of the line at this point, that after descending the Shawangunk, and passing the Batherskill, the line passes up the Neversink for upwards of seven miles, on a graduation averaging about fifty feet per mile; on this portion of the Road it will be important, if not indispensable, to supply some auxiliary power.

It is proposed, under these circumstances, instead of adopting an inclined plane for descending from the Shawangunk, to obtain by means of a tunnel of 900 yards, such a reduction of the elevation to be overcome, as will admit of the remainder being surmounted by a graduation not exceeding forty feet in curves, and one hundred feet per mile on the tangents of the line. On this ascent *two* of the heavy engines, which it is proposed to introduce on the Eastern Division of the Road, will ascend with the train which *one* would take over other portions of it.

By this expedient, and placing a station as in cases 3, 5, and 6, in the valley of the Batherskill, or the Neversink, the necessity of extra engines may at this point be avoided. Trains going east would change their engines at this station, and the engine relieved, instead of going at once into the engine-house or work-shop, would first assist in raising the train it had brought thus far up the Shawangunk. The same office would be performed by the engine which had brought on the train going west, up the steep graduation in the valley of the Neversink.

The descent to Lake Erie, would, on the line deemed by the Chief Engineer the most eligible of those surveyed, be effected principally by a single lift of 506 feet. Had an inclined plane or planes been found indispensable at the Shawangunk, it would not probably be advisable at this point to avoid,

by a graduation on which auxiliary power would be requisite, the plane which has been proposed. It will certainly however be a material object to get rid of the *only plane* in relation to which there appears to be a question on the proposed line of Railroad. Should it be found necessary to introduce it, either trains of cars must be divided in passing it, in which case much delay would arise, and the capability of the Railroad be seriously impaired; or, if the whole train were taken up at once, a strength and weight unnecessary on other portions of the Railroad must be given to the couplings of all the cars and carriages employed on the line, and of the locomotives and tenders which may ascend and descend the plane.

To avoid, if practicable, these inconveniences, it is recommended that farther examinations, preliminary to a location, be made between the Alleghany River and Lake Erie. If it shall result from them that a line, in other respects equal, and not exceeding in graduation fifty or sixty feet per mile, can be obtained between the summit and Lake Erie, the undersigned, under all the circumstances of the case, would deem it more advisable to adopt it, and to look to the use of auxiliary power on it, than to introduce the inclined plane which has been proposed.

A review of some of the experimental lines traced by the Chief Engineer in 1834, encourages us to believe that such a line may be practicable, and that the change of plan recommended may be attended with a reduction of distance of from eight to ten miles. If it should appear to be otherwise, or that an inclined plane or planes are unavoidable, the undersigned would then recommend, if ground suitable for the purpose can be obtained, a division of the elevation into two inclined planes. The capability of the Road would in this way be less impaired, the risk of serious accidents diminished, and the wear and tear, as well as first cost, of the rope or chain employed, materially lessened.

It will appear, on a review of what has been above stated, that *stationary power will not be requisite* on the line of the proposed improvement, unless in the neighborhood of Lake Erie, and future surveys may perhaps show that it can be dispensed with at this point;—that, by a judicious disposition of stations for changing engines, *one, or at most two, auxiliary engines only will be requisite* on the whole length of the contemplated work;—and that the load of an engine, at the rates of velocity which are purposed, (which will be equal to an *average speed* of from *twelve to fourteen miles per hour*;) will on both the Eastern and Western Divisions of the Railroad, be sixty tons gross; or, allowing thirty-three and one-third per cent. for the weight of cars, about *forty tons net*.

Should a higher velocity be deemed expedient, with a view to the better accommodation of the travel, there will be no difficulty in obtaining it, by a corresponding diminution of tonnage. Supposing a reduction of one-half in the weight of the load, or the useful effect of a locomotive, this would still be equivalent to the transportation of *two hundred passengers and their baggage*.

The above results are certainly more favorable than we should have anticipated, from the general character of the country through which the proposed improvement is to be conducted, and will probably be considered by the Board of Directors as affording additional inducements towards

the prosecution of the important work committed to their charge.

Referring for an elucidation of their views herein submitted, to the Report of the Chief Engineer of the 20th January last, and the accompanying plans and profiles,

We have the honor to be, gentlemen,
Your obedient servants,
MONCURE ROBINSON,
JONATHAN KNIGHT,
BENJAMIN WRIGHT.

New-York, September 2, 1835.

BALTIMORE AND OHIO RAILROAD.—It is gratifying to be able to state that the business of this Pioneer in the Railroad system of the United States is rapidly increasing; and that it will soon become as profitable to its Stockholders as it is now useful to the business community through which it passes.

In the 7th Annual Report it was stated that the net proceeds for the year ending October 1, 1833, was \$57,195
In the 8th, ending October 1, 1834, was \$72,574

In the 9th, as we are informed, not having yet received it, for the year ending October 1, 1835, was \$107,163

This is a regular increase, and one which will be constant—even if the Road should not be extended beyond its present termination. The progression, however, will be much more rapid when the Road shall be completed to the Ohio River—as it most surely will be. We are enabled also to state another fact which is highly creditable to the enterprising and scientific gentlemen who manage that Road. It is, that to such a degree of perfection have they brought their Machinery, especially their Locomotive Engines, that they have with a single Engine taken a load of 113 tons up a grade of 20 feet per mile at the rate of *ten miles an hour*, and not only *take it up*, but also, to take it from the *start*, on the grade, without difficulty—a performance which was not dreamed of in 1829, when the Liverpool and Manchester Company offered £500 for the most improved Locomotive of six tons weight, “which must be able to draw, day by day, on a well levelled Railway, a train of carriages of 20 tons gross weight, at the rate of *ten miles per hour*”!! Who could have imagined, with this before them, that in less than six years an Engine would be made in this country capable of taking *one hundred and thirteen tons*, at the rate of ten miles an hour, up a grade of 20 feet per mile? Such, however, is the *fact*—and we predict that it is only the *commencement* of the improvements in Railroad Machinery, which are now, *even now*, in progress in the United States.

It is indeed true that more rapid improvements have been made in this country in Railroads and Railroad Machinery, than in the country of their origin—England—and it is no less true, that Europe is now looking with much interest to this country for

improvements of this kind. Will it be presumptuous to say that we shall be able soon to give them important lessons in the science? We shall see.

IMPORTANT DECISION.—By the annexed article from the Albany Argus of yesterday, it will be seen that the mode and extent of enlarging the canal have been determined, and that the “improvement” of an existing work, is to cost at least *twelve millions of dollars*—the original work itself having cost a little over *nine millions*.

ENLARGEMENT OF THE ERIE CANAL.—The Canal Board having caused surveys and estimates to be made for the improvement of the Erie Canal, and the engineers having submitted their reports, the Board on Friday last proceeded to a final decision on the extent of the enlargement. By their resolutions, which are annexed, it will be seen that the enlarged canal is to be seven feet deep and seventy feet wide at the surface; and that the locks are to be 110 feet long between the quoin posts, and 16 feet wide in the clear. The present canal is four feet deep and forty feet wide at the surface, and the present locks are 90 feet long between the quoin posts, and 15 feet wide in the clear.

Thus, this great question has been definitely settled, after mature deliberation, and a full expression of the public sentiment in relation to it. As the work will be prosecuted chiefly during the winter months, and while the navigation is suspended, its completion cannot be expected in a less period than ten or twelve years. Then, with its increased width and depth, its walled sides, its extent, and its vast commerce, it may rank among the wonders of the age. The improvement, we understand, is estimated to cost about twelve millions of dollars. The Canal Board will proceed with the doubling of the locks, with all practicable rapidity, during the next winter.

At a meeting of the Canal Board, at the Comptroller's Office, Canal Room, October 23d, 1835—Present,

JOHN TRACY, Lieut. Gov., President,
SAMUEL YOUNG, Canal Commissioner,
WM. C. BOUCE, do.
JONAS EARLL, Jr., do.
JOHN BOWMAN, do.
A. C. FLAGG, Comptroller,
JOHN A. DIX, Secretary of State,
GREENE C. BRONSON, Attorney General,
WM. CAMPBELL, Surveyor General,
ABRAHAM KEYSER, Treasurer.

The Board having assembled pursuant to the 10th resolution adopted in July last, in relation to the enlargement of the Erie Canal, and having heard the reports of the Engineers as to the best mode of effecting the improvement, and their estimates of the cost of the contemplated works, thereupon

Resolved, That the *fifth* and *sixth* resolutions of July last be rescinded.

Resolved, That the Canal be enlarged so as to give seven feet depth of water, and in general seventy feet width of water on the surface, with a slope of two feet to one in the banks.

Resolved, That the Locks be enlarged so as to be one hundred and ten feet long between the quoin posts, and sixteen feet wide in the clear, and in other respects be adapted to the enlarged Canal.

Resolved, That whenever it shall be necessary to rebuild any of the locks, culverts, aqueducts or other works on the canal, the same be constructed on a plan adapted to the enlarged Canal.

An extract from the minutes.

G. W. NEWELL, Clerk.

AMERICAN STOCKS, Sept 24.—New York 6 per Cents. 1837, 96; do 6 per Cent. 1845, 102; do 6 per Cent. 1845, 110; Pennsylvania 5 per Cents. 1856, 101; do 5 per Cents. 1858, 102; do 5 per Cents. 1860-62, 103 1-2; Ohio 6 per Cents. 1860, 110 a 111; Louisiana Barings, 1844, do 1846, do 1850, do 1852, each 101 1-2; Louisiana Wilsaps, 1834, 1839, 1844, 1849, each 98 1-2; Jersey N. Canal, &c. Bonds, 102 1-2 a 103; Mississippi Planter's Bank, 26 2-4; Alabama 5 per Cents. 1863, 96 1-2; Indiana do 1864, 96 1-2; U. S. Bank Shares 7 per Cent. 22 7/8 6d. a 10s.; Louisiana State 9 per Cent. 25 1/2 15s.; Bank of Louisiana 8 per Cent. 26 1/2 15s.; New York Life and Trust 5 per Cent. 96 1-2 a 97.

NEW-YORK AMERICAN.

OCTOBER 24—30, 1835.

LITERARY NOTICES.

AN ESSAY ON THE RATE OF WAGES, &c. BY H. C. CAREY, 1 Vol.—Philadelphia, CAREY, LEA & BLANCHARD.—We have had this book on our table some time, but as it is not of those, which you may take up at any moment—but requires close and continued attention, we have not yet been able to speak of its merits, and only now acknowledge the receipt of it—reserving for another occasion our opinion of its value.

THE ABORIGINAL PORT FOLIO, No 5—Philadelphia, J. D. LEWIS.—We have duly noted the appearance of the preceding numbers of this work, and in announcing the fifth, have only to repeat our commendation of the design of the publication—destined as it to perpetuate both the features, and costumes, of men fast fading away. We cannot but wish however, that more skill were exercised in the drawing, which, in this number particularly, is very defective.

NORTH AMERICAN HERPETOLOGY, or a description of the reptiles inhabiting the United States, by JOHN EDWARDS HOLBROOK, M. D., Professor of Anatomy in the Medical College of South Carolina, &c. &c.; Charleston, S. C., E. J. VAN BRUNT.—This is indeed a beautiful work, and worthy of encouragement, by every lover of nature and science. The plates, as yet, are only before us, but they are admirable for truth and accuracy of delineation and coloring—and when these shall be illustrated, as they will be, by the history of each reptile, its form and habits, from the pen of Dr. Holbrook, they will constitute an American contribution to natural history, and to the fine arts, worthy to be ranked with *Wilson's* and with *Audubon's* ornithologies.

The publication will consist of four quarto volumes, to appear annually, of 200 pages each, embracing full descriptions of the organization, habits, and localities of the animals, and containing in each volume from 20 to 30 colored engravings.—The price per volume is \$10.

We are sure this work is not at all known among us—and therefore take pleasure in thus bringing it to the notice of our readers, and shall be very glad to receive subscriptions for it at this office, where the plates of vol. 1. may be seen.

SKETCHES OF HISTORY LIFE AND MANNERS IN THE WEST; by JAMES HALL, 2 vols. Philadelphia, HARRISON HALL.—The title of these volumes well describes their contents, which are of great interest—and we will venture to add—to most readers on the Atlantic of equal novelty. The early history, adventures, and struggles of the now civilized and prosperous West, are very imperfectly understood among us; and the desultory sketches which Mr. Hall has, in these volumes, given, are the more interesting, from the contrast of the actual condition of that fine region, with what it was, at the period to which the greater portion of the Sketches refer. We make an extract characteristic in all respects.

There have been many instances of individuals who, in consequence of some personal wrong, have vowed eternal enmity to the whole Indian race, and have devoted nearly all of their lives to the fulfilment of a vast scheme of vengeance. A familiar instance is before us in the life of a gentleman, who was known to the writer of this article, and whose history we have often heard repeated by those who were intimately conversant with all the events. We allude to the late Colonel John Moredock, who was a member of the territorial legislature of Illinois, a distinguished militia officer, and

a man universally known and respected by the early settlers of that region. We are surprised that the writer of a sketch of the early history of Illinois, which we published some months ago, should have omitted the name of this gentleman, and some others, who were famed for deeds of hardihood, while he has dwelt upon the actions of persons who were comparatively insignificant.

John Moredock was the son of a woman who was married several times, and was as often widowed by the tomahawk of the savage. Her husbands had been pioneers, and with them she had wandered from one territory to another, living always on the frontier. She was at last left a widow, at Vincennes, with a large family of children, and was induced to join a party about to remove to Illinois, to which region a few American families had recently removed. On the eastern side of Illinois there were no settlements of whites; on the shore of the Mississippi a few spots were occupied by the French; and it was now that our own backwoodsmen began to turn their eyes to this delightful country, and determined to settle in the vicinity of the French village. Mrs. Moredock and her friends embarked at Vincennes in boats, with the intention of descending the Wabash and Ohio rivers, and ascending the Mississippi. They proceeded in safety until they reached the Grand Tower on the Mississippi, where, owing to the difficulty of the navigation for ascending boats, it became necessary for the boatmen to land, and drag their vessels round a rocky point, which was swept by a violent current. Here a party of Indians, lying in wait, rushed upon them, and murdered the whole party.—Mrs. Moredock was among the victims, and all her children, except John, who was proceeding with another party.

John Moredock was just entering upon the verge of manhood, when he was thus left in a strange land, the sole survivor of his race. He resolved upon executing vengeance, and immediately took measures to discover the actual perpetrators of the massacre. It was ascertained that the outrage was committed by a party of twenty or thirty Indians, belonging to different tribes, who had formed themselves into a lawless predatory band. Moredock watched the motions of this band for more than a year, before any opportunity suitable for his purpose occurred. At length he learned that they were hunting on the Missouri side of the river, nearly opposite to the recent settlements of the Americans. He raised a party of young men and pursued them; but that time they escaped. Shortly after, he sought them at the head of another party, and had the good fortune to discover them one evening, on an island, whither they had retired to encamp the more securely for the night. Moredock and his friends, about equal in number to the Indians, waited until the dead of night, and then landed upon the island, turning adrift their own canoes and those of the enemy, and determined to sacrifice their own lives, or to exterminate the savage band. They were completely successful.—Three only of the Indians escaped, by throwing themselves into the river; the rest were slain, while the whites lost not a man.

But Moredock was not satisfied while one of the murderers of his mother remained. He had learned to recognize the names and persons of the three that had escaped, and these he pursued with secret, but untiring diligence, until they all fell by his own hand. Nor was he yet satisfied. He had now become a hunter and a warrior. He was a square-built, muscular man, of remarkable strength and activity. In athletic sports he had few equals; few men would willingly have encountered him in single combat. He was a man of determined courage, and great coolness and steadiness of purpose. He was expert in the use of the rifle and other weapons; and was complete master of those wonderful and numberless expedients by which the woodsman subsists in the forest, pursues the footsteps of an enemy with unerring sagacity, or conceals himself and his design from the discovery of a watchful foe. He had resolved never to spare an Indian, and though he made no boast of this determination, and seldom avowed it, it became the ruling passion of his life. He thought it praiseworthy to kill an Indian; and would roam through the forest silently and alone, for days and weeks, with this single purpose. A solitary red man, who was so unfortunate as to meet him in the woods, was sure to become his victim; if he encountered a party of the enemy, he would either secretly pursue their footsteps until an opportunity for striking

a blow occurred, or, if discovered, would elude them by his superior skill. He died about four years ago, an old man, and it is supposed never in his life failed to embrace an opportunity to kill a savage.

The reader must not infer, from this description, that Colonel Moredock was unsocial, ferocious, or by nature cruel. On the contrary, he was a man of warm feelings, and excellent disposition. At home he was like other men, conducting a large farm with industry and success, and gaining the good will of all his neighbors by his peculiar manners and benevolent deportment. He was cheerful, convivial, and hospitable; and no man in the territory was more generally known, or more universally respected. He was an officer in the ranging service during the war of 1813—14, and acquitted himself with credit; and was afterwards elected to the command of the militia of his county, at a time when such an office was honorable because it imposed responsibility, and required the exertion of military skill. Colonel Moredock was a member of the legislative council of the territory of Illinois, and at the formation of the State government, was spoken of as a candidate for the office of governor, but refused to permit his name to be used.

YARROW REVISITED, AND OTHER POEMS; by WILLIAM WORDSWORTH; 1 vol. New York, R. BARTLET & S. RAYNOR.—The Poet gives life and interest to all he touches, and hence even these poems of Wordsworth, which for the most part, are local in their subjects, are yet universal in attraction, by the inspiration with which they are touched. We select one, from the "Evening Voluntaries":

Not in the lucid intervals of life
That comes but as a curse to party-scribs;
Not in some hour when pleasure with a sigh
Of languor, puts his rosy garland by;
Not in the breathing-times of that poor slave
Who daily piles up wealth in Mammon's cave,
Is nature felt, or can be; nor do words,
Which practised talent readily affords,
Prove that her hand has touched responsive chords,
Nor has her gentle beauty power to move
With genuine rapture and with fervent love
The soul of genius, if he dares to take
Life's rule from passion, craved for passion's sake;
Untaught that mockness, is the cherished bent
Of all the truly great, and all the innocent.
But who is innocent? By grace divine,
Not otherwise, O nature! we are thine,
Through good and evil thine, in just decree
Of rational and manly sympathy.
To all that earth from pensive hearts is stealing,
And Heaven is now to gladdened eyes revealing,
Add every charm the Universe can show,
Through every change its aspects undergo,
Care may be respited, but not repealed;
No perfect cure grows on that bounded field,
Vain is the pleasure, a false calm the peace,
If he, through whom alone our conflicts cease,
Our virtuous hopes without relapse advance,
Come not to speed the soul's deliverance;
To the distempered intellect refuse
His gracious help, or give what we abuse.

SECRET COUNSELS OF THE SOCIETY OF JESUS IN LATIN AND ENGLISH, to which is prefixed a discourse on the authenticity of the work by ROBT. J. BRECKENRIDGE. 2nd American edition. Baltimore, J. COALE & Co. The Rev. Mr. Breckenridge is a man of talents and of high character. His object in ushering before the public this very curious pamphlet, with his sanction for its authenticity, is to put the people of America on their guard against the principles which, even in Europe, have banished the *Jesuits* from every nation. It is a strange and awful record, if true, or any thing like true, and if false or interpolated, it should be shown to be so. It is dedicated—as a sort of defiance we presume—to the Catholic Archbishop of Baltimore, who is called upon as a "gentleman, a scholar, and a Christian" to refute it, if false, or to admit its authenticity, if true.

THE LIFE OF ADMIRAL VISCOUNT ERMOUTH, by EDWARD OSLER, Esq., 1 Vol.—London, SMITH, ELDER & Co.—New-York, WM. JACKSON.—The lives of great commanders, whatever their nation, have a charm for most readers, and particularly for young ones. That of the gallant conqueror of Algiers, will not be found to lack the accustomed interest. It is a narrative of steady application to

his profession, ardent zeal, and deserved success. It is truly characterized by one of his own sayings.

"I have never known what fortune meant. I never chose my station, and never had a friend but the king's pennant; but I have always gone where I was sent, and done what I was ordered; and he who will act upon the same principles, may do as I have done."

THE KNICKERBOCKER for October; New York, WILEY & LONG.—Though late in the field, this month, this number is welcome, for many merits. It has indeed exceedingly clever papers on several subjects; from one of which, "an old man's Records," we make a striking extract, conveying a true story.

The first execution that I ever witnessed, was in London. I was also, by accident, a spectator of the dreadful deed which brought the wretched criminal to the gallows. I proceed to give a description of both the culprit and his act; of the causes which made him the former, and brought about the latter. All the scenes of this extraordinary and romantic catastrophe arise to my mind as vividly as if they had happened but yesterday.

On the evening of the seventh of April, 1779, I left my lodgings in the Strand, at an early hour, for Covent Garden Theatre. The house was filling, as I sought my box. The play was *Love in a Village*, and the cast for the night embraced some of the then most popular performers of the day.—There was a continual influx of beauty and fashion, until the dress circles assumed an appearance of absolute splendor. Plumes waved; jewelled hands lifted the golden-bound glass to the voluptuous eye; and all the pomp and circumstance of a brilliant auditory garnished the scene. One "taken" box still remained without its occupants; but at the close of the first act, they entered. A middle aged, but fine-featured and cheerful-looking gentleman, with an Irish physiognomy, handed into her place a lady of such surpassing loveliness, that,—the first glance being taken,—I could scarcely withdraw from her the patronage of my eye. She was dressed in the magnificent fashion of her time; her hair parting off from her temples and forehead like a wave, and falling in two large masses on either side of her polished neck. Her brow was high and clear; her eyes of heaven's own azure; her nose had the fair lines and nostril-curve of Greece; her cheeks and chin softly dimpled, and her ruby lips wearing "a smile, the sweetest that ever was seen." The dazzling creature took her place and adjusted her scarf with inimitable gracefulness. Her dress I well remember was in the height of taste; the white lace ruffles of her short sleeves terminating at the elbows, and showing the perfect symmetry of her hand and arm, as she plied her pretty fan, or peered through her glass at the *Pride of the Village*. I was quite overcome with admiration.

"Pray who can that be?" said I to a friend.

"What a question?" was the reply. "How ignorant you are! Not to know her argues yourself unknown. That is the splendid Miss REAY—the fair friend of Lord Sandwich, who is her protector. He has given her the protection that vultures give to lambs. She has borne him two or three lovely, cherub-like children. He is twice her senior in years,—has robbed her of her best treasure,—and it is strongly whispered that she loves him not. When in public, as at present, she is usually without him."

I did not prolong my inquiries, for the lady herself attracted my sole attention, to the utter disregard of the play. As I was gazing in that direction, I saw a person standing at the door of a box, near by, whom at the first glance I took for a maniac. His eyes glared with unsettled wildness; his pace was pale as death, and the damp hair hung in heavy threads over his forehead. He was looking at Miss Reay with an expression in which love and hate seemed to struggle for empire. He was well sized, handsome, and of goodly presence. He was dressed in black. I never beheld a countenance in which so much mental excitement was depicted. His lived lip moved as if in a kind of prayer: he would sometimes press his hand against his forehead or his heart; and finally, after a long and lingering look at the lady I have mentioned, raised his handkerchief hurriedly to his eyes, and disappeared.

I never remember to have passed an evening in

such perfect abstraction as this. The intoxication of beauty overpowered me; and so rapt had been my attention, that I scarcely knew when the play was over. I hurried out as soon as the curtain fell, and stepping to the Piazza, waited to see the fair creature enter her carriage. She passed by me, with her attendant, his epaulettes glittering in the lamp-light. A kind of enchantment possessed me, and a foreboding that some doleful disaster was about to happen. I was moving onward, and stood within a few feet of the lady, when I heard the loud and stunning report of a heavily charged pistol.—Another followed—and shrieks and groans resounded along the arches. I rushed towards the spot whence the deadly sounds proceeded, and found the brilliant being whom I have described, weltering in blood. The ball had entered her fair forehead, and her vestments were deluged with gore. The sight was horrid beyond description. She was perfectly dead. I penetrated the crowd that had surrounded the murderer. It was the same person that I had noticed in the theatre, and whose looks were so desperate. His face was white as snow; his eyes dilated, and his lips compressed; but his demeanor evinced a kind of peaceful tranquility, or dead stupor; the awful calm that follows a tempest of passion. The blood, and even portions of the brain of his victim were on his sleeve. Never shall I forget the terror of that scene! He had attempted immediately after killing Miss Reay, to destroy his own life; but his murderous weapon failed in its effect, and he stood mute before the multitude a personification of immovable Horror.

I returned to my lodgings, but sleep fled from my eye-lids. The excitement of fixed attention during the evening, and the awful catastrophe I had witnessed, left me in a state of dread, and nervous feeling. If I slumbered, my slumbers were not sleep, but a continuance of melancholy scenes and impressions.

The next day, all the events which led to the deplorable deed I had witnessed, were brought to light. The murderer was a young clergyman, named *James Hackman*. He was formerly an officer in one of the British regiments; and being invited on one occasion to dine with Lord Sandwich at Hinchbrook House, he met Miss Reay, and soon became so desperately enamored of her as to weaken his health. He finally,—more probably for the purpose of being near the object of his love, than for any other cause,—left the army, took holy orders, and obtained the living of Wiverton in Norfolk.

Perhaps a more affecting and melancholy termination of unlawful love never occurred than this. Miss Reay had little or no affection for the nobleman who had so foully wronged her; and the first object of her passion was undoubtedly the young military clergyman. In the course of time he completely won her heart, and alienated her regard, if any she had, entirely from her first lord. He ultimately removed to Ireland; and on his return found the heart of his versatile mistress changed forever, and in favor of a third admirer. While, however, in the mutual "tempest, torrent, and whirlwind of their passion,"—while he was in the constant course of dishonoring the man whose hospitality he had so often enjoyed, (if dishonor it may be called, under the circumstances,) the epistles which the parties addressed to each other, breathe the very soul of feeling. Never, perhaps, was there a more awful exemplification, than in the case of these short-lived lovers, of the truth of Shakespeare's lines:

"These violent delights have violent ends,
And in their sweetness die."

During the lover's sojourn in Ireland, he wrote to his mistress, and in doing so, spoke unwittingly of pleasant female acquaintances that he had formed in that kingdom. This, I have reason to believe, was the first impulse to her estrangement. Her previous letters to him had been overflowing with affectionate sentiments. In one of them, speaking of her devotion, she says,—"I could die, cheerfully, by your hand,—I know I could." The letter to which I have just alluded, however, provoked the following reply:

England, 25th June, 1776.

"To Mr. —. Let me give you joy of having found such kind and agreeable friends in a strange land. This account you gave me of the lady quite charmed me. Neither am I without my friends. A lady from whom I have received particular favors, is uncommonly kind to me. For the credit of your side of the water, she is an Irish woman.

Her agreeable husband, by his beauty and accomplishments, does credit to this country. Life is remarkable, also, for his feelings.

"Adieu! This will affect you, I dare say, in the same manner that your account affected me."

This letter, with others that followed it, soon brought Mr Hackman to London. He lodged, on his return, in Cannon's Court, and addressed an immediate letter to his mistress. The answer returned, purported to come from a female servant, writing by the sick bed of her lady, and at her dictation. The epistle was humbly written, and filled with prevarication and cold compliments. By degrees, the melancholy truth of the lady's estrangement was established. Proof of the most positive description was furnished. It drove the lover to despair—and he resolved on self-destruction. Information having been communicated to him at his parsonage at Norfolk, (whither before the full proof of his suspicions he had retired,) calculated to awaken every dark surmise, he hastened to London, where every thing was confirmed. In his first tumultuous resolve for self murder, he expressed his fears in a letter to a friend as follows: "My passions are blood-hounds, and will inevitably tear me to pieces. The hand of nature has heaped up every species of combustible in my bosom. The torch of love has set the heap on fire, and I must perish in the flames. And who is he will answer for passions such as mine? At present, I am innocent." His last letter before committing the deed for which he suffered an ignominious death, was addressed to a friend, and couched in the following terms:

7th April, 1779.—"To Mr. B——, My dear F——. When this reaches you, I shall be no more—but do not let my unhappy fate distress you too much. I strove against it as long as possible, but it now overpowers me. You know where my affections were placed; my having by some means or other lost her's, (an idea which I could not support,) has driven me to madness.—God bless you, my dear F——. Would I had a sum of money to leave you, to convince you of my great regard! May heaven protect my beloved woman, and forgive the act which alone could relieve me from a world of misery I have long endured! Oh! should it be in your power to do her an act of friendship, remember your faithful friend,
J. H."

In the afternoon of the day on which the preceding letter was written, Mr. Hackman took a walk to the Admiralty, from his lodgings in St. Martin's Lane, probably to take a last view of worldly objects, ere he plunged into the great gulf of Eternity. Near the Admiralty, he saw Miss Reay pass in a coach, with Signora Gialli, an attendant. He rushed into the Theatre, in the desperate condition I have before described; and unable to control his thick-coming and bitter thoughts, returned to his lodgings, where he procured and loaded the pistols, with one of which he committed his dreadful crime. In his attempt to kill himself after Miss Reay, he was severely wounded. Mr. McNamara, a gentleman who was assisting the lady into the coach, was so covered with blood, and filled with horror, that he was seized with violent sickness.—The mangled remains of the "Beauty once admired," were conveyed to the Shakespeare tavern, near the theatre, to await the coroner's inquest.

The unhappy clergyman was conveyed to Newgate, whence he addressed the ensuing note to a friend:—

8th April, 1779.—To CHARLES —, Esq. I am alive, and she is dead. I shot her and not myself. Some of her blood is still upon my clothes. I don't ask you to speak to me. I don't ask you to look at me. Only come hither, and bring me a little poison; such as is strong enough. Upon my knees I beg, if your friendship for me ever was sincere, do, do bring me some poison!"

This was not furnished him—and his trial soon came on. I was present. The prisoner sat with his white handkerchief at his cheek, his head resting languidly on his hand. His face wore the gloomy pallor of the grave. The plea of insanity, put in by his counsel, did not avail. When he rose to offer his defence, many an eye glistened with the tears of pity. His words, hollow and sepulchral in their sound, seemed to come forth without their breath from his livid lips; while a large dark spot on his forehead seemed like a supernatural seal of ruin. His defence was brief, clear, and pointed. In the course of it he said: "I stand here this day the most wretched of human beings; but I protest, with that regard to truth which becomes my situa-

tion, that the will to destroy her who was ever dearer to me than life, was never mine, until a momentary frenzy overcame me, and led me to the deed I now deplore. Before this dreadful act, I trust nothing will be found in the tenor of my life, which the common charity of mankind will not excuse. *I have no wish to avoid my punishment.*" This state of mind prevailed to the last. He hungered and thirsted for death. Lord Sandwich addressed him, anonymously, the note subjoined, to which I annex the reply:

"17th April, '79.—To Mr. Hackman, in Newgate: If the murderer of Miss — wishes to live, the man he has most injured will use all his interest to procure his life."

"The Condemned Cell in Newgate, Saturday Night, 17th April, 1779.—The murderer of her whom he preferred, far preferred to life, suspects the hand from which he has just received such an offer as he neither desires nor desows. His wishes are for death, not for life. One wish he has: Could he be pardoned in this world by the man he has most injured? Oh my Lord, when I meet her in another world, enable me to tell her, (if departed spirits are not ignorant of earthly things,) that you forgive us both, and that you will be a father to her dear infants! J. R."

The rest of his time was passed in a state of mind almost too horrible to relate. Among his writings, were such records as these: "Since I wrote my last, I caught myself marching up and down my cell, with the step of haughtiness; hugging myself in my two arms, and muttering between my grating teeth—*what a complete wretch I am!* The clock has just struck eleven. The gloominess of my favorite Young's Night Thoughts, which was always so congenial to my soul, would have been still heightened, had he ever been wretched enough to hear St. Paul's clock thunder through the still ear of night, in the condemned walls of Newgate. The sound is truly solemn—it seems the sound of death. Oh that it were death's sound! How greedily would my impatient ears devour it! And yet, but one day more. Perturbed spirit!—rest till then!"

His dreams were tumultuous and dismal. In one vision, he saw himself in perdition, and having a distant view of Heaven, beheld his adored mistress walking with angels, and looking down with a look of peace and joy upon his miseries. She did not seem to know of them. "I could not go to her, nor could she come to me: nor did she wish it—there was the curse! Oh, how I rejoiced, how I wept and sobbed with joy, when I awoke and found myself in the condemned cell of Newgate!"

He met his fate at the scaffold with the firmness of despair. Only two or three years before, the criminal had attended the execution of the celebrated Dr. Dodd. I employ his very description of that scene, as a complete simile of that which attended his own death, as witnessed by me; and with it, close the melancholy tale: "At last arrived the fatal moment. The driving away of the cart was accompanied by a noise which best explained the feelings of the spectators for the sufferer. Did you never observe, at the sight or the relation of any thing shocking, that you closed your teeth hard, and drew in your breath hard through them, to make a sort of hissing sound? This was done so universally at the fatal moment, that I am persuaded the noise must have been heard at a considerable distance. For my own part, I detected myself, in a certain manner, accompanying his body with my own."

His agony was soon over, and his cold form conveyed to its last couch of silence and oblivion.

FABULAS EN VERSO CASTELLANO, par Don F. M. SAMANIEGO. New York.

DIOS ES EL AMOR MAS PURO, por ECKARTSHAUSEN. 9 Edicion. New York.

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All these school books, destined for the use of young persons learning Spanish and French, are from the press of Charles De Behr, of this city.—They are unexceptionable in character, and cheap in price.

THE PENNY CYCLOPEDIA, Vol 2—AN to AT—London, CHAS. KNIGHT—New-York, Wm. JACKSON.—This second volume of this cheap and comprehensive Cyclopaedia, is just completed, and commends itself in that shape to general circulation.

EUROPEAN INTELLIGENCE.

LATER FROM EUROPE.—By the packet ship *Independence*, from Liverpool, we have our London files to the 26th ult.

English and French affairs, in the absence of the Legislative bodies of the two countries, both of which adjourned some time ago, are of little general interest. The Spanish quarrel now is the chief subject. A rumored worsening of the British auxiliaries—of which we had some pretended details by the way of *Havre* yesterday, turns out to be unfounded—as by our extract from Bayonne will be seen.

The French government have, it is confidently said, given assurances to the Spanish Cabinet that "in no event should a French army cross the Pyrenees."

The Paris dates are of the 24th. *Pepin* the reported accomplice of *Fieschi*, had been arrested anew.

Lord Durham, in the *Barham* frigate, arrived on the 2d in the outer harbor of Constantinople.

The *Toronto*, Capt. Griswold, which sailed hence on 2nd September, arrived in the Downs on the 19th.

The *Caledonia*, in which ship *Bowen*, of Custom House notoriety, was a passenger, had arrived.—Nothing of the pilot boat.

The morning Herald of 25th inst. has this paragraph.

The following is the postscript of our Paris letter, dated, "a quarter to Four o'clock, Wednesday, 23d.

"There are recent letters, in town, from Kalisch, which speak of the rise, at the sham fight in the early part of the month, as serious, and of the probability that the manœuvres would, in consequence, be curtailed. You will have observed that the Emperor Nicholas had arrived thither by Danzig, instead of Riga, as he had at first intended. The reason of this alteration of the intended route was the existence of a band of Polish outlaws in the woods near Riga. It no longer remains, however, for a *battu* having been ordered and made, the band was dispersed or hunted down. Its chief was arrested.

The population of Spain is 10,609,000 inhabitants. It is calculated that the provinces which have declared in favor of the Constitution have 7,986,000 inhabitants. If we add to these the 552,000 of the Biscayan provinces and Navarre, which have declared for Don Carlos, we shall find that the Queen's Government is supported by only 2,920,000 inhabitants out of the 10,609,000.—[French paper.]

The latest accounts from Milan, of the 5th, say that the Cholera had approached within a few miles of Milan. The Archduke Viceroy had declared his intention, as soon as a case of cholera should occur in Milan, to leave the Palace of Monza, and go to the capital. This resolution of the Prince, who is the father of a family, had made made a great impression in the city.

M. Pepin was arrested yesterday morning.—After a long search, the authorities succeeded in discovering that he had taken refuge at Magny, near Meaux, in the house of a farmer of that village. On Monday evening several police officers

were sent there from Paris, and at 4 o'clock yesterday morning the farm house was completely surrounded. Awakened by the noise, M. Pepin rose hastily, and was found only half dressed, in a back closet. He was immediately put into a post-chaise, and brought to Paris under a strong escort, and at two o'clock was locked up at the Conciergerie.

The *Sentinelle des Pyrénées* of the 19th instant, contradicts its preceding accounts of General Evans and 500 English prisoners having been shot by the Carlists.

The *Indicateur* of Bordeaux, in rendering an account of the action of Arrigorriaga on the 11th inst., states that during the action a whole company of the battallions of Castile, which are for the most part composed of Christiano prisoners, went over to the Queen's troops.

BAYONNE, Sept. 17.—For the last day or two the Carlist agents at Bayonne have been actively circulating accounts of the defeat of the Anglo-Spanish army, on the 11th instant, in the neighborhood of Bilbao, and which reports have been inserted in the *Sentinelle* and *Phare* of Bayonne of this day; fortunately, by the arrival, at an early hour this morning, of authentic intelligence from Bilbao up to the 12th instant, received by the Spanish Consul and other persons, these infamous falsehoods have been contradicted. An action had, however, taken place on the 11th at Arrigorriaga, about two leagues from Bilbao, but in which the British Legion had taken no part whatever. The Spanish troops under General Espartero had been alone engaged, and that General is said to have been slightly wounded, and the loss on both sides had been nearly equal, from 300 to 400 men put *hors de combat*. The details of this affair had not transpired, but despatches from Col. Wyde were also received this morning by the Spanish Consul, for His Britannic Majesty's Ambassador at Paris. The abominable falsehoods hourly circulated by the Carlists render it almost impossible to procure correct information at this place; and before these falsehoods can be contradicted, several days must elapse before any authentic intelligence from the Queen's army can come to hand; and when it is recollected that the Carlist reports and bulletins stated the loss of the Queen's troops and British auxiliaries at the affair of Hernani, near St. Sebastian, on the 30th ult., at upwards of 1000 killed and wounded—when it is known as a positive fact to every inhabitant and individual in St. Sebastian that the loss of the Anglo-Spanish garrison did not amount on that occasion to one-tenth part of that number, viz. 13 killed, and from 70 to 80 wounded, it would be impossible to give credit to any future accounts or bulletins which the Carlists may think proper to issue of killed and wounded. The two battallions of French and foreign auxiliaries which have been assembling at Pau and Oleron, about 1,000 men in all, entered Spain a day or two ago, via Campfranc and Jaca, to join General Cordova. Considerable convoys of horses, and even of cattle, have lately passed the frontiers for the Carlists; indeed, it is quite clear that there is no difficulty in supplying them with every thing they require.—The Spanish Vice-Consul at Bayonne, the Chevalier d'Urna, lately appointed, has been suspended from his functions by order of the Spanish Ambassador in Paris, awaiting the decision of the Spanish Government at Madrid thereon. No cause whatever has been assigned.

General Count Harispe, who has been residing lately at his country seat near St. Jean Pied de Port, is expected at Bayonne on Saturday.

LONDON CITY—EVENING, SEPT. 24.—The accounts which we have received from Madrid reach to the 18th September; from their contents we learn that M. Mendizabal, as we had previously stated, had received the commands of the Queen Regent to reorganise the Administration. M. Mendizabal's appointment as Finance Minister is confirmed; Las Heras is to be Minister of the Interior, *ad interim*, whilst it is expected that Gil Cuadra will eventually fill his place, with the support of General Alava and Senor Aguilles. In addition to these circumstances the tone of the private letters have been deemed here extremely favorable by the old Constitutionals of Spain. They confirm to a great extent our former statement, and afford strong countenance to the impression that the political modifications of the new Government will eventually tend to the future prosperity of the Spanish kingdom.

The address of M. Mendizabal to the Queen

has created no small attention here, in consequence of the absence of political bombast, considered to be the organ of assistance towards the Constitutionalists; hence the confidence which has been displayed in his future financial plans. Other of our private letters inform us that arrangements were made for the disposal of the Church property, by which the present incumbents would receive a compensation in land devisable on their demise to their trustees. This arrangement was considered likely to conciliate, as so many Spanish families are engaged in religious occupation.

The tone of the British Money Market continues to wear a degree of firmness that for a long time has not been exhibited, and the purchases made by order of the Accountant-General to the extent of £30,000 gave the market some degree of impulse; and this clearing out of Money Stock must practically ensure a steadiness in the Consol market. Consols closed to-night at 91 1/4 money, and 91 3/8 time. The New Three-and-a-Half per Cents are 98 3/8, and Omnium, 4 3/8. India Stock, 255 1/2, and Bank Stock, 211 1/2 for the opening.

Bouasse, Monday, Sept. 21.—The Rents have again improved. The only probable cause of this is the rise in the English funds. The market is very firm. The Spanish Securities have risen considerably; the monied men seem to have a high opinion of the financial capacity of Mendizabal.

LAST PRICES.—Five per Cents, 107 1/2. 90c.; Three per Cents, 80 1/2. 60c.; Five per Cents, Spanish, 54 1/2.

THE FOREIGN NEWS received by the *Independence* on Saturday was very hastily given. We now add many details.

The address of *M. Mendizabal* to the Queen of Spain, before he was charged by her with forming a Cabinet, will be found among our extracts. The antecedents, and known opinions, of *M. Mendizabal* give assurance that all that can be done for liberal opinions in Spain, will be, by him. The *Journal des Debats* is not at all satisfied with *M. M.'s* appointment or doctrines. The English ministerial papers are much pleased with it. The Quadruple Alliance, however, between England, France, Portugal and Spain, for the restoration of order in the latter, seems virtually dissolved, since each of the three first named powers has now distinctly refused, when applied to in behalf of the young Queen, to interfere by force.

The camp at *Kalisch* had broken up, and the Sovereigns, including the Emperor of Austria, were about to meet in Congress at *Toplitz*. Concerning the objects of that meeting, much solicitude and jealousy are expressed in the English papers.

The news from Italy contained in these papers is not without interest. Alarm has been felt for the public tranquility, though on what ground is not stated; but it is noticed that a report is in circulation that the French Government has proposed to occupy several points in the Roman States.—*Cardinal D'Isaard* has arrived unexpectedly at Rome, on a secret mission, as is supposed, from *Louis Philippe*. The King of Naples has collected a large force for the ostensible purpose of reviewing it. The cholera still fills the Italians with anxiety; but at Rome it has had the good effect of inducing the people to conquer the habit of burying their dead in the churches of the city, and several burying grounds are preparing outside the walls. One was consecrated on the 3d ult. The services of *Our Lady* are as actively called into operation in Rome as in Bavaria and Spain, the dread of the cholera being apparently the principal motive for the increase of devotion. We quote the paragraph that it may speak for itself:—

"There is to be a great procession to implore Heaven to remove the evils which now afflict Christendom. An image of the Virgin *Madonna della Neve*, which has not been visible for many years will be carried in the procession to *St. Peter's*. The Pope, Cardinals, and Clergy will attend."—[*Allgemeine Zeitung*, Sept. 21.]

The German papers, mention that crowds of Italians have taken refuge in Bavaria from the cholera, and that *Our Lady*, who in Spain has to lead the armies of *Don Carlos*, in Bavaria is engaged to keep up a cordon of health, and preserve her faithful Bavarians from disease. Her votaries certainly require from her, important services in return for their worship.

A new minister to this country has been appointed, as by the annexed extract from the *Royal Gazette* will be seen.

Foreign Office, Sept. 23.

The King has been graciously pleased to nominate and appoint *Henry Stephen Fox, Esq.*, now his Majesty's Envoy Extraordinary and Minister Plenipotentiary to his Majesty the Emperor of Brazil, to be his Majesty's Envoy Extraordinary and Minister Plenipotentiary to the United States of America.

An important item to our East India trade is thus announced.

Thursday Evening, Sept. 24.

Money Market and City Intelligence.—The desire which the merchants connected with Singapore have often expressed, that the American vessels should be allowed to trade between that settlement and the United States, as an important ameliorating feature in their commercial transactions, has at length been accomplished, as will be seen by the following answer from the President of the Board of Trade to an application on the subject from *Mr. Thomas*, which legally authorizes the opening of the trade:—

Treasury Chambers, Sept. 1.

"Sir,—Having laid before the Lords Commissioners of His Majesty's Treasury your letter of the 20 of May last, requesting their opinion on the subject of the right of the Americans to trade between the United States and Singapore, I am commanded by their Lordships to acquaint you, that, on an investigation of the subject, and a communication with the law officers of the Crown, they are advised that the Americans are legally authorized to trade between the United States, or any port of the United Kingdom, and Singapore, as also between the United States and any port of the British possessions in the East Indies.

I am, sir, your obedient servant,

F. BARING.

To *Charles Thomas, Esq. 71, Connough-terrace.*

Mr. O'Connell is making a progress of agitation throughout Great Britain. Passing through Northumberland into Scotland, he was entertained at Newcastle and afterwards at Edinburgh.—His great day, however, was at Glasgow, where, it being Monday, 200,000 operatives and others were assembled on the Green to greet him,—to whom he made a speech. A *soirée* followed, admission three shillings per head, for which, a cup of coffee, a slice of bread, and a bottle of whiskey punch, were supplied. *Mr. O'Connell* there spoke again, but the boys became uproarious before the play was out. The next day a great dinner was given, at which, "the sovereignty of the people," was drunk as the third regular toast, after the King and Queen. On *Mr. O'Connell's* health being proposed, he delivered a long speech, in which he avowed, that "his mission was to produce a reform in the House of Lords." Whether such eloquence and arguments as those we extract below, will prevail in the country, where the schoolmaster is said to be abroad, we do not undertake to judge.

Referring to the Lords, *Mr. O'Connell* said—

They put him very much in mind of a practice sometimes followed in his country, of taking off the ears of a pig, and greasing its tail, and then allowing it to become the property of the first person that could hold it. (Laughter.) There they are, the soaped and greased heads of society. (Cheers.) There they are, the real swinish multitude—(loud cheers)—as ignorant and mulish as their prototypes. (Cheers.) There was a countryman once went from *Kilcullen* to *Naas* to purchase a pig—(A laugh)—well, he bought one, and as he was driving the pig from *Naas* to *Kilcullen* he met a friend, who asked him where he was driving it to;

he answered to *Dublin*; on which his friend said he was taking the road to *Kilcullen*. Silence, says the other, if the pig hears he's going to *Kilcullen*, he'll be off to *Dublin* in a minute. (Laughter.)—That was just like the House of Lords. (Great laughter.) Only let him (*Mr. O'Connell*) say he was for *Dublin*, and the Lords were off in an opposite direction. (Cheers.) This was literally the case with the Lords. There was *Londonderry*, snorting and squeaking—(laughter)—*Winchelsea*, piously groaning—(loud laughter)—and *Wellington*, the swine-herd General. (Continued laughter.) There they floundered about in the mud, and if the people do not choose to submit to have the mud thrown on them, they must insist that a parcel of oxen shall not be arrayed in the panoply of armor, but that human beings shall fill their places; that swinish propensities be banished from among the rulers of the nation. (Cheers.) They have now made the House of Commons, the House, in a great measure, of the people. But the work is not finished. He never heard that Scotland was in the habit of leaving half done work. He had, as they said, in his country, a pretty notion that they didn't like half finished jobs. (Loud laughter.) Would they leave the piece in the loom half finished—would they on any pretence take a half hog for a man. (Cheers.) The Lords had driven us to this point. There would be no need for change if the Lords acted with sense, and went with us; but when they would only pay the people 10s. 6d. per pound of their just debt, they were telling us, as *Anglesea* once told him (*Mr. O'Connell*) agitate, agitate, agitate; and here we are taking their Lordships' advice. Having shown them the futility of reform unless we had a reform of the House of Lords; having shown them that there was no use of a Reformed House of Commons, if they were to have the *Apsley House Divan*, declaring that they would reject their measures, the toast he had to propose was "A speedy Reform of the House of Lords." (Hear, hear.) It was idle to congregate as they now did, and avow the necessity of a Reform in the House of Lords, if they were to fall asleep afterwards, without making any exertion for its accomplishment. No one could gain any advantage for his country, unless he continued the struggle. Down with the House of Lords—(Cheers)—and the present scheme of legislation. Down with the oligarchy. (Cheers.) Down with the *Apsley House coterie*. (Cheers.) Down with the swinish multitude. (Cheers.) They all agreed in this.

Mr. Osbaldeston, of sporting fame, has become the lessee of *Covent Garden Theatre*.

The French frigate *Didon*, mounting 60 thirty two pounders, with a picked crew of 465 men, had arrived at *Plymouth*, having for second Lieutenant the *Prince de Joinville*, third son of *Louis Philippe*. He was visited and received with royal honors.

The Duke de Nemours second son of *Louis Philippe*, had completed his tour in England, and was about returning to France.

Bellini, the composer of *Norma* and *I Puritani*, died on the 23d September, at *Pietaux*, near Paris. He was only 29 years old.

The Princess *Lieven*, whose skill as a petticoat diplomatist, was long felt in England, was, at the latest dates, in Paris, negotiating, it is said, a marriage between the Duke of Orleans and the eldest daughter of the Emperor of Russia.

TEXAS.—From the annexed extracts from New Orleans papers, it would seem that the disturbances which have so long agitated Texas, are likely to terminate in open war with Mexico.

The appeal of *Ex-Governor Houston*, and of several New Orleans newspapers, to citizens of the United States to take part in a war against a friendly nation, will we trust be frowned upon, both by the considerate portion of the public press, and by the federal government.

Our obligations to Americans who choose another country for their residence, cease when they leave their native soil; and it would be a mistaken sympathy, as well as an unjust and impolitic indul-

gence, to take part in any quarrel, in which the American and Spanish American population of Texas may be involved.

SAN FELIPE, Sept. 19, 1835.—Dear sir: War is upon us—there is now no remedy. The answer of Cos, is positive that the individuals demanded must be given up, and that the people must unconditionally submit to whatever the government chooses to do for them. He lays down the principle, that the general government have the right to force us to submit to any reform or amendment, or alterations that Congress may make in the constitution, &c. This is impossible—we had better leave the country at once, for we shall be under the Cos doctrine, without any rights or guarantees of any kind. I therefore think that war is inevitable; we must prepare. What do you think of raising a volunteer corps to protect the consultation, and having it ready without delay? I think it probable Cos will attack the people on Guadalupe in a short time—they expect aid, and ought to have it. I shall send to Nacogdoches immediately.

S. F. AUSTIN.

W. D. C. HALL, Esq.

WAR.—Information was received last night by express, that Gen. Cos landed at Copeno with 400 men; arms and ammunition.

An expedition is now raising in the lower country to take the field at once. They are called upon to rendezvous at League's old place on the Colorado on the 29th of this month.

Every man in Texas is called upon to take up arms in defence of his country and his rights.—Those who can join the expedition on the 29th are requested to do so; as they can join it at James Kerr's, on the La Vaca which will be the principal rendezvous.

A corps of reserve will be formed to march for and sustain the advance. Those who cannot join the advance are requested to unite with the reserve and report themselves to the committee of safety in this place.

It is expected that each man will supply himself with provisions, arms and ammunition to march with.

Arrangements will be made for permanent supplies as soon as possible.

S. F. AUSTIN, Chair. of Com.

September 22, 1835.

The following is from the New Orleans Bee Extra, of October 13th. The intelligence is from the Red River Herald Extra:—

Highly important from Texas. War in Texas—Gen. Cos landed near the mouth of the Brasos with 400 men.

Isaac Parker has just arrived from Texas, bringing the intelligence that Gen. Cos has landed near the mouth of the Brasos with 400 men, with the intention of joining the 700 Federal troops stationed at San Antonio de Bexar, and marching upon the people of Texas. He has issued his proclamation declaring that he will collect the revenue, disarm, the citizens, establish a military government, and confiscate the property of the rebellious. Messrs. Johnson and Baker bore the express from San Felipe to Nacogdoches. Stephen S. Austin has written to several citizens of Nacogdoches, that a resort to arms is inevitable.

They have hoisted a flag with "The Constitution of 1834," inscribed on it, and two hundred freemen gathered around it, determined to stand or fall with it.

We subjoin the following letter from General Houston to the gentleman who brought the intelligence.

SAN AUGUSTINE, TEXAS, }
Oct. 5th, 1835. }

Dear Sir—At your request I hand you a memorandum, that you may be informed of our situation. War in defence of our rights, our oaths, and our constitution is inevitable in Texas!!

If volunteers from the United States will join their brethren in this section, they will receive liberal bounties of land. We have millions of acres of our best lands unchosen and unappropriated.

Let each man come with a good rifle and one hundred rounds of ammunition,—and to come soon.

Our war-cry is "Liberty or Death!" Our principles are to support the constitution, and down with the usurper! Your friend,

SAMUEL HUSTON.

To Isaac Parker, Esq.—Present.

We have no time to make any comments. The

people of the United States will respond to the call of their brethren in Texas!—Red River Herald Extra.

Those gentlemen friendly to the rights of free and republican governments, are requested to meet at the Red River Exchange, this evening; at half past 7 o'clock, to take into consideration the situation of their fellow countrymen in Texas.

Natchitoches, Oct. 7, 1835.

NOTICES OF APPLICATION TO THE NEXT LEGISLATURE.—Act empowering the President, Directors & Company of the Union Bank in the city of New York, to increase their capital stock one million of dollars.

For the charter of a Mutual Fire Insurance Company, to be located in the city of New York, to be called the New York Mutual Fire Insurance Company.

To increase the capital stock of the Bank of New York, in the city of New York, one million of dollars.

To increase the capital of the Oswego Bank, \$50,000.

To increase the capital stock of the Merchants' Bank of New York, five hundred and ten thousand dollars.

To incorporate a company with the necessary capital to construct a Tunnel under the Hudson river, for the purpose of rail-road and other communication between the city of Albany and the opposite side of the said river.

[From the Charleston Patriot.]

COMMERCIAL IMPROVEMENT OF CHARLESTON.—As it is highly probable that a public meeting will be called for the purpose of responding to the resolutions passed at Cincinnati, in relation to the contemplated Railroad from the Ohio to the tide waters of this State, it must be all important to give the public mind a proper direction, if possible, on this subject. We have said that by the continuation of our present Railroad beyond its existing line of termination at Augusta, to the Muscle Shoals, all the advantages of the proposed Railroad from Paris in Kentucky, across the country, to Charleston could be obtained by connecting these lines at some point at or in the vicinity of those Shoals. The advantage of giving this direction to any Railroad connecting Charleston with Ohio is obvious on the least inspection of the map. By going round the Cumberland ridge and the Alleghany chain, instead of crossing these Mountains, an immense saving of expense, of time and difficulty of execution would be effected. Instead of the proposed Railroad having to traverse numerous large streams, with a double range of mountains and a territory of sparse population, if carried round those ridges to the South West, it would pass through a comparatively flat, champaign country, with a few large rivers intersecting it, abounding in products of the utmost value and thickly populated. The distance is but very little more than that estimated in a direct line between Charleston and Paris, in Kentucky, where a railroad has been already constructed to the banks of the Ohio. Let us first show this.

Starting from Paris across Western Tennessee in a South West direction and parallel to the Cumberland ridge we reach Nashville, a distance in a straight line of about 200 miles from Paris; from Nashville to the Muscle Shoals is about 100 miles more. The Union railroad from Charleston to Augusta will be soon extended to Athens, in Georgia, as the distance between Augusta and Athens is now under contract. From Athens, in a direct line to some point on the Chatahoochie river, is from 40 to 50 miles. From the Chatahoochie to Decatur in Alabama, the Eastern termination of a railroad round the Muscle Shoals to Tusculum (already completed, being a distance of 60 miles) is 200 miles. The distances may be therefore estimated thus:—

From Athens to a point on the Chatahoochie	45 miles.
From the Chatahoochie to Decatur	200
From Decatur to Nashville	100
From Nashville to Paris, in Kentucky	200
	545 miles.

These distances are not given with minute accuracy, but they are sufficiently so for our purposes.

It will be thus seen that the route proposed by

us, although somewhat more circuitous, is but 70 miles more in extent than that proposed, while it avoids all the difficulties to be met with in crossing extensive ridges of mountainous country and will bring us into the heart of those productive regions in Alabama and Tennessee which it was the original purpose of our railroad to effect. Between Paris, Nashville, and Decatur, the road we suggest would form an obtuse angle, but being carried considerably to the South West of a straight line between Cincinnati and Charleston, it is capable of being united to the Union Railroad with comparatively so little difficulty and expense that we have no hesitation in saying that if the two places should be united this is the proper route.

The only natural difficulties to be overcome in all this distance are Look Out and Raccoon Mountains, in North Alabama, which must be crossed to unite the Chatahoochie with Decatur. The Look Out Mountain is 10 or 12 miles across and is perfectly level for the whole extent of its summit, while the ascent to it going West, is so easy that the traveller is not aware he is ascending an elevation until on the other side, where it is somewhat more steep, pursuing the road now in use, but not at the spot a railroad would traverse. The Raccoon Mountain is 21 miles across and is in all respects similar to Look Out in its gradual ascent and descent with a perfectly level surface also at its summit. It is the impression of persons who have visited the spot, that nature intended this section of country for a railroad communication, in her formation of it, and that there will be more difficulty and expense in constructing the road from Athens to the Chatahoochie than from thence to the Muscle Shoals.

[From the Newburgh Gazette of Saturday.]

The following gentlemen were this day elected Directors of the Hudson and Delaware Railroad Company:—Thomas Powell, John Forsyth, Nathaniel Dubois, John W. Knevels, Benjamin Carpenter, David Crawford, Oliver Davis, John Ledyard, Christopher Reeve, David W. Bate, John P. Dewint, Jas. G. Clinton, Samuel G. Sneden.

This is one of Newburgh's proudest days, and will be the commencement of a new era in its existence. There is no longer a doubt with regard to the construction of the Delaware and Hudson Railroad. The directors have this day been chosen—they are men of determination and perseverance, who will never falter until every section of the road shall be completed. Among the directors are the original proprietors of the work, who have spent their time, their money, and their influence in forwarding it to its present state—and that time, money, and influence is pledged for its completion. We owe much to these men, and will remember long the personal sacrifices they have made—their expanded ideas of public good; and their restless anxiety to promote the interest and advance the character of our village, has devised the measures which have laid the foundations of our future prosperity. When mists and darkness were gathering fast around us, they with a keen and discerning eye saw the whole heavens illumined beyond, and stood forth and with a strong and nerved arm scattered the mists and darkness, and let in the splendor of a bright and prosperous day. Their deeds will praise them and they will have received an ample reward in witnessing the effects of their efforts—for soon they will see trains of cars rolling down to our landings the products and population of the mighty west—our bay filled with vessels of every burden from every port, and our village rising to a city, shall extend over our heights and along our shores sending a beneficial influence throughout the entire country.

REAL ESTATE.—Two large sales were brought out yesterday—the one city property, by Messrs. Bleeckers, and the other 867 Lots of ground at Williamsburgh, by Franklin & Jenkins. This last being unproductive property, was looked to with great interest, as it would probably test the feeling towards what is termed speculative property.—The sale was crowded, and would do justice to the month of January. The property was situated about a mile from the ferry, and sold beyond the most sanguine expectations. Every lot was sold, averaging about two hundred and fifty dollars.—The gross sales were over two hundred and twenty thousand dollars, and paid the owners a net profit of over one hundred and forty thousand dollars on the purchase, which was made about fifteen months since.—[Daily Adv.]

INTERNAL IMPROVEMENT CONVENTION.—In accordance with the views of a large number of the friends of Internal Improvements, a State Convention has been called, to be held at Utica, on the 11th day of November next, to be composed of Delegates from all parts of the State, for the purpose of adopting measures to promote a general system of Internal Improvements, which shall develop the great and important natural advantages possessed by the State of New-York, and with a view of securing to this City the beneficial intercourse of the great West, to which by nature it is so eminently entitled. In accordance, therefore, with this call, the citizens of New-York are respectfully invited to attend a meeting, to be held at the Merchants' Exchange, on Monday, 2d November next, at 12 at noon, for the purpose of selecting Delegates to represent the City and County of New-York in said Convention.

New-York, October 30th, 1835.

(Signed)

C. W. LAWRENCE,
R. RIKER,
T. PHOENIX,
JOHN R. PETERS,
SAMUEL B. RUGGLES,
JAMES G. KING,
STEPHEN WHITNEY,
SILAS M. STILWELL,
RICHARD M. BLATCHFORD,
C. & J. BARSTOW & Co.,
HENRY I. WYCKOFF,
HENRY S. WYCKOFF,
JONATHAN GOODHUE,
WM. HAGADORN,
J. R. MANLY,
M. M. QUACKENBOS,
GIDEON OSTRANDER,
ELLIS POTTER,
HIRAM WALWORTH,
RICHARD L. SCHIEFFELIN,
M. ULSHOFFER,
JAMES CAMPBELL,
WM. H. BUNN,
C. W. SANDFORD,
GEO. B. SMITH,
JNO. FAIRLIE,
GEO. S. MARSHALL,
JNO. L. MASON,
J. M. LOWNDS,
JOHN FELLOWS,
GEO. B. THORP,
J. D. WHEELER,
LIV. LIVINGSTON,
THOMAS LANE,
J. A. SIDELL,
ANDREW WARNER.

INTERNAL IMPROVEMENT CONVENTION.—In accordance with the views of many of the friends of internal improvement, residing in different parts of the State, a Convention is to be held at Utica, on the 11th of November, for the purpose of consultation; with a view of devising measures which shall give renewed impulse to that spirit of improvement which has placed the State of N. York first and foremost amongst States and nations for enterprise and public spirit. This Convention is to be composed of Delegates from different, it is much to be desired from all, parts of the State—and their object is to interchange opinions, and to adopt measures, which shall, if possible, produce a general, a universal determination

throughout the State, to carry out, to its full extent, that grand system which was so fortunately and so successfully commenced with the Erie and Champlain Canals.

To this City, this Convention is of immense importance—to this City, indeed, more than to any other one place, it is of the greatest importance—as what the heart is to the human system, so is this City to the State at large.

Canals and Railroads are to the body politic what arteries and veins are to the body human—and in whatever part of the State a work of the kind is made, the freight to be transported upon it is either destined mainly for, or from, this City. It matters little, in truth, what be the direction of the work, as business, like the needle, will find the point of greatest attraction, and therefore, with ordinary facilities, must find this City.

With a view of increasing these facilities, we publish to-day a call, signed by some of our most respectable citizens, for a meeting to be held on Monday next, at the Merchants' Exchange, for the purpose of appointing Delegates to attend the State Convention at Utica, on the eleventh of November. It is therefore a matter of vital importance that the Merchants of New-York should attend this meeting, and select from their own body able and judicious men—men of enlarged and liberal views, who duly appreciate the natural advantages and facilities which the State of New-York possesses, and who are able and willing to stand forward, and advocate the cause in which all, but the Merchants especially, are so deeply interested.

The meeting will undoubtedly be well attended, and able and judicious men selected as Delegates.

Annexed we publish the proceedings of a Convention held at Cattaraugus county, at which Delegates were appointed to attend the Convention—and we understand that many other counties will also appoint Delegates.

At a meeting of the citizens of the county of Cattaraugus, held at the Court House, in the village of Elliottville, on the 10th day of October, 1835, for the purpose of nominating Delegates to attend an Internal Improvement Convention, to be held at Utica; the Hon. Benjamin Chamberlain was called to the chair, and Israel Day appointed Secretary.

On motion, Resolved, That Isaac Carpenter, Henry Brynn, Frederick S. Martin, Anson Gibbs, and Phineas Spencer be, and are hereby, appointed delegates to attend the Convention to be held at Utica.

On motion, Resolved, That Benjamin Chamberlain, G. A. S. Crooker, D. Day, Emery Wood, Tilly Gilbert, Ebenezer Jones, Richard Wright, Moses Beecher, David B. Jewet, Nelson Green, A. Bugbee, Ashbel Bushnell, A. G. Bush, Howard Peck, John A. Kennicutt, Eber Holmes, George Graham, Isaac Hull, Silas Nash, Ralph Johnston, and Samuel Harvey be, and are hereby appointed a Committee of Vigilance for the county of Cattaraugus.

On motion,

Resolved, That G. A. S. Crooker, Ass

Hazen, Anson Gibbs, Robt. H. Shankland, and Israel Day, be a Committee to draft a memorial to the Legislature of this State, for the grant of a charter for a Canal from Rochester to Olean: Also a memorial for aid in constructing the New-York and Erie Railroad.

Resolved, That the proceedings of this meeting be signed by the Chairman and Secretary, and published in the several papers in Cattaraugus county.

B. CHAMBERLAIN, Ch'm.
ISRAEL DAY, Sec'y.

ENGINEER DEPARTMENT, BALTIMORE AND SUSQUEHANNAH RAILROAD COMPANY.

October 19, 1835.
To Contractors.—Proposals will be received between the 20th and 25th of November next, for the Graduation and Masonry on 20 miles of this Road.

ISAAC TRIMBLE,
Engineer B. & S. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.

ENGINEER DEPARTMENT, WRIGHTSVILLE AND YORK RAILROAD COMPANY.

October 19, 1835.
To Contractors.—Proposals will be received in York, Penn., between the 20th and 25th of November next, for the Graduation and Masonry, of the whole line of Road.

ISAAC TRIMBLE,
Engineer W. & Y. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.
Oct 31.—24.

TO TUNNEL MINERS, DRILLERS, &c.
Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Bankfort street, New-York.

JOHN BUTTER, Contractor.
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—47

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 50 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
38—64

New-Liebon, Ohio, Sept. 17. 1835.

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Graduation and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,
Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
Aug. 25, 1835. 37

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades,
Together with Pick Axes, Churn Drills, and Crow Bars,
steel pointed, made from Salisbury refined iron. For sale by his Agents,

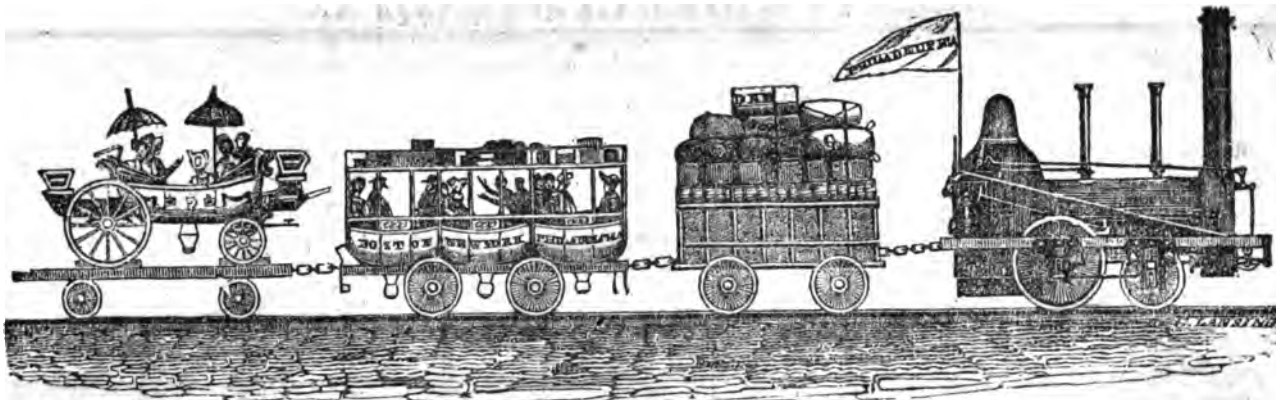
WITHERELL, AMES & CO.
2 Liberty street, New-York;
BACKUS, AMES & CO.
8 State street, Albany.

34—yrf

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by
HOWLAND & ASPINWALL,
55 South street.

689



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, NOVEMBER 7, 1835.

[VOLUME IV.—No. 45]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, NOVEMBER 7, 1835.

SHORT CURVES IN RAILROADS.—Much difficulty and danger has heretofore attended the use of Locomotive Engines and Cars at any thing like a *high* velocity, on Railroads with *short* Curves—and not only *danger*, but an immense outlay in the construction to avoid Curves, and an enormous expence for repairs, has attended the use of Railroads, thus far, both in this country, and in Europe in consequence of the adoption, in many cases from necessity, of Curves with a short radius; that is to say 500 feet and under.

In consequence of the enormous expence for repair, both of the Road and the machinery, resulting from short Curves and rapid movement, great efforts have been made, at an incredible expence, both in Europe and the United States,—not less, we presume than *three to five millions* of dollars—to discover some remedy for the evil; and, in this, as in most other cases, where the object sought is of importance, improvements have been made, which in some measure lessens the evil; but still serious difficulties were encountered; accidents continue to occur—and ingenious men to propose remedies.

Amongst the various plans proposed,

which have come to our knowledge, is one invented by Mr. Cleveland, of Baltimore, a model of which we have examined with much care, and tried upon a miniature Railroad,—which bids fair to be of great value, not only on those Roads now in use with short Curves, but more especially on those about to be commenced, as it will enable them in many cases to avoid deep cutting of rocks and ridges, and hills, by going round them, with short Curves, *much* shorter, indeed, than has, heretofore, been deemed by Engineers, practicable, or *possible*.

If the principle works as well on a large scale, that is, in cars of the usual size, as it does in miniature, or in the model—and we have good reason to believe that it will, or in fact does, as a car sufficient for 25 passengers has been in use on the Baltimore and Susquehannah Railroad, which has been run for a short distance, on a straight Road, at the rate nearly a mile in a minute; and on the curved part, at the *rate* of thirty miles an hour—it will be found to be one of the most valuable improvements of the day.

The invention of Mr. Cleveland is exceedingly simple, and its introduction and use on Roads which have not yet obtained their cars, will be attended with very little additional expence in the first outlay—while it will reduce, in a very great degree, the expence of repairs—not only of the machinery, but of the *Road* also.

It is believed that a car constructed on this plan will not require more power to move it on a curve of 100 feet radius, than an ordinary car will on a curve with *four* or even *five* hundred feet radius—and what is of greater importance, the *risk*, or danger is reduced in an equal ratio, in great velocities.

Should the anticipation of Mr. Cleveland and many others who have witnessed its performance, or examined the model, be realized, it will prove a means of greatly

reducing the expence and danger of Railroads and Railroad travelling.

LAKE ERIE AND MAD RIVER RAILROAD.—At a meeting of the Stockholders of this Road, held on the 26th ult., at Sandusky City, the following gentlemen, were unanimously elected Directors: Gen. Joseph Vance, President, H. G. Philips, Samuel Farrer, C. G. Swain, C. Cavalin, P. Spinning, — Pierson, R. Patterson, L. Curtis, Josiah Hodges, John G. Camp, E. Cook, and S. M. Lockwood. The anticipation of the public in relation to this Road, we are assured, will not be disappointed. The work is progressing rapidly, the greatest proportion of it having been surveyed, and put under contract. The importance of this work to Buffalo, and to New-York, should not be overlooked, and every exertion used by our capitalists and merchants, to insure for it as early a competition as possible.—[Buffalo Adv.]

A meeting of subscribers to the survey of a Railroad from Toronto to Lake Simcoe, was held on the 22d ultimo, W. B. Jarvis, Esq., in the Chair. Mr. Roy, the engineer employed, submitted his report, from which it appeared that there were no obstacles in the way of a Road being constructed, and pointing out what he conceived to be the best route for it to follow. A resolution to the same effect was passed, a subscription entered into to defray the expenses already incurred, and it was ordered that a meeting should be called on the 5th instant, when a Joint Stock Company will probably be formed.—[Montreal Gaz.]

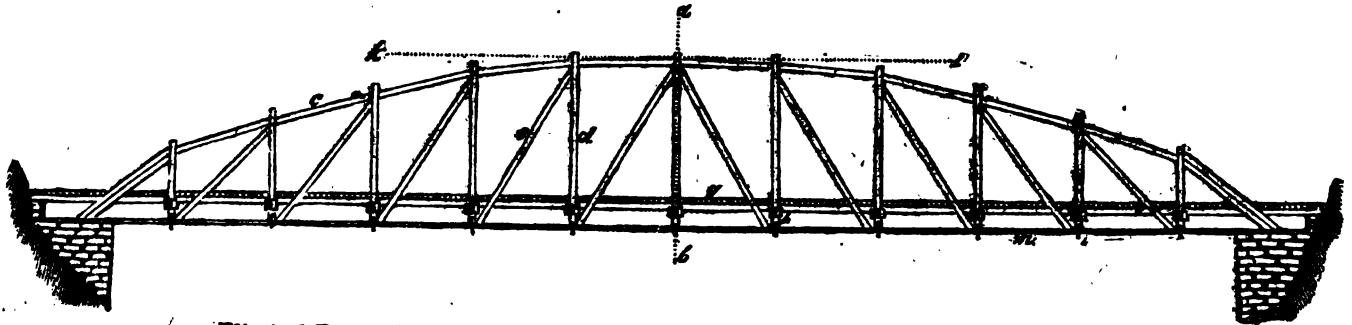
GREAT SHIPS.—We learn from the London United Service Journal, that a ship of 110 guns called the Royal Sovereign, is building at Portsmouth, tonnage 3,099, and that the frames of two others, to be called the Victoria and Algiers, of the same size and metal, are preparing at Pembroke. These ships are the commencement of a new class of first rates, of tremendous power, being armed on the lower decks with long 68 pounders.

Letters were received yesterday from Havana, dated on the 12th ult., which state, that there had been a severe gale at Matanzas, in which three brigs had been driven on shore, one of them belonging to Portland, and that a vessel had been despatched to Matanzas to bring to Havana the cargo of one of the brigs.

LIEUT. GEORGE W. LONG'S PLAN OF BRIDGE BUILDING.

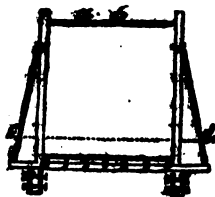
Fig. 1—A Longitudinal Section.

REFERENCES.—a, b, c, top braces; d, posts; e, braces; f, floorway; i, iron rings.



Elliptical Frame Bridge, invented by Lieut. Geo. W. Long, and patented March 19, 1830.

[Fig. 2—A Transverse Section.]



We cheerfully give place to the following communication, in relation to Lieut. Long's plan of bridge building. It will be found we think worthy of attention and should have been published by us at an earlier day, but with many other communications, was delayed by the illness of the editor.

In considering the above plan for a bridge, it may be compared to a beam supported at each end, to do which, it is necessary to consider that in a beam of great length compared with the depth, it becomes a load for itself; and that a greater length of beam can be had by reducing it to the shape to be equally strong throughout, which is all that is requisite for a bridge. In a solid beam, this reduction may be had to the shape of an ellipsis, and in the frame it does not differ very essentially from the same. The above frame, then, is calculated on the principle of the beam, with the strings as the first point of fracture, and the top braces as the last, and reduced to that shape to be equally strong throughout. Or it may be explained by comparing the top braces to an arch, the thrust of which is received by the strings, and resisted by them, producing between the different sets, counter stress of the same magnitude to each other, and here this plan has advantages over other framed ones, for instead of the opposing stress of the top timbers, being carried parallel to the strings as in direction of H. L. (see the figure) and requiring a set of ties to brink it back again, these timbers are directed down, and terminates in them. This simplifies the frame, and greatly reduces the expense of it. The actual stress on the strings and top braces, may be calculated by the proportion of the depth of the frame, and half the length of it, as depth of frame, is to half the length, so is the weight placed on it, to the stress on these timbers in weight. This proportion comes from both demonstrations, by the arch and the beam, taking the strength of the beam as the depth instead of square of the depth, as in a solid beam. This stress on the timbers, it will be seen, is in their strongest directions, and

thus with a proportional depth and increased size of these timbers, the strength of the bridge may be carried to an unlimited extent, without undue expense. The drawing shows the mechanism of the frame so plainly, that it is deemed unnecessary to give very particular explanations of it.

In 1831, the proprietor of the patent gave the use of it for a bridge over Tanners Creek, near Lawrenceburg, Indiana, for the first one constructed, the result of which was given him by the person to whom the use of the patent was given, Jonathan Woodbury, in the following words, viz.

"The patent which your liberality furnished me with, has been made use of, and instead of a bridge that would cost \$12 or \$15,000, the Committee which I informed you of for building a bridge, have just completed said bridge, which cost \$3,150;" "its whole length upwards of 400 feet, and its width 22 feet, fifty feet high from the bed of the creek, and seventy-six (76) feet span between the piers, the whole of wood except two stone piers 19 feet high, from the bed of the creek, and framed timbers upon these piers for the arch to rest upon, the other part of the bridge is on bents 26 feet apart, all finished in a workmanlike manner." "That part which we are indebted to you for, is thought to be the best model ever yet found out, both as to strength and cheapness."

"The strength of your patent is thought to be almost beyond calculation, by a comparative view of its cheapness, and the size of its timbers; and should it prove as good as we now anticipate, I have no doubt but it will be a source of income to you; we shall have a fair experiment of all its qualities."

The size of the timbers given for the above bridge, was 8 inches square. The bridge is yet standing (1835) and has, so far answered the public expectations, and others are now building in the same neighborhood.

GEORGE W. LONG.

We are glad to notice that Mr. N. H. BAIRD has commenced taking the levels for the COBOURG and PRICE LAKE Railroad.—Though the country is hilly, yet it appears that, from the number and favorable positions of the ravines, but little obstacle will have to be overcome. It has not yet been determined at what point on Rice Lake the road will terminate.—[Montreal Gazette.]

The stockholders of the COBOURG Railroad Company were to meet in that town yesterday, for the purpose of choosing Directors.

Pursuant to a call of a public meeting of the citizens of New York, at the Merchant's Exchange this day at 12 o'clock, for the purpose of choosing Delegates to represent the city and county of New York, in the Convention to be held at Utica on the 11th inst., for the purpose of adopting measures to promote a general system of Internal Improvement, his honor the Mayor was called to the Chair, and Saul Alley and Caleb Barstow appointed Secretaries.

After the objects of the meeting had been explained by the Chairman, the following Resolutions were presented by Joseph Blunt, Esq., and were unanimously carried.

Resolved, That the entire success of the western and northern canals, and the prosperous condition of the public finances, justify an extension of the benefits of internal improvement to other parts of the State.

Resolved, That the extraordinary exertions made by other States, to divert the trade of the West to Philadelphia, Baltimore and Boston, warn us not to rest in our career, but to increase the facilities of internal commerce through this State, so as to give full effect to its great natural advantages.

Resolved, That the success of these exertions, in augmenting the trade of Philadelphia and Baltimore, fully proves that a new impulse must be given to the system of internal improvement in this State, in order to keep pace with the growing business of the country.

Resolved, That we approve of the Convention to be held at Utica on the eleventh of November, by the friends of internal improvement, as a means of informing the public mind, and of concentrating the energies of the State in favor of those objects best deserving the public support.

Resolved, That thirty delegates be appointed to represent the City and County of New York in that Convention.

The following individuals were thereupon appointed by the meeting, with power to fill vacancies:

E. T. Throop,	Charles H. Russell,
Philip Hone,	Jas. B. Murray,
D. B. Talmadge,	H. W. Hicks,
Charles H. Hall,	Jona. J. Coddington,
Morgan L. Smith,	J. W. Leavett,
A. B. Meech,	Seth Grosvenor,
Eli Hart,	Geo. S. Robbins,
B. B. Howell,	Jno. R. Peters,
Henry Seymour,	Jos. Blunt,
Curtis Bolton,	Francis Fickett,
Nicholas Dean,	Henry Yates,
Wm. C. Wales,	Gideon Lee,
Thos. Barlock,	Jona. Goodhue,
Charles G. Ferris,	Gould Hoyt,
H. H. Elliott,	D. C. Colden,

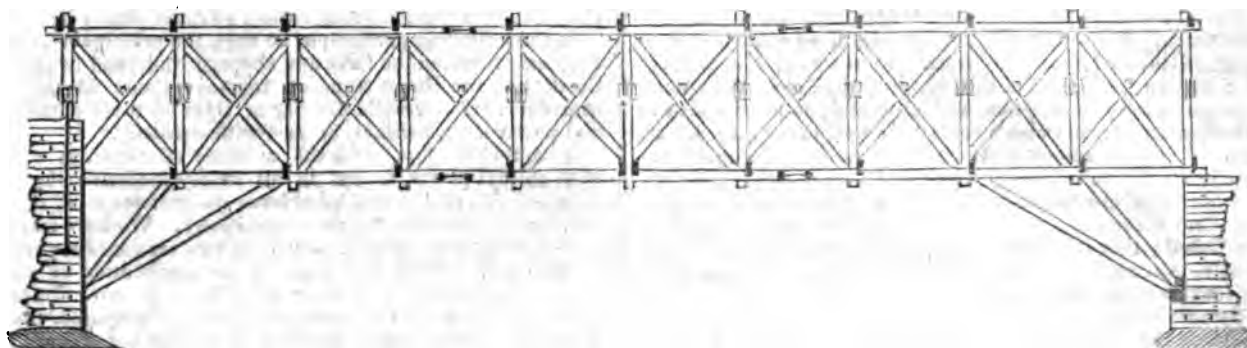
On motion, it was then Resolved, That the proceedings be signed by the Chairman and Secretaries, and published.

CORNELIUS W. LAWRENCE, Chairman.
SAUL ALLEY, } Secretaries.
CALEB BARSTOW, }
November 2d, 1835.

REAL ESTATE IN CHICAGO.—The American of 17th ult. says:

"A lot fronting 100 feet on Dearborn-street about 85 feet deep, next the corner of Water street, was sold a few days since for \$11,000."

COL. LONG'S PLAN OF BRIDGE BUILDING.



The annexed plan of, and certificates in relation to, Col. Long's Bridge, has been several months in our possession, and ought long since to have been laid before our readers. We publish a part of the certificates accompanying the drawing, which give an idea of the estimation in which the plan is held by practical men.

The undersigned, agent for Col. Long of the U. S. Engineers, offers to all persons interested in Bridges, as is believed, the most important and latest improvement which has yet been made in bridge-building.

The plan of building is such as to bring into profitable use timber of any length, and to build at any length of span from 20 feet to 300 feet between bearings.

Among the important advantages possessed by Col. Long's bridges over others, the following are believed to be peculiar to his:

All the strain on the important timbers is length wise; and this too without any material strain or thrust against the abutments.

Any defects which time shall make, can be repaired with the same facility as the putting in of the original timber.

The work is so well secured as to admit of driving at any speed, with perfect safety, and without injury to the structure.

A great number of bridges built on this plan are already in use in the Eastern, Middle, and Western States; all of which have fully answered the most sanguine expectations of the Architects and Proprietors.

Moses Long.

The following selections are from the numerous recommendations of Col. Long's plan of bridge-building:

"*Baltimore and Susquehanna Railroad Office, January, 1838.*—Messrs. Hassard and Cusley have constructed for this Company three bridges upon the plan of Col. Long, two of them about 70 feet in length, and the largest 100 feet. I am well acquainted with the different plans that have been adopted for the construction of wooden bridges, particularly Towne's and Burr's, which have been generally used in this part of the country, and I am satisfied Col. Long's plan is superior to any of them, in point of strength, solidity, permanency, and above all, in the facility with which it can be repaired, by replacing any piece of timber without disturbing the structure, so that by constant slight repairs the bridge will be perpetually renewed, at a very slight expense.

"These bridges have been passed more than five months, with a steam engine and tender weighing at least ten tons, with

heavy trains of carriages attached, without causing the slightest perceptible motion of any kind in the bridges, which remain in the exact position they occupied when first erected.

"My opinion in respect to these bridges is sustained by the whole Board of Directors, amongst whom there are several gentlemen who possess much theoretical and practical knowledge on this subject."

(Signed) GEO. WINCHESTER, President.

"The bridges above mentioned were built in conformity to my directions, as also several others on other works under my charge, and I fully concur in the opinions expressed by the President of the Baltimore and Susquehanna Railroad Company, in favor of Col. Long's plan of bridge-building."

(Signed) WM. G. MCNEILL, Captain Top. Engineers.

I hereby certify that under the direction of Col. J. M. Fessenden, the Engineer of the Boston and Worcester Railroad, a bridge has been constructed, on that Railroad over the Charles River, on the principle of Col. Long's patent. The bridge rests entirely on two abutments thirty feet in height, and has a span of a hundred and twenty feet between the abutments. Notwithstanding the distance between the abutments which are the only points of support, it has been found to be remarkably stiff, and free from yielding or oscillation on the passing of the heaviest loads, which often consist of eight or ten loaded cars, in addition to the locomotive engine and tender. It was built by Mr. Thomas Hassard of Baltimore, and has been standing a little more than a year. It is considered by the Directors of the Railroad quite satisfactory both in principle and in workmanship, and remarkably well adapted from its firmness and apparent strength, for a Railway bridge.

(Signed) NATHAN HALE, President of the Boston and Worcester Railroad.

Boston, Dec. 11, 1834.

MOSES LONG, Esq., of Warner, N. H., is the agent of the patentee.

We understand, says the Montreal Gazette, that about £14,000 of the stock of the HAMILTON and PORT DOVER Railroad Company, has been already subscribed for, and as by the Act of Incorporation, they are empowered to break ground, whenever £10,000 shall have been paid in, we shall doubtless have soon to report that such a commencement has been made.

"An excellent harbor is now in progress at the extremity of the Road at Port Dover.

As it will be open on an average six weeks earlier than that at BUFFALO, the originators of the Railway anticipate that a considerable number of AMERICANS who are annually moving to OHIO and MICHIGAN, will, rather than incur the expense attendant upon remaining till the navigation opens on their own side, take advantage of the communication between HAMILTON and Lake Erie.

Another source of profit to the Railway, will be the transport of produce from the extensive and rich country lying to the west and south-west of HAMILTON.

Now the election is over, says the Rutland, Vt. Herald, we must attend to the "weightier matters."

OUR RAILROAD must be promptly attended to. By notice in another part of this paper it will be seen, that on Tuesday next (the 8th) the Books for subscriptions to the stock of the Rutland and Whitehall Railroad, will be opened in this town, and on the 15th at Whitehall.

We are often inquired of whether we think the stock of this Road will be taken up, and the project go into operation. We here take occasion to say, once for all, that we have scarcely a doubt but what this Road will be made, sooner or later.

The Board of Directors of the Grand River Navigation Company, have given publication to a resolution lately adopted by them—that the first Steamboat, of not less than fifteen horse power, that shall ply on the Grand River, from DUNNVILLE to the head of the navigation, when opened, shall be allowed to pass toll free through the locks, as long as she shall ply thereon—and that the two first covered barges, to cost not less than \$250 each, and built to ply regularly and constantly on this navigation, shall, in like manner, pass free of toll.

IMPORTANT DECISION.—The well known *Attachment Cases*, of John Randel, against the Garnishees of the Delaware and Chesapeake Canal Company, were decided in the Court of Errors and Appeals, at Dover, on Friday last. The Chancellor delivered the opinion of a majority of the judges, and the Judgment of the Court in favor of the Plaintiff. This decision establishes the right of Mr. Randel to attach the tolls in the hands of all captains of vessels entering the Canal.—[New Castle (Del.) Gazette.]

CONVICTION FOR PERJURY.—At the late court for Portage county, Ohio, Col. W. B. Washington was convicted of perjury, and sentenced to seven years imprisonment. He was a man of standing and property, whose avarice prompted him to commit the perjury.

With such a name, to commit such an act, is to sin against all influences. We hope the Legislature of the State possesses the power to change the man's name—since that name could not save him from perjury.—[U. S. Gaz.]

Letter from John B. Jervis, Holmes Hutchinson, and Frederick C. Mills, relative to a Ship Canal from Utica to Oswego.

TO THE CANAL BOARD.

Gentlemen,—The undersigned have examined a memorial to the Honorable the Legislature, from the citizens of Utica, praying for the construction of a Steamboat Canal, from the village of Oswego to the city of Utica, and ultimately to be extended to the Hudson River; and also a report on said project by E. F. Johnson, Esq., and submit their views of the same in the following report:

The memorial appears to be based on the position, that trade on the Erie Canal has nearly reached the maximum capacity of the Canal; that the trade is rapidly accumulating, and consequently, that enlarged means of communication will soon be indispensable to its accommodation, and proposes the construction of a Steamboat Canal from Oswego to Utica, and ultimately to the Hudson River, as the best mode of accomplishing this object.

In the proceedings of the meeting at Utica, the projected work is called a Ship Canal; but in the memorial from the same place, it is called a Steamboat Canal. In the proceedings of the meeting, and in the memorial, it is regarded as designed to afford navigation to vessels navigating Lakes Ontario, Erie, &c.

The dimensions of the proposed Canal, as given by Mr. Johnson in his report to which the memorialists refer, are 8 feet depth, 58 feet width of bottom, and 90 feet surface of water; and the locks to be 130 feet length of chamber and 30 feet in width.

From the width of the locks we conclude the Canal cannot be designed to accommodate the steamboats of Lakes Ontario and Erie: we are therefore left to infer, that the steamboats are to be adapted to the Canal, and used to tow the vessels that may be used in the navigation of the Lakes.

The memorial represents the future trade of Lake Erie, as the leading and prominent object to be secured by the proposed Canal, and which cannot be retained for any great length of time by the Erie Canal, on account of its limited facilities for transportation, as compared with the prospective magnitude of this trade. Mr. Johnson proposes to construct the Ship Canal, and anticipates the enlargement of the Erie Canal west of the intersection of the proposed "Steamboat Canal," to 6½ feet depth and 60 or 70 feet surface of water.

To the undersigned it appears that if the Erie Canal needs relief, it will first require it for its Eastern section, which is obviously under the greatest burthen.

To open a steamboat navigation from Oswego to Utica, would leave 110 miles of the Erie Canal, which is most crowded, under at least the same embarrassment, that would otherwise burthen and impede its navigation. But the question which part should be first opened, may not be deemed essential to the present inquiry; it is sufficient for us, that the memorial contemplates a Canal from Oswego to the Hudson; and we shall of course take that view of the subject.

The memorial and report assume that the proposed Canal will afford the means of a cheaper and more expeditious transportation than can be effected by any other route. A small saving of time and expense in a trade of the extent we may anticipate, is doubtless an object of great importance. That the trade from Lake Erie, which will seek an Atlantic market through the central part of this State, will be large, and that the Erie Canal, in its present condition, will be inadequate for its accommodation, at no very distant period, we do not doubt. This position is fully taken by the Canal Commissioners in their recent report on the improvement of the Erie Canal, and also by the Canal Committee, in their recent report made to the Assembly. In our opinion, this view is so clear as not to admit of any reasonable doubt, and of course any elaborate argument to settle its magnitude is deemed to be uncalled for, from us, if not superfluous in itself; we therefore proceed on the ground that this position is fully admitted.

It appears necessary to a correct understanding of the subject, that we ascertain the definite character of the projected Canal. As before observed, it is called a "Steamboat Canal;" and we have been led to suppose it was designed for steamboats especially adapted to its navigation, and which would be too small for the large Lakes, but would tow on the Canal, the freight boats that would be towed by larger steamboats on the Lake. It also seems contemplated by the report referred to, that sail vessels will be used to some extent on the proposed Canal, as the tonnage of such as are deemed suitable for the size of the Canal is given, with that of freight barges, and the time of making the passage on Lake Ontario is stated to be the average between sail and steam vessels. Mr. Johnson, after stating that experiments in navigating small Canals by steam had hitherto failed, seems to think that it can be successful on large Canals, and in reference to the one under consideration, gives his opinion as follows, page 56: "That it can be so applied, on the portion of the proposed

Canal from Utica to Oswego, I do not entertain a doubt." In the next paragraph he says, "Where there is much lockage to be overcome, this method, from the delay attending the passage of the locks by a train of boats, cannot so conveniently be adopted."

In the following paragraph, he says: the principal elevation is overcome between the Lake and Oswego Falls, and between Fish Creek and the Rome Summit, together about 22 miles; and continues, "For vessels passing in train on these portions, animal power may, perhaps, be used with economy."

It would therefore seem the economy of steam, as compared with animal power, is not in all cases conclusive, though the phraseology is so framed as to leave the preference of the engineer involved in some degree of ambiguity. We have rather concluded he intends animal power on two sections between Lake Ontario and Utica; so it appears the application of steam on this portion may be understood as follows, to wit: From Lake Ontario to Oswego Falls animal power is proposed, thence to Fish Creek steam power, thence to Rome Summit animal power, thence to Utica steam power, and from Utica to Albany no opinion is given whether steam or animal power is intended. If the same qualifications, as made above, may be inferred from the question of lockage, we must conclude that the section of the "Steamboat Canal" extending from Utica to the Hudson will be navigated by animal power. We have been thus particular in order to obtain, if practicable, some standard character for the projected Canal. The appellation of "Steamboat Canal," gives the impression that it is designed to be navigated by steam power; but in detailing the project, the engineer seems to modify this character so materially, that we are left to suppose it was at least doubtful in the opinion of Mr. Johnson, whether animal or steam power would be the most economical on a large portion of it. It is, however, urged in general terms, both in the memorial and report, that steam power may be used on the Lakes and Canal with great advantage, and that by this means transportation will be effected with greater celerity and economy than by any other route. We find some embarrassment in meeting the subject for the want of a specific exposition of the plan or method by which the object of the project is to be accomplished, and shall be compelled to follow it more at length than would otherwise be necessary. The great importance of providing for the trade of Lake Erie will, we trust, be a sufficient apology for what may be a somewhat lengthy examination.

It has been shown the proposed Canal was not adapted to the steamboats that navigate the larger Lakes. Consequently to use Lake steamboats in any other way than by towing barges, would make transshipment necessary, and thereby sacrifice one of the prominent objects claimed for the improvement. Mr. Johnson proposes the towing plan on Lake Ontario, and of course to avoid transshipment the same plan must be adopted on Lake Erie. This method of navigating has been very successfully practised on the Hudson River: on the larger Lakes, though a great number of steamboats have been in use for several years, the plan has not been adopted, for the reason, that the steamboats cannot manage barges in a storm. We have been informed of a proposition made to the proprietors of a steamboat, to take some Canal boats from Buffalo to Cleveland; and it was accepted *only* on the condition that in the event of a storm, they should be at liberty to cut them loose at the risk of the owners.

An intelligent gentleman of several years experience in navigating steamboats, and the last two seasons on Lake Ontario, informs us that he considered it impracticable, as a regular business for steamboats on the Lakes, to tow vessels with safety, unless the vessels were fitted with masts and rigging, and manned sufficient to be conducted by sails in a storm; the storms often rise very suddenly on those Lakes, and with such violence as would compel a steamboat to cut loose vessels in tow in order to sustain herself.

Steam power, as adapted to navigation has been known for many years, and we are not aware that any material improvement has recently affected its economy. It has been in the hands of an enterprising people, who would not be slow to discover its adaptation to any useful modification in the economy of navigation: and when we consider the broad hint given on the Hudson, we are led to the conclusion, there is some difficulty in the economical application of the towing system on the great Lakes. No fact or reasoning is given in the memorial or report, to show that the difficulties had in any respect been obviated, and we are led to suppose there are none. We are therefore brought to the conclusion, that transportation on the Lakes must be done by sail vessels, or on board the steamboats. We suppose schooners might be towed by steamboats, and thereby render the passage shorter and more certain; but whether the saving of time would pay the extra expense, we are not informed.

In regard to the use of steam power on the proposed Steamboat Canal, we have observed a want of perspicuity in regard to what was designed. Mr. Johnson (page 54) gives the speed on the proposed Canal at 5½ miles per hour, and after a few remarks,

alludes to the use of steam on the Canal as a means of effecting greater expedition than can be obtained on the Erie Canal route. In the next page, after giving a list of prices of transportation, he remarks on the great difference in favor of wind and steam upon the larger waters, as compared with a Canal: and immediately alludes to the contrast between the cost on the Hudson River and the Erie Canal; in the next page he says, an important saving in expense is likewise anticipated by the use of steam as an impelling power. The memorial takes the ground that steam is best adapted to the Canal, and draws comparisons between its use on the Hudson River and Lake Erie, and the navigation of the Erie Canal. The manner in which the question of the applicability of steam power to the navigation of the proposed Canal is treated, both in the memorial and report, is calculated to give the impression that it is an important consideration, and we therefore propose to examine it.

In making a comparison between the cost of transportation on Canals, Lakes and Rivers, to determine what power is the best economy, it is clearly proper the item of tolls should be kept out of view. For although the entire cost of transportation will be affected by any change of tolls to which the mode of conveyance may be subject, still, they form no part of the expense of propelling power, and therefore it is evident they are to be excluded in determining between the economy of the kinds of power used. We have procured the following statement of charges for transportation, which are exclusive of toll on the Canal:

For flour per ton per mile,
Hudson River by steam towboats, (145 miles,) . . . 8 mills.
Erie Canal, (363 miles,) . . . 8.9 "
Erie Canal, (269 miles to Rochester,) . . . 9.2 "

The above prices have been recently established.

We have no prices for steam on Lake Erie or Lake Ontario since those of 1834.

Merchandise per ton per mile,
Hudson River, steam towboat, (recent tariff,) . . . 15.1 mills.
Erie Canal, (recent tariff,) . . . 21.5 "
Buffalo to Detroit, (350 miles, for 1834,) by steamboat, . . . 37.4 "
Oswego to Lewiston, (146 miles,) by schooners and steamboats, as per 1834, . . . 29.0 "

The above includes port charges, and as these are the same for long and short distances, they will modify the ratio above indicated in proportion to the distances; and the Canal will also be affected by its lockage.

The distance on Lake Erie and the Erie Canal are nearly equal, and will afford a fair comparison, except the inconvenience of locks. The Hudson and Ontario navigation is less than half the Canal in length; but it is considered the locks on the Canal are nearly if not quite equivalent to its advantage in length; at least, it cannot be materially different from this; and we may take the prices as a fair indication of the relative economy.

On the Erie Canal, flour is found to be very near the average of all the freight: In this article it appears the cost of animal power on the Canal is 12 per cent. greater than steam power on the Hudson, and for merchandize, 42 per cent. greater. The agricultural products, including ashes, which range much the same as flour in price of freight, are in quantity, as compared with merchandize, about 2½ to 1, making the average cost of transportation on those articles 21 per cent., or say one-fifth greater on the Canal than on the Hudson River. The prices on the Lake steamboats that carry the goods on board, are above the Canal prices; and we do not think it necessary to make any further statements in relation to them at this time. Perhaps there are no waters better adapted to the steam towboat method of navigation, than the Hudson River; and yet the price of navigation by animal power on the Erie Canal is but 21 per cent., or one-fifth greater, instead of three to one, as stated in the memorial and report before referred to.

The Erie Canal is small, and the traction of boats that navigate it, is from 30 to 45, and most usually about 40 per cent. greater than would occur on a Canal of the most favorable size for the boat used: If it was adapted to the most favorable navigation of boats of 100 to 150 tons, only a small proportional increase would be required in the expense of men to navigate them; and it is believed the transportation by animal power on the projected "Steamboat Canal," could be effected at half the present cost on the Erie Canal, which would reduce it to about two-thirds of steam power on the Hudson. It should be observed the speed on the Hudson is from 2 to 3 times greater than on the Canal. If we add the toll on the Canal, the cost of Canal navigation will be increased; but as before observed, this should not be included in determining the relative cost of the power used, which is our present object. If steam power was used at a lower velocity on the Hudson, it is believed it would be more economical; this, however, would make it less profitable in regard to passengers, and perhaps freight would not be much re-

duced, if the passenger business was sacrificed for the lower speed; another consideration has an influence in this case; steamboats of small power would not be able to manage their barges in the broad parts of the river in heavy blows. But on the presumption they had a uniform smooth surface to navigate, they could doubtless be made to effect transportation, that alone being considered, at a low velocity, for less cost than at present. The amount of this reduction will in some measure depend on circumstances; and especially in its application on the proposed "Steamboat Canal," where the dimensions are so much below the broad sheet of the Hudson, that we can hardly indulge the hope of reducing it materially below what it now is, on that river.

It has heretofore been considered that the agitation of the water, produced by the paddles of steamboats in Canals, was too severe in its action on the banks; and hence we find that even in England, where steam power is much cheaper in proportion to animal power, than in this country, they adopt animal power generally, not only "on small," but also on LARGE Canals: we are not aware of any instance of the use of steam power on Canals, unless it be to pass comparatively short sections that intervene in the navigation of larger waters.

The detention and consequent increased expense of steam power in passing locks when used for towing trains of boats on Canals, must ever constitute a serious objection to its use.

In view of the whole subject, we are led to the conclusion, that experience has thus far shown animal power to be not only best adapted to propelling boats on Canals, but when applied to both large and small Canals is more economical than steam power.

In speaking of the application of steam power to Canal navigation, Mr. Johnson calls it a "great and growing power of the arts." We should not allude to this expression, if we did not believe it was calculated to give an impression of the prospective importance of providing for the use of steam power, that is not warranted from experience. That steam is a great power, no one will question: Whether it has reached the full development of its efficiency, we shall not attempt to determine. Since the days of Watt and Evans, the ingenuity of scientific and practical mechanicians have been largely put in requisition, to improve this truly noble engine of art; many patents have been obtained; the working gear has been made more convenient and efficient; the condensing engines have been made to condense more perfectly; the application of its power to the work performed has been made more direct, simple and efficient; the workmanship of its machinery has been improved, and some increase has been given to the economy of its boilers, in generating steam. But the great principles of the engine remain materially the same as left by those distinguished men. The application of this power is now made with great simplicity; and we see no reason to believe there is well founded probability of any such improvement in its application to navigation, as will warrant a reliance in laying the foundation of a project that will cost millions, and be intimately connected with a great public improvement.

As a general principle, steam, when employed for stationary purposes, is much more economical than animal power, and is peculiarly so where fuel is cheap. There are reasons, however, that materially affect its comparative economy when employed in locomotion; but we do not suppose we are called on to make an exposition on this point. The facts given are the result of much experience, and these we deem to be the only proper basis in laying the foundation of extensive public works. It is easy to conjecture that the time may arrive when steam power may be used with economy on the long levels of large Canals; but it is believed a careful examination will show the probability to be too remote to justify any considerable expenditure at this time.

From the preceding examination we are irresistibly led to the conclusion that the use of steam power, on the proposed improvement, from Lake Ontario to the Hudson, is inexpedient, except where it may be important to avoid the expense of a towing path, which we believe will only occur on the Oneida Lake, a distance of 21 miles.

It should be kept in view that we have been considering the subject in regard to the comparative economy of steam and animal power on Canals; and that this does not determine the entire cost of transportation. Canals are the works of art, and involve expenses of construction and maintenance, which must be reimbursed in the shape of tolls charged on the freight, while natural waters are free from such expenses. And, although the expense of navigation may be greater than on a Canal, exclusive of tolls, still the natural navigation pays no tolls, and in regard to the total cost, may therefore be, and often is, the cheapest.

The question in regard to the application of steam power on the proposed "Steamboat Canal," being, as we believe, conclusively disposed of, we proceed to consider another peculiar feature, which the memorial considers of great importance, to wit: The means of affording a passage for Lake vessels, to proceed directly to the Atlantic markets. In order to avoid transshipment

we have shown this must be done by vessels adapted to the use of sails on the Lakes.

The memorial contemplates effecting the transportation between Lakes Erie and Ontario through the Welland Canal. Mr. Johnson, in his report, speaks of the distance from Buffalo to Lewiston in his calculation of time, and in his locks provides for a larger vessel than can pass the locks on the Welland Canal. We presume that a link in so important a chain of navigation would not be left in the control of neighbors, who are proverbial for taking care of themselves; we therefore proceed on the presumption, that a Canal for Lake vessels will probably be required from somewhere near Buffalo or Black Rock to Lewiston, in order to perfect the scheme.

The first inquiry will be to determine the relative cost of Canal transportation by vessels adapted to the navigation of the larger Lakes, and by boats adapted exclusively for a Canal of the same dimensions as the proposed "Steamboat Canal."

In his report, Mr. Johnson proposes to accommodate the navigation to schooners of 160 tons, register measure, which would be equal to at least 200 tons, actual tonnage.

This is believed to be considerably larger than is generally used in the navigation of Lake Ontario, though perhaps not larger than vessels on Lake Erie; but he has chosen this size, and as it will not materially affect the comparative view, we follow out the question on the position he has assumed. He adopts 30 feet as the width of his lock chamber, partly to accommodate the Erie Canal boats in pairs, and further says, it is "but little, if any, greater than would be required for vessels of suitable proportions for Lake service, drawing 7 feet water."

The length of beam is not given, but from the size of the lock we infer that it must be from 26 to 28 feet, and that the vessel will have a transverse section, at her midships, below low water line, of at least 150 feet, and will probably be something more, but the data are not full, and we wish to give the schooner all she is entitled to in the comparison, and therefore adopt this as her transverse area.

A Canal boat 104 feet long, 16 feet wide, drawing 7 feet water, will carry 200 tons burthen, and require a lock 115 feet in length and 17 feet width of chamber, sectional area of boat below load water line, 108 feet. The weight of the schooner, including her furniture, in proportion to the load she will carry, may be taken as 3 to 4, making the gross load of vessel and cargo 350 tons.

In regard to this ratio we would observe, that we find in Rees' Cyclopedia, art. ship building, an estimate of the weight of a 74 gun ship, and the burthen as follows, to wit: The vessel, including hull, masts, rigging, anchors, cables, and all that is properly the ships furniture, for the sailing and government of the vessel, to be 1,579 tons; and her armament, ballast and complete loading, 1,250 tons. We also find an estimate under the same authority for an East India ship of the most approved model, by which it appears the weight of ship and furniture was 811 tons, and her registered tonnage 999 tons, and the actual weight of a full cargo, 1,217 tons. A practical ship builder, in Albany, of much experience, (Mr. Annesley,) informs us that the usual estimate for sail vessels for merchant service, is as 1 to 1; that is, the vessel will weigh equal her registered tonnage. We therefore suppose the ratio of 3 to 4 will be a fair medium.

Canal boats constructed with reference to freight merely, will generally weigh, in the ratio of their cargo, as 4 to 9.

If large boats will hold the same ratio of those used on the Canal, and we see no reason why they should not, then the boat of 200 tons will have a gross load of 289 tons. The gross load of the schooner will therefore be (61 tons,) 21 per cent. or 1-5 greater than the canal boat.

The power required for traction, will be in proportion to their transverse section, provided they hold equal or similar ratios to the transverse section of the Canal, or if the Canal is equal in both cases to an unlimited expanse of water. The ratio of schooner to Canal, is as 1 to 3.94: the ratio of canal boat to Canal, is as 1 to 5.48. The relative power of traction, (deduced from the formula of Du Buat,) for equal sections, will be as 100 to 125. The ratio of the sections of boat and schooner are, 100 to 138; and we have, therefore, the ratio required for the boat and schooner, as 100 to 167.5, or the schooner will require, (67 per cent.) 2-3 more power to tow her than is required for the boat.

We have been informed that schooners of 100 tons burthen, cost on Lake Ontario \$4,000, and that canal boats constructed exclusively for freight of equal burthen, will cost \$1,400; pursuing the same ratio, the schooner of 200 tons would cost \$8,000, and the canal boat \$2,800, for the same tonnage. The ratio of cost is as 100 to 285, or the schooner will cost nearly three times as much as the canal boat. The schooner being over 50 per cent. wider than the boat, and having a section much larger, (near 40 pr. ct.) in its ratio to the Canal, will be managed with more difficulty, be more liable to come in contact with other vessels, and the sides of the Canal, and will consequently be exposed to greater wear.

The gates for the schooner locks will be nearly double the size of those for boats; will work more heavily, be more liable to injury,

and consequently be more expensive to manage and to maintain.

In view of all the circumstances that affect the cost of transportation as above presented, we have come to the conclusion, that the cost of transportation on the proposed Canal, by schooners, will be 75 per cent. more than by boats made exclusively for Canal navigation. This is exclusive of the expense of loading and unloading.

The cost of transportation, by canal boats on a canal of the dimensions of the proposed "Steamboat Canal," it is believed, will not exceed 5 mills per ton per mile; but we will assume it at 6 mills: and by the ratio above stated, the cost per schooner, will be 10½ mills. In view of the great amount of trade that may be expected, and the encouragement we may suppose the State will be disposed to afford, for more effectually securing the same, it is presumed the tolls will not be more than an average of 5 mills per ton per mile, which would be a trifle over half the present tolls on the Erie Canal. Upon this basis, the cost of transportation by schooners, including toll, would be 15½ mills per ton per mile. The canal boats not being adapted to lake navigation, must be charged with the expense of transshipment at Oswego; from this place they may proceed to the Hudson, and then be taken in tow by a steamboat, for which they will be well adapted, and proceed to any market on that river. The cost of transshipment from one vessel to another, when a large business is done, as at Albany, is effected without any material warehouse charges; the port expenses are therefore, for transshipment from one vessel to another. Men that have been extensively engaged in this business at Albany, inform us, that 15 cents per ton will pay all expenses of transshipment, including cooerage and other repairs to casks and boxes, that is made necessary in transshipment. We propose to put this at 25 cents per ton, which appears to be a liberal allowance for all contingencies. We are aware the port charges would be about double this sum if the freight generally required warehouse expenses; but we suppose a large business at Oswego, would produce the same result as it has at Albany.

The charges for transportation from Oswego to the Hudson by schooner, will be per ton per mile—

202 miles at 15½ mills,	\$3.15
By canal boat—	
202 miles at 11 mills,	\$2.22
Transshipment at Oswego,	25
	2.47

Difference in favor of boat, 66

We have supposed toll to be charged through Oneida Lake in both cases, and the same toll is charged on both vessels; though the extra expense in managing the pivot bridges, would require a higher toll on schooners than on boats.

If the Canal was comparatively short, the expense of transshipment would throw the superior economy in favor of schooner navigation. As for instance, from Buffalo to Lewiston there could be no doubt of the superiority of a navigation by schooners.

The navigation of the Canal by schooners requires the passage from one side of the Canal to the other by pivot or draw bridges, for public roads, and for the accommodation of farms; Mr. Johnson proposes "scows or floats, securely moored in basins formed out of the main range of the Canal." He says, between Utica and Rome, there is "upwards of 20 farm bridges." Between Utica and the Little Falls there is a fraction over 3 farm bridges per mile, for 22 miles. It would be easy to form basins for these floats on the berm side of the Canal; but basins on the towing-path side will require to be bridged. The inconvenience to the land owner, in using this method, where the passage of vessels will be very frequent, and the liability of the floats to get loose and be driven about and destroyed by the vessels navigating the Canal, the expense of maintaining so great a number of towing-path bridges, under the wear to which a large business will expose them, together with the inconvenience to which the navigation will be at times liable from this plan, render it in our opinion very objectionable. To pursue any other course would involve heavy expenses for damages, particularly in the valley of the Mohawk, where the Canal would generally divide the upland from the intervalle, leaving the latter between the Canal and the River. The intervalle lands rarely afford good situations for buildings and Roads, and would not make desirable farms without some portion of upland. The Canal would not therefore be readily adopted as a boundary of property.

The accommodation for public Roads must be by pivot or draw bridges. When a small number of vessels pass daily, a draw may be used without any great inconvenience to common Roads; but if we look forward to the trade contemplated to float on this great thoroughfare, the great inconvenience to the common Roads and the navigation from crossing by this method must be apparent. And in large towns and villages the communication between the two sides of the Canal would be peculiarly perplexing and disad-

vantageous: though there are difficulties, we by no means consider this method of crossing the Canal impracticable; but have thought it incumbent on us, to point out the inconveniences that are inseparable from this plan.

The lock that is required for the schooner, in order to provide for her peculiar form and rigging, is necessarily longer and wider than required for a canal boat of equal tonnage; and we find the lockage water for the same tonnage to be (90 per cent.) nearly, and we may say double for the schooner that is required for the canal boat.

The calculation for traction has been made with reference to the vessels moving at the same velocity. If, however, it should be desired to increase the speed at some sacrifice in the price of freight, it could be done best with the canal boat, as its ratio of section to the Canal is more favorable than that of the schooner. Mr. Johnson, in making a comparison between this route and the Erie Canal, puts the velocity on the Erie Canal at 2½ miles per hour, and on the proposed "Steamboat Canal" at 5½ miles per hour. The sectional area of the Erie canal boats, on the average, have a ratio to the transverse section of the Erie Canal full as favorable as the schooner to the proposed Canal. We suppose he contemplated steam power to enable him to obtain this superiority in speed, which, by the usually received principle of computation, would require nearly 5 times as much power as a speed of 2½ miles per hour. The sectional area of the schooner to the Canal is as 1 to 3.94, and for a vessel of this size, having this ratio to its Canal, would be moved at this velocity only by a greatly increased expense of power, and would produce such a wave as to throw the water of the Canal over banks of the usual height, and in a short time destroy any ordinary protection that could be given them. We do not therefore see any ground to support this position; on the contrary, the inconvenience of managing large lock gates will produce more delay in passing them than would happen with small ones; and the only advantage in point of time is in the transshipment, which we suppose may be equal to one day over the gain by the boat in passing locks.

We are brought to the following conclusions, to wit: That schooners would gain, by saving transshipment, one day in navigation between Oswego and Albany.

That the cost of transportation would be 66 cents per ton greater than by boats.

That schooners would require double the quantity of lockage water.

That in consequence of the necessity of draw bridges a schooner navigation would greatly discommode the ordinary inter-communication of the country through which it passed.

That the use of steam power is inexpedient.

In regard to the construction, we have no doubt of the practicability, but we are unable to say any thing definite in relation to cost. To do this properly, the plans of the work, not merely in general, but in detail, should be settled, and a careful location and measurement of the contents of the several parts of the work made. Experience has proved that no great reliance can be placed on cursory surveys; the general practicability of a project may be ascertained, but the particulars are highly essential to a knowledge of the cost. We believe a work requiring large expenditures, and when the expense would probably have a material influence on the question, whether it should be undertaken, should have a full examination before any professional opinion should be given in relation to its cost.

The projected Steamboat Canal occupies 127 miles of the Erie Canal route extending from the Hudson to 2 miles west of Rome; and as before observed, Mr. Johnson anticipates its enlargement from the point of divergence near Rome, westward, to 8½ feet depth of water, and 60 or 70 feet width at the surface. Now, we propose for comparison, that this enlargement shall be extended to the dimensions of the proposed "Steamboat Canal," to wit: 8 feet depth of water, and 90 feet width at surface. This would give a large Canal from the Hudson to Lake Erie. To compare the cost of transportation from Albany to Buffalo on this route, with that by Ontario, we must inquire into the cost of transportation on Lake Ontario. This has been stated at 29 mills per ton per mile for merchandize, as per rates of 1834, given by Mr. Johnson. A forwarding merchant connected with the Oswego line, (Mr. Griffith, of Troy,) informs us, the price of freight from Oswego to Lewiston, is 20 cents per hundred. Capt. Vandewater, of the Steamboat United States, on Lake Ontario, says he has carried freight at 15 cents per hundred, each way, for the last two years. That the price by schooner is about the same. He gives it as his opinion, that if they had plenty of freight, that steamboats would carry for 15 cents up and 12½ cents down, and schooners for 12½ cents up and 10 cents down. To put the average at 10 cents, and allow 2 cents for port charges, would bring the cost to 8 cents per hundred for the freight over Lake Ontario, which is probably as low as we can anticipate for an average rate by schooners. This will give per mile, from Lewiston to Oswego, (146 miles,) 10.9 mills per ton per mile. The cost from Buffalo to Albany, will then be by schooners—

Buffalo to Lewiston, 30 miles, Canal at 15½ mills,	30 42½
Lewiston to Oswego, 146 miles, Lake, at 10.9,	1 59
Oswego to Albany, 202 miles, Canal, at 15½,	3 13
	<hr/> 65 19½

By Canal boat—	
Buffalo to Albany, 363 miles, Canal, at 11 mills,	39 80
Transshipment at Buffalo,	25
	<hr/> 64 20½

Difference in favor of Erie Canal, 90
If the charge for transportation by the boat is raised to 8 mills, and the tolls also to 8 mills per ton per mile, then the comparison will be as follows, to wit:

Ontario route,	65 19½
Erie Canal route,	64 20½

Difference in favor of Erie Canal, 90
The time required, allowing 3 days as the average passage on Lake Ontario, which we are informed, is rather below the average for schooners, and 6 hours extra time in passing 30 locks more on the Ontario route than the Erie Canal, will be for the—

Ontario route—	
232 miles of Canal navigation, at 2½ miles per hour,	92.8 hours.
Extra time for 30 locks,	6 "
Lake navigation, 3 days,	72 "
	<hr/> 170.8 "

Erie Canal route—	
363 miles of Canal, at 2½ miles per hour,	145.2 "

Difference in favor of Erie Canal route, 25.6
If steam power was used on Lake Ontario, from 40 to 50 hours would be saved in time, making this route in time, about one day the shortest. This would of course be at an increased expense. Whether the communication be made from the Hudson to Lake Ontario, or from the Hudson to Lake Erie, we are of the opinion, a Canal, designed for boats exclusively adapted to its navigation, and which may be towed by steamboats on the Hudson, will best accommodate the prominent interest involved in the great trade, for which provision is to be made.

In order to draw the comparison, we have taken a boat of 300 tons burthen; but we would observe, that we consider this to be larger than can be navigated, with the best economy, on the proposed Canal. Its sectional area, although much more favorable in its ratio to the transverse section of the proposed "Steamboat Canal," than the schooner we have considered, is still too large for the most economical traction. A Canal boat, designed to carry ordinarily 120 tons, and which could, when a pressure of freight demanded, carry 150 tons, we believe may be conducted with the best economy in transportation. A Canal having 8 feet depth of water, and 90 feet width at surface, with locks 10 by 115 feet chamber, could be navigated with the best economy by a boat carrying from 120 to 150 tons burthen. We are fully persuaded a boat of this capacity could be navigated on a Canal, suited to afford it the most economical traction, for the lowest price assumed in the computations above made. In regard to the size of Canal, we are aware, its ultimate capacity will, in a great measure, depend on the capacity of the boats that may navigate it. This, however, has its limit. The boat may be so large as to render its management inconvenient, and subject its navigation, in passing locks, to so much delay, as to diminish rather than increase the capacity of the Canal. The point which will afford the greatest capacity, can only be determined by experience. And in view of the prospective importance of the trade to be accommodated, the dimensions of the Canal should be settled, in our opinion, on a scale that will reach its utmost efficiency. In regard to proportions, we believe, that 80 feet width of surface, is as great a width as should be given for 8 feet depth; and if a larger Canal is deemed necessary or expedient, a corresponding increase in depth and width should be made. A deep Canal requires less water for evaporation than a shallow Canal of the same width; and if in contracting the width, the section is retained by deepening, we shall enhance this economy. The lockage water is also less in proportion to the tonnage, for a boat of greater than for one of less draught of water. Proper limits, however, are to be observed; the width should be such as to allow the boats easy space in passing each other; and it is highly important this should be liberal where the meeting is as frequent as may be anticipated. We are of opinion, that 10 feet surface is ample for each foot in depth.

Respectfully submitted.

JOHN B. JERVIS,
HOLMES HUTCHINSON,
EUGENE C. MILLA,
Civil Engineers.

Albany, 23d March, 1835.

The following account of the business of the Welland Canal is, we believe, from an Oswego paper.

It affords us pleasure to learn that the Welland Canal is gradually coming into greater use as a means of transit from Lake Erie and the vast Lakes and territory beyond it to Lake Ontario and the St. Lawrence. Though distant from us, we cannot fail to participate in the advantages of its success. In a few years hence we may safely prognosticate, that the Welland Canal will be no trifling feeder to the stream of commerce which will flow through our city to the other parts of the world.

By the following Monthly Report, it will be seen, that the business of the Canal is on the increase, and that there is a balance of £250 in favor of May, 1835, over the same month of 1834. There is a very great decrease in the export of flour and provisions, owing to the deficiency of the crops in 1834: but the increase in the export of other articles, and of merchandize imported, have augmented the Canal revenues beyond the corresponding period of the former year.

The powerful causes which are stated as being at present in operation to restrain the trade of the Western Country from falling into the natural channel of this Canal, as they are artificial, cannot reasonably be expected to be of long duration. The interest of private individuals will soon lead to the breaking up of so expensive a monopoly.

Monthly Report of the Board of Directors of the Welland Canal Company.

The Secretary reports the following Comparative Statement of Property passing through the Canal, in the months of May, 1834, and 1835, and the Tolls received thereon:

Articles.	1834.	1835.
Flour.....	4,330 barrels.	2,721 barrels.
Wheat.....	5,872 do.	3,016 do.
Whisky.....	102 do.	291 do.
Salt.....	8,244 do.	6,146 do.
Wheat.....	25,840 bushels.	56,759 bushels.
Pipe Staves.....	17,900 No.	84,339 No.
West India do.....	0 No.	18,479 No.
Square Timber.....	3,550 cubic ft.	57,311 cubic ft.
Boards.....	204,484 feet.	226,395 feet.
Saw Logs.....	2,574	5,925
Beer and Cider.....	0	374 barrels.
Shingles.....	0	8,000
Barley.....	0	1,748 bushels.
Gypsum.....	0	1204 tons.
Tobacco.....	37 hhds.	112 hhds.
Merchandise 437 tons 17 cwt. 2 q. 707 tons 15 cwt. 2 q.		
Amount of Tolls received to May 31, 1834, 672 11 6 ^d		
Do. do. do. May 31, 1835, 923 15 2		
Increase.....	£250	3 7 ^d

Which, considering the season, presents a very satisfactory result.

From the information obtained by corresponding with those interested in the Trade, there is a very great diminution in produce for export, from the Western country. It appears the effects of the snow storm and frost on the 15th May, 1834, were far more injurious, and extended through a much greater range of country, than was anticipated.—Perhaps the loss of one fourth of the entire crop may not be an over-average, together with all the fruit, and the greater part of the nuts, such as acorns, beech nuts, &c. the loss of which can only be appreciated by those farmers, in the back country, having extensive droves of pigs. The farmers on the American side, are in the habit of threshing out their grain in the fall, and sending off all, except an immediate supply for the use of their families; which had a tendency to increase the general scarcity on the western side of those lakes, and created a demand for almost all the surplus on the

Canadian side—consequently, very little produce can be expected to pass the Canal until the fall crops come in.—A very great increase of merchandise may be expected; and those interested in the navigation of this route, hold out the most flattering prospects for another season.

The only thing required, is to make the Canal a perfect navigation. Practical experiment has proved, what was always held out theoretically, that the natural local facilities presented by this route, would eventually command the trade of the Western country. It is true, many unforeseen causes have arisen to retard this result.

The trade of the Western country had been well organized and concentrated in Buffalo—many enterprising men were embarked in it, with any amount of capital they pleased to command—their lines were extended, on the opening of the Ohio Canal, to Portsmouth, on the Ohio River—and those Companies, together with the Mill-owners at Rochester, Black Rock, and the entire line of the Erie Canal, make extensive advances on produce, and secure it before its removal from the owners in Ohio—while we, on this side, being destitute of capital, and the consequent material to convey produce; unaided by capital and enterprise, which might naturally be expected from Montreal, must patiently wait until means are devised to place capital within our immediate reach—when the temporary and artificial trade heretofore wrested from us, will be restored to its natural channel.

The merchants of Oswego are an exception—they can command a capital proportionate to their numbers; and with a degree of enterprise and judgment which the command of capital generally insures, have built and are building, a large class of vessels—last year they proved profitable, and will, in all probability, continue to do so, as they command as much business as they are capable of performing.

The Board, feeling the importance of placing this navigation in the best possible state of repair, on a scale commensurate with the object, have entered into contracts for the delivery of the necessary materials to re-build such locks as may require it, and extend their dimensions to 24 feet, with a view of ultimately extending the whole to that scale.

The navigation will be kept open the present season, as long as vessels may continue to navigate.

By order of the Board,
JOHN CLARK, Sec.

Welland Canal Office,
St. Catharine's, July 1, 1835.

THE ISLAND OF NEW YORK.—We understand it is ascertained by actual survey, that this Island comprises thirteen thousand acres, and it is estimated that one thousand acres will eventually be added to it by extending into the rivers and the filling up of marshes.—The first thousand acres is comprised in the line below Grand street, from river to river—from Grand street to twenty-first street there are two thousand acres. In these 3000 acres, it is supposed there are yet vacant lots sufficient to accommodate not only the whole present population of the Island but enough more to make up the number of 300,000—or the number of 100,000 inhabitants to one thousand acres, allowing about the same density of population that now exists below Canal street.—It may be seen from this, that the whole Island is capable of accommodating nearly a million and a half of inhabitants—and if our population continues to increase in the same ratio it has done for the last 30 or 40 years, the Island will be filled to its whole extent, in a period of less than half a century.—[Mercantile.]

The officer who pursued *Bowen* the smuggler, in a pilot boat, to England, returned in the Virginian,

re infected, that is, without executing his object, as indeed it was perfectly certain before he started, that he would, unless, indeed, he had overhauled the ship in which *Bowen* was a passenger, on the high seas.

Application was made to the Secretary of the Home Department, for a warrant to arrest *Bowen*, but it was refused, on the ground that no treaty stipulations required such a course, and without them, it was wholly inadmissible; and in England, a man, however criminal, cannot be kidnapped under the forms of law, as we have instances of, in this country.

FIREMEN'S GUIDE.—A map of the city to 21st street has just been published by Desobry, 131 Broadway, under the direction of the Corporation, showing the fire districts, fire limits, public cisterns, stations of engines, &c., and an explanation of the direction of a fire, as indicated by the striking of the City Hall Bell:—

The city is divided into five districts, which are pointed out by the bell as follows:

- 1st District—One stroke of the bell.
- 2d District—Two do do.
- 3d District—Three do do.
- 4th District—Four do do.
- 5th District—A continual ringing.

The first District is comprehended by a line from the foot of Murray street to the City Hall, and in a line from the N. W. corner of the City Hall, parallel with the North River to 21st street.

The second District is bounded by the latter line, and a straight line from the Hall to the 3d avenue at 21st street.

The third District is bounded by the latter and a line from the City Hall to the East River above the Dry Dock.

The fourth District is bounded by the latter, and comprehends all the space between that and the East River as far down as Frankfort street.

The fifth District is all that part of the city below Frankfort and Murray streets.—[Commercial.]

[From the Globe of Wednesday.]

GENERAL NAVAL ORDER.—As a mark of respect to the memory of CAPTAIN WOLCOTT CHAUNCEY, late of the United States Navy, who died at Pensacola, on the 14th inst., while in the command of the Navy Yard and Station at that place, the flags of the Navy Yards, Stations, and Vessels of the United States Navy will be hoisted half-mast, and thirteen minute guns fired at noon on the day after the receipt of this order.

Officers of the Navy and Marine Corps will wear crape for thirty days.

MAHLON DICKERSON.
NAVY DEPARTMENT, 27th Oct., 1835.

THE SURPLUS REVENUE.—The large amount of the surplus revenue for the present year, and the prospect of a still greater one for the succeeding year, is attracting the attention of the public. In addition to the regular surplus of the next year, there will be six and a half millions of U. S. stock, with which something must be done. Ways and means must be thought of to get clear of it. We have heard it suggested that no inconsiderable portion of it might be employed in procuring materials, &c. for the augmentation of the navy; and when we saw the advertisement (which will be found in our paper) of proposals for the supply of live oak timber for

- 5 Ships of the line,
- 6 Frigates,
- 5 Sloops of war,
- 6 Schooners, and
- 2 steamers,

we did not know but that some of this might be in anticipation; but on inquiry we found it was founded on the regular and usual appropriation for that purpose. If the usual appropriation can go on procuring timber at the above rate, there will be no necessity of any great increase of appropriation in that way.—What is to be done with the surplus Revenue?—[Washington Telegraph.]

MONUMENT TO PERRY.—We learn, with much pleasure, that the project of a monument to the lamented Perry, to be erected in this city, has not been lost sight of, and will not be abandoned. The surviving companions of that gallant spirit deem the thing due to his memory, and are determined to see it accomplished. They will not lack aid in their undertaking.—[Buffalo Journal.]

FAIR OF THE AMERICAN INSTITUTE.

This splendid display of that spirit which is constantly urging our yet infant nation still onward in the march, or rather flight of improvement, has now closed; and it is not enough for us merely to say, it has not only exceeded the most sanguine anticipation of the most enthusiastic American patriot, but it has surpassed any thing which could have been believed, had it been predicted. The official Report is in detail before the public; but we deem it not only a privilege, to which we are entitled, but a duty we owe to our readers to present them, in our own way, our own opinions, comments and remarks, if not on every article, at least on some of those we considered most particularly worthy of notice.

In estimating the respective value of the productions of human ingenuity and industry, we should place in the first rank, and at great distance before any others, those which increase the productiveness of human labor. He who, by his ingenuity, can contrive, in any branch of labor, in which ten thousand people are employed at one dollar per day, to produce the same effect by the labor of one thousand, or ten times the effect produced before, by the ten thousand; if he does not deserve all the increase his ingenuity has produced, he certainly deserves, and well deserves, an immense pecuniary reward, together with the grateful thanks and the cheering applauses of mankind. But it is painfully true that exactly the reverse is generally the case. The authors of far the greater number of labor-saving inventions have met no reward but poverty and contempt.

The next in order of merit is he who, by his ambition to excel, produces the fairest and most improved specimen, or the greatest quantity, of any article contributing to the comforts, or the innocent pleasures, of life. The agriculturist, who can exhibit the most improved article in his line, either animal or vegetable; or the manufacturer, who produces the most valuable sample of cloth, or any other manufactured article, ought, certainly, to be rewarded and respected accordingly; but no person of sense will contend that the man who produces the largest and fattest ox or swine, or the finest and best article of clothing, can rank, in the scale of merit, with him who has contrived means to make the same labor, in producing these articles, yield ten or a hundred-fold.

The next degree of merit, we consider, (though our judgment may by some be called in question,) belongs to the persons whose genius and refined taste serves to increase and improve the embellishments of life.

With these remarks, we shall give our notices of the various exhibitions at the Fair accordingly.

LABOR-SAVING INVENTIONS, AND IMPROVEMENTS IN MANUFACTURES.

Shaw's Patent Threshing Machine and

Horse Power.—Presented by T. L. Pollard & Co., Albany. There is probably no other branch of labor which has been the subject of so many patented inventions as Threshing; and there are so many constructed on the same leading principles, that it would be impossible to tell with any certainty, which is entitled to preference, or for the patentees of a dozen or twenty, to point out how their respective Machines differ from all the rest. But it is a fortunate circumstance, that those of late invention are nearly or quite all good. Mr. Shaw's is among the number, and for aught we can see, as good as any. The Horse Power seems to present the greatest difficulty, and in this, we think Mr. Shaw's as good, and perhaps better, than any others; as it will operate with as much certainty, with as little power, and at less expense, and being less complicated, is less liable to disorder; and we are not afraid, therefore, to recommend it to any farmer.

Fitzgerald's Grinder, and Threshing Machine.—This Grinder consists of the frustum of a cone, of French burr, which runs on a horizontal axis in a conical hollow case of the same material, which is in two halves, the one stationary and the other moveable. We saw it in operation by a single horse power, and it made flour of the first quality, and we should say half as fast as a common grist mill, with a full head of water. It must need be an excellent article where large grinding establishments cannot conveniently be come at, and for many uses where they can.

The Threshing Machine is a good one, but we shall make no comparisons in that article.

Walter Hunt's Patent Forest Saw.—We cannot better describe this article than in the inventor's own words. "A simple, effective Machine, designed for felling trees and cross-cutting their trunks for lumber; and also, for the purpose of clearing wild lands." We consider this an article of peculiar value for the following reasons: First, we are confident trees may be felled with it as fast, and we think faster than with the axe. Second, It may easily be carried and used by one man,—its weight being only 30 lbs. Third, It will cut nearer the ground than can conveniently be cut with an axe, and of course leave the stumps lower. Fourth, By felling trees with the axe, the trunks are often split near the ground, and valuable timber spoiled, which will not be the case in sawing. Fifth, Its cheapness puts it within the reach of every man engaged in lumber.

Throstle and Speeder, for Roving and Spinning Cotton.—Made at the Oldham Works, one mile from Paterson, N. J., under the direction of B. Brundred, and exhibited by Samuel G. Wheeler & Co., 42 Pine street, New-York.

These Machines exhibit some improvements in the principles of their construction; but the points which most strongly

recommend them, are excellency of workmanship and materials, in both of which they are truly elegant, without superfluity; and we do not believe they can be surpassed in correctness of operation.

Washing Machine.—Invented by A. W. Soule, and another, by William Niffin.

We have seen many patent Washing Machines, and each declared by the inventor or vender, to be far superior to any other. We will venture to say, that the two above mentioned are both good, and probably that they are equal to any we have seen.

Improved Drill.—made by D. B. King, of Waterford. The importance of a discovery is in no direct proportion to the magnitude of the object discovered. This little diamond is worth a whole quarry of granite, though the latter is valuable; and in such proportion we consider the value of this little invention of the Drill. Every good Mechanic will feel the same pleasure, when it meets his eye, that a skillful connoisseur in the article would feel on finding a valuable diamond.

Machine for Making Staves.—invented by Philip Cornell, of New-York. As a hand labor saving invention, we have some doubt whether this Machine has any superior; and it does its work in a style which hand labor cannot imitate, without an immense sacrifice of time. It not only finishes, ready to put together, of any suitable timber, from 200 to 400 Staves per hour, and which need no dressing off, after they are set up, but it effects a vast saving of timber, as one Stave is taken in its finished state, directly from the side of another, without any intermediate waste.

Machine for Cutting Lath.—We can truly say of this Machine, that for operativeness, simplicity, and cheapness, it can hardly be surpassed. It cuts from 60 to 80 Lath per minute, and as they are cut off smooth at one stroke with a sharp tool, their quality is improved, and there is no waste, even of a saw-calf.

Improved Clock.—made by George Gaines, at Seneca Falls, and exhibited by E. W. Adams, the Proprietor. We had neither time nor opportunity to examine in detail the improvements in this beautiful specimen of Clock work. But we saw enough to convince us, that its plan is superior to any other now in use, as an accurate time keeper, either for private houses, or for churches and other public buildings, and we hope and trust that both the inventor and the proprietor will meet liberal encouragement from the public, which we think they certainly merit.

Improved Theodolite.—made by Ewin & Keartle, Baltimore. Invented and exhibited by Samuel Stone. We cannot do justice to this splendid invention, as well as elegant specimen of workmanship, in the brief catalogue we are giving, so well in any other way, as to let the inventor speak for himself—we therefore give his own words,

"This Instrument embraces all the principles of a Modern Theodolite: besides which, it contains the following improvements—The first improvement is a circular revolving plate, sliding or resting upon the limb of the instrument. The upper surface of which forms a plane with the upper surface of the limb; on which are delineated a set of Mathematical numbers, which supply the place of a Table of Logarithms, and all other logarithmic tables.

"In the second place, this Instrument is so constructed as to supersede the necessity and use of a Chain in all cases. The distance of any visible object can be ascertained at one station, as far as a flag staff can be distinctly seen through the Telescope of the Instrument, to the exactness of chains, links, and decimals.

"It also calculates the Latitude and departure of every course run, and the base and perpendicular of all elevations. It further embraces all the fundamental rules of common Arithmetic, viz: Multiplication, Division, Single Rule of Three, Interest, Mensuration of Superfices and Solids, Gauging, &c. Any question in plain Trigonometry, right angled or oblique, can be solved on the Instrument correctly; including all questions that can be performed by Logarithms or Logarithmic Tables. The whole without the use of figures or a mathematical calculation."

Cheese Press, invented by S. Kibbe. This is the best plan of a Cheese Press we have ever seen.

Mowing and Grain cutting Machine, invented and exhibited by Capt. Alexander Wilson.

In estimating the value of this labor-saving Machine, it is necessary to consider the quantity and quality of the labor saved by it. It is well known that cutting down grass and the different kinds of grain, is far the hardest and most extensive, as well as expensive branch of labor in the whole catalogue of farming operations; and that it has to be performed at the critical moment when in season; and the farmer is often, thereby placed at the mercy of his hired laborers, who always charge a higher price for it than for other labor, and at times take undue advantage of the employer's necessity.

Now, if this Machine answers the intended purpose, and we can see no reason why it should not, the farmer, instead of complaining, that though the "*harvest is plentiful, the laborers are few*," can dismiss eleven of his twelve laborers; saving not only all their wages and food, but all the liquor they drink; or, if he feel a charitable disposition to employ the poor, he can by the money so saved, extend his fields to ten or twelve times their present size, and increase his stock, and consequently his wealth, accordingly. Capt. W. calculates that this Machine, with a man and horse, will do the work of twelve men in cutting either grass or grain.

His plan appears to be simple and well digested; and if it should be susceptible of improvements, as he is himself a farmer, there can be no doubt that the head which has conceived the plan thus far, will be able, by the light of experience, to perfect what appears, at least to us, to be so ingeniously begun.

Machine for Sawing and Jointing Shingles, invented by David B. Moore.

We have seen several Machines for sawing and jointing shingles not very dissimilar, possibly the same. We think, however, this has some improvements; at any rate, this is a good Machine. The exhibitor states that it will make 10,000 shingles per day with a 5 horse power, which is probably the case. It would, therefore, in a place where there is plenty of timber, and a sufficient water power, be a valuable and profitable article. The cost is \$100.

Double-Acting Bellows, invented by Chas. D. Holmes.

This will be a valuable article, where a continuous and steady blast is wanted, either on a large or small scale. It occupies but little space, is not expensive, and cannot fail to effect the purpose.

Locomotive Chair, for people incapable of walking. By James Grey, Brooklyn.

This is a valuable invention for persons unfortunately deprived of the power of walking. It is a handsome mahogany chair of compact size, and the machinery by which the person moves it with either hand, is not only simplified to its lowest terms, but is truly ornamented. Mr. G. is, as far as we know, the first who constructed such a chair, and his improvements are the result of 15 years' experience.

Double-acting or Continuous Pump, for the use of houses, stables, &c. By Dudley L. Farnham.

This article is not new, though the patent has not yet expired: we have known it some years, and still know it as an excellent article.

Patent Churn. By Francis Lane.

This was the most simple looking article exhibited at the Fair; and yet we presume not only every lover of good butter, but every one who recollected as we well recollect, the many and painful hours spent in boyhood at the tedious labors of the Churn, when ever and anon, the relaxed sinews of industry received new stimulus from the cheering (not to mention fretting) admonitions of the good mother, prompting us to perseverance, and who saw this Churn, must have felt, as we felt, a peculiar glow of satisfaction as he passed it. We have seen patent churning machines tortured into every earthly shape except that of a real Churn, and adapted to all sorts of purposes but churning; but this was none of them. It was no machine at all, nothing but a couple of the real old churns of the days of our childhood, and each making the other go of itself, without the application of any power which would tire a child.

Patent Roastmeat Jack, made by Edward Shepherd, Paris, Oneida county.

This is a very ingenious and simple contrivance to turn, by clock work, a spit for roasting meat. When cooking is done on a large scale, we should consider it a very valuable article.

Improved Shears, made by David Ward.

These Shears, which were exhibited in a case with a lot of the most elegantly finished Shears we have seen, were on a plan which we should think a very great improvement, where several thickness of cloth are to be cut through at once. By a combination of levers, so light and so ingeniously contrived as to be no more unwieldy to the hand than common shears, a power is gained sufficient to cut through forty thickness of cloth without straining the hand.

Morticing Machine, invented and exhibited by George Page, of Keene, N. H.

This is one of that family of inventions which seem actually combining together to turn labor into sport, and at the same time, to increase its productiveness as if by magic. It has been exhibited in operation most of the week, morticing table legs, bedstead posts and other articles—made 16 mortises in a minute—makes them straight or circular, or oblique to any angle; will mortice a 14 spoke hub in 5 minutes, and all with more accuracy and neatness than those made by hand.

The price of the Machine, with a set of 6 chisels, is \$30. He has also a machine for making mortises in framing a building, with nearly the same despatch. We should think no man, whose business embraces making mortises in wood, would be long without one.

Another **Morticing Machine**, by Richardson and Dennis, is doubtless a good article, but we did not see it in operation. But a little the most marvellous specimen of labor saving, or rather labor annihilating, we saw, was a brace of

Machines for making Biscuit, made and exhibited by J. & C. Bruce.

One of these Machines is for large and the other for small biscuit. The small one is calculated to mould in the most perfect manner, and to bake and complete at the same time 48 in a second, or 2880 in a minute, or to go a step farther into the marvellous, 162,800 in an hour. Or, to tell the whole story in few words, he will, in one hour, convert about 18 barrels of flour into good and wholesome bread. The baking part of this Apparatus was not exhibited at the Fair. We are, therefore, not authorized to vouch for the report of this part of the invention. Of the rate of moulding we had ocular demonstration. The inventor assured us that his plan comprehended the baking as well as the moulding, and that he had it perfectly matured, though it was not exhibited.

To pass over all other considerations on

the Bread-Making Apparatus, we should think its importance at sea, and in war, enough to enrich, if not immortalize its inventor. A given quantity of flour takes up less room in storage than the same baked into bread. In long voyages at sea, instead of barely preserving the spark of vitality, by gnawing upon a dry and mouldy substance, which, perhaps, was once bread, but is now the habitation of myriads of noisome insects, the health of a crew will no doubt be promoted, independently of the comfort, by good and wholesome bread every day, or at farthest once a week; and the same benefits will result to an army on land.

The whole expense of this wonderful Apparatus, sufficient for a ship of the line, will not exceed \$100, and the space it will occupy is so small as to be of no consequence. Who can tell why this does not meet with encouragement?

Arnold's Patent Machine for Making Twisted Roving.—The several inventions for making Rubbed Roving, and the preference given to that kind of Roving, except for fine twist, have nearly superseded the use of Twisted Roving altogether in this country. But in spinning cotton from 60 hanks to the pound upwards, Roving is doubtless to be preferred with some twist; and as we are constantly progressing towards finer fabrics, we think this speeder may become a valuable article. Such is the opinion we formed, in the absence of any one to explain it.

Hamilton's Machine for Sawing down Trees.—This article stood in the Fair by the side of, and of course in competition with, that of Hunt, and we noticed the preference alternately given to each, by the multitude who examined them. But these opinions weighed nothing with us. We assume the right to judge for ourselves. There were some strong points, respectively, in favor of each. Cheapness and portableness were in favor of Mr. Hunt's Machine. The effect of the fly wheel, to equalize the resistance to the power applied, was in favor of Mr. Hamilton's. The former is the application by hand, aided by a lever, and spring of the saw, directly to the tree: In the latter the saw hangs upon a frame, swinging upon a pivot, operated upon by a crank and fly-wheel, and pressed forward to its work by a weight. We shall appeal to the decision of time and experience, for a decision as to their relative value.

Blowing Machine.—This is an ingenious contrivance, by Mr. Brundred, of the Oldham Works, near Paterson. It consists of the frustrum of a cone surrounded with spiral fans, which being inclosed in a conical shaped case, the air is converged and forced out at the small end with any force, according to the propelling power. It will prove a useful thing.

Model of a Spiral Reacting, or Tub Water Wheel. This is one of a numerous family of Water Wheels, varying but little

from each other, and which we think is as good as any we have seen of the kind. They are importantly useful in certain situations.

Improved Stoves.—This is a very important subject, and worthy to engage, as it has engaged, the most eager emulation. But the competitors are so numerous, and so many important improvements have been exhibited, that it would be difficult if not impossible to award the victory with justice to any one. At this Fair there were 80 different stoves exhibited. The preference in this department of invention has been generally given, and we believe justly, to Dr. Nott. But it seems impossible for one man to run so fast in any race but that another may equal him. We had not an opportunity to examine critically the merits of each stove, but we think the claims of Mr. James Wilson, of Mr. Parmelee, and of Mr. Parker, entitle them to a candid examination.

Bee Hives.—Among the numerous useful improvements, we saw none more entitled to patronage than the bee hives, exhibited by Messrs. Parish and Kelsey. Both their plans were good. We were instructed and amused by the practical knowledge of Mr. Kelsey on the subject, a degree of knowledge which few men would have patience to acquire; we intend to profit by Mr. K's instructions, but we prefer the hive exhibited by Mr. Parish. We hope the labor and examples set by these gentlemen, will put an end to the shameful practice of destroying these industrious little creatures with fire and brimstone.

Printing Press.—The hand Printing Press of M. L. Kingsley, embraces some improvements in simplicity and facility of working; and notwithstanding the overwhelming importance of the double or single Napier Press, we think this still has its usefulness, and is entitled to respectful notice.

MANUFACTURES.

As it is proper to commence with the most valuable articles, we will select Mr. Pemberton's Improvement in Gold. Mr. P. has succeeded in effecting a perfect and solid union between pure gold and pure copper, and between 18 carat gold and a composition very suitable for various purposes, in so perfect a manner that a bar plated and drawn down will answer an infinite number of purposes, in all respects as well as solid gold. The Buttons exhibited by Mr. P. manufactured in this way, are in all respects, for use and beauty, superior to buttons of real gold, as the metal on which they are plated is more substantial, and all that can be seen is gold. The same, when plated on both sides, may be said of the Watch Cases—and we might add, many other articles.

Silver Ware.—The specimens of Silver Ware exhibited by Mr. Marquand, 181 Broadway, and Mr. James Thompson, 129 William-st., produced the most agreeable astonishment, especially to us, who well remember when to produce a common Silver

Buckle in this country, was a thing viewed with utter astonishment.

Articles of Copper.—We saw several elegant articles of Copper, which we thought quite as worthy of attention, and as useful as those of gold or silver, though the material did not cost so much.

We will next notice some articles chiefly of Steel and Iron, which we consider to be of still more intrinsic value than those made of any other metal.

We will begin with the beautiful specimens of *Edge Tools*—consisting of Chisels, Gouges, Drawing Knives, Broad Axes, &c. &c. Superior in finish to any imported ones we have seen, and we trust no less so in temper, as they were manufactured by Kennedy & Way, of Hartford—in the senior member of which firm we recognize an old friend, whose ingenuity, in that line, as well as honesty and patriotism, we have witnessed in days of "Lang Syne."

The *Wood Screws*, by Messrs. J. G. Pier-son and Brothers, are far superior to any imported articles of the kind we have seen.

The Case of elegantly finished *Shears*, of somewhat varied descriptions, but above all the pair with increased power which we have already described, are elegant indeed.

Another valuable item was *Hinges*, of various descriptions—a most superb article.

Door Locks—and various other articles composed of metal, all of which were superior to any thing of a similar nature which we have been accustomed to meet with.

Watch Dials, of rich and superior beauty, by Mr. Mullen, 175 Broadway.

Sheet Brass, manufactured at Waterbury, Connecticut—a very important article, and of excellent quality.

Sheet Zink, in very large sheets.

Razors, Penknives, Shears, and other Cutlery, in as high perfection as ever graced a show-case, by Robert Ward, 142 Fulton-st.

Another sample, of similar character, by William Wild, 142 Fulton and 162 Division street.

Augers, and various instruments for boring, of the most improved form, and exquisite workmanship.

A splendid lot of *Joiner's and Cabinet Maker's Tools*, such as an ambitious young man might feel proud to work with, and such as twenty years ago were never seen on this side of the Atlantic, and perhaps rarely on the other, by A. & E. Baldwin 404 Broome street.

Scales and Scale-beams, of the most approved forms and finished workmanship, by D. H. & S. Nichols.

In the line of *Clothing*, we can only say collectively—there was a universal assortment composed of every material, except *Silks*, which we have every reason to believe will form a brilliant climax to the display another year. The exhibition of *Broadcloth, Cassimers, and other Woollen Goods*, left apparently but little room for future improvement. One piece of *Black*

Clot in particular, without any disparagement, to the rest, was for excellency of finish, and particularly for its silky softness, a proud article for our country, or any other. It was made by C. A. Beecher, Waterbury, Connecticut.

In *Cotton Goods*, the display was highly respectable, consisting not only of almost every article of undyed Cotton in use, but of dyed and printed Goods, of exquisite beauty. The printed Muslins and dress, and furniture Calico, from W. Robertson, of Fall River, did credit to the Manufacturer, and to the country.

The *Cut Glass*, from W. T. Morton, of Baltimore, was as near perfection as our fancy can reach.

The specimens of *Bookbinding and Blank Ruling*, were beautiful indeed—if they can be surpassed it would be needless.

The various articles of *Cabinet Furniture*, some displaying superior workmanship—some improved form, and ingenious contrivances for convenience, and some both, were well worth their price, to those who can afford to buy them, and a gratifying treat to us who could not.

With respect to the *Piano Fortes*, and other stringed as well as wind Instruments, we can only say, in general terms—they were a superb display, but we were not surprised nor astonished, for we expected to find them so. It is to be feared they have left no room for improvement another year.

We must not forget, as a specimen of American manufacture, a *Bolt of Duck*, a most substantial and well finished article, by our valued friends Amos Briggs & Co. Scaghticoke.

Various articles of *Indian Rubber* were exhibited, which were not only valuable in themselves, but much more peculiarly so, as they pointed to an immense, but yet unexplored field of future improvements, of which that article is to form the foundation. The little net-covered globes, or parlor balls, exhibited by H. Percival & Co. must certainly furnish an all-important hint to the Aeronaut. But at any rate, we have no fear in predicting that the hundredth part of the uses of this long neglected article have not yet been thought of.

The specimens of *Crown Window Glass*, from Redford, and from Brooklyn, certainly bid defiance to any other country in that line. As they stood in a bad light, we could not decide which was entitled to the preference, if either; but either of them far surpassed any imported Crown Glass we ever saw.

There were some beautiful specimens of *Swords*, but as we profess to belong to the peace party, we hope they will never come into general use.

Relief Bed for the Use of the Sick.—Among the numerous and successful displays of inventive genius, we saw nothing which merited more grateful applause, or a more liberal reward, than the above article, invented by Mr. Jones, of Providence, R. I.

Mr. J. states that he has been employed a great number of years in attending on the sick, and that the plan he has presented has been suggested by necessity, and improved and directed by his long experience, and it may be truly said his services confirm his statement, and do credit to his genius.

By this wonderful contrivance, whilst a sick person may be lying horizontally and asleep on it, the upper part of the bed may be elevated to any angle required, and, if necessary, lowered again to the same position—or the patient may be raised from the bed altogether, and swung off by a crane, at the head of the bed, while the bed is made, and then put back on a fresh made bed, and all this without sufficient jar to awaken the patient from the most delicate and watchful sleep.

Whenever the state of the patient requires, or admits of sitting in a chair, the bed may be immediately transported into an easy chair, and back again in a moment, when required, to a bed, in so gentle a manner as not to give pain even to a broken limb. Should the patient be delirious, even to the most raving maniac, this same soft bed is in an instant made to supercede the use of the straight jacket, by confining the body, head, and even the limbs, in the most perfect stillness, and without the slightest pain; and in addition to all these conveniences, the necessary calls of nature may all be attended to with the most perfect cleanliness, and without the slightest movement of the patient.

Who would not be willing to reward so much ingenuity applied to such a purpose?

We have now enumerated, with occasional remarks, those articles which we thought most important; especially the most useful. To go into an entire detailed description of the several hundreds of fancy and minor articles, though many of them were useful, and all perhaps displayed ingenuity, and a spirit of enterprise which deserves encouragement, yet we think it would occupy too great a portion of our pages, which our readers would decide might be appropriated to better use.

We shall notice, when we have leisure, and room in our pages, some of the foregoing articles, more at length, and give engravings in cases where we can obtain them.

[From the Albany Argus of Saturday.]

COMMON SCHOOLS.—According to the notices that had been given, a large and intelligent audience assembled on Thursday evening, in the Female Academy, when the meeting was called to order by Gideon Hawley, Esq. who moved that his Excellency, Wm. L. Marcy, be chairman of the meeting. The motion was unanimously adopted. Mr. Hawley then proposed that Thos. W. Olcott be the secretary of the meeting.

The Governor then rose, and after introducing Mr. Taylor to the audience, made some pertinent remarks on the importance of the great subject before the meeting. He stated that he was highly pleased to hear of the benevolent efforts of some of our truly patriotic citizens who had sustained this mission among our common schools, and that he was gratified with the privilege of now hearing some of the results of Mr. Taylor's tour.

Mr. Taylor then addressed the audience for more than an hour, in a practical style, manner and thought, which made a deep impression upon the audience,

and which showed that the speaker was fully acquainted with his subject. The friends of education felt that great good to our common schools would arise from Mr. T.'s investigations. It is understood that the facts and results stated in the lecture will be published in a report, hereafter to be made to the patrons of the mission, and we shall therefore omit giving the purport of the lecture.

Census of New York.

The following is a correct estimate of the present inhabitants of this city—being an abstract of the Census recently taken:—

WARDS.	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	Total
Number of male persons in each ward.	5,538	4,865	5,682	5,683	8,401	8,949	10,081	12,879	9,901	10,046	12,965	13,198	8,071	8,130	5,653	131,592
Number of females in each ward.	4,704	3,176	5,489	6,757	10,086	8,588	11,401	15,651	10,665	10,980	13,880	11,300	9,044	9,175	7,591	138,351
No. of male persons subject to military duty.	1549	586	1,894	2,965	8,799	1,761	1,720	3,354	860	1,619	2,689	861	1,689	1,397	827	22,910
No. of persons entitled to vote at elections.	2,193	1,474	2,911	3,160	2,902	2,908	3,511	4,144	3,119	3,278	4,137	3,869	3,806	2,444	1,970	43,936
No. of male persons who are not naturalized.	1,864	787	1,067	2,413	2,579	1,998	2,928	1,669	1,334	1,946	2,877	1,891	1,971	1,489	1,065	27,538
Number of paupers in each ward.	1	1	8	43	111	1	1	8	2	6	1684	6	36	36		1,893
No. of colored persons who are not taxed.	581	295	599	180	1,978	813	2775	996	990	803	1,537	1,237	694	983	289	14,943
No. of colored persons who are taxable.	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	79
Colored persons taxed and entitled to vote.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	75
No. of married females under the age of 45.	1,336	754	1,161	923	2,638	2,635	3,208	4,438	3,456	3,104	4,945	3,216	3,715	2,341	1,955	39,927
No. of unmarried females between 16 and 45.	1,539	1,198	1,584	2,005	3,004	2,574	3,064	4,284	3,980	3,916	5,276	3,916	3,916	2,744	2,744	35,716
No. of females under the age of 16 years.	1,372	874	1,504	2,143	3,174	2,968	3,967	5,904	4,333	4,333	5,666	3,940	3,406	2,793	2,282	46,464
No. marriages where female lived in the ward.	52	27	112	100	172	37	900	187	182	333	174	101	178	908	38	1,991
MALE.	128	65	131	234	331	264	452	478	378	418	592	318	378	364	217	4,596
FEMALE.	117	63	113	221	308	246	442	456	333	406	617	491	389	394	178	4,495
MALE.	77	48	103	167	181	104	241	272	286	337	429	249	289	174	140	3,973
FEMALE.	78	74	114	121	184	53	291	307	307	387	549	308	289	174	140	3,667
No. of acres of improved land in each ward.	130	91	75	76	137	91	291	157	264	264	433	298	39	86	216	4,476

There are in the city and county of New-York

175 deaf and dumb; of blind 105; of idiots 32; of lunatics 176.

Males, - - - - 131,593
Females, - - - - 138,351

Total, - - - - 269,944

COMPARATIVE STATEMENT,

	1835.	1830.	Increase.
First Ward,	10,342	11,331	
Second Ward,	7,540	8,303	
Third Ward,	10,884	9,599	1,285
Fourth Ward,	15,420	12,705	2,715
Fifth Ward,	18,490	17,722	768
Sixth Ward,	16,837	13,570	3,267
Seventh Ward,	21,422	15,873	5,549
Eighth Ward,	28,560	20,739	7,821
Ninth Ward,	20,566	22,810	
Tenth Ward,	20,936	16,438	4,498
Eleventh Ward,	26,845	14,915	11,930
Twelfth Ward,	24,437	11,308	13,129
Thirteenth Ward,	17,025	12,598	4,427
Fourteenth Ward,	17,305	14,288	3,017
Fifteenth Ward,	12,904		

Total—1835, 269,973 202,589 12,904
1834, 202,589

Increase '67,381
Increase in the Wards, as above 71,280
Decrease.

First Ward, 1,069
Second Ward, 663
Ninth Ward, 2,244

3,996

67,284

The Fifteenth is a new Ward, taken from the Ninth, which accounts for the decrease in the latter.

The total increase in the last five years, is a fraction more than thirty-three per cent.

Number of neat cattle in the city and county of New York, 4063; number of horses, 10,712; number of sheep, 416; number of hogs 11,979;—number of yards of linen, cotton, or other thin cloths, manufactured in the domestic way during the year preceding, 668,000—the whole of these manufactures being in the Twelfth Ward. Number of cotton factories 5; all in the Ninth Ward.—The value of the raw materials used and manufactured in these factories is \$202,800—the value of the manufactured articles \$271,600—the number of yards of cotton cloth 672,000. There is one woollen factory in the Tenth Ward, using and manufacturing \$15,000 worth of raw materials, the value of the manufactured articles being \$23,000. There are 11 iron works—1 in the Second ward, 3 in the Sixth ward, 4 in the Tenth ward, and 3 in the Fourteenth ward. The value of raw materials used and manufactured in them is \$130,250—the value of manufactured articles is \$348,050. There is 1 trip hammer in the Tenth ward; value of the raw material manufactured \$17,000; value of the manufactured articles \$21,000. There are 9 distilleries—value of raw materials \$532,527; value of manufactured articles \$659,067. Two grist mills; value of raw materials used \$108,000; value of manufactured articles \$130,000. Five saw mills; value of raw materials \$311,360; value of manufactured articles \$417,210. Paper mill—1 in the Seventh ward; value of raw materials \$6000; value of manufactured articles \$10,000. Tanneries—5 in the Fourth ward, 2 in the Seventh ward, 1 in the Eighth ward, and 1 in the Thirteenth ward; value of raw materials \$23,855; value of manufactured articles \$55,260. Breweries 10—in the Fourth ward 2, Fifth ward 2, Seventh ward 1, Eighth ward 1, Ninth ward 1, Tenth ward 1, Thirteenth ward 1, Fifteenth ward 1; value of raw materials \$152,475; value of manufactured articles \$228,505.

Messrs. Davis and Miller, the agents despatched to England in the Pilot boat Aymar, in pursuit of Bowen, the smuggler, returned on Monday in the Liverpool packet, having failed in accomplishing the object of their voyage. On their arrival at Liverpool, we understand they applied to the magistracy for a warrant to arrest the fugitive, but could not obtain one. At the suggestion of Mr. Ogden, the American Consul, application was next made to Lord Palmerston, secretary for foreign affairs, but without success. In reply, his lordship stated that, as no compact existed between Great Britain

and the United States, authorizing the surrender of fugitives from justice, the redress sought for in this instance could not be granted.—[Courier and Enquirer.]

ORDER HEAD QUARTERS OF THE ARMY,
Adjutant General's Office,
WASHINGTON, Oct. 31, 1835.

1.—PROMOTIONS AND APPOINTMENTS in the Army since the publication of "Order" No. 38, of July 1st, 1835.

1.—PROMOTIONS.

Regiment of Dragoons.

Second Lieutenant John S. Van Derveer, to be First Lieutenant, 15th August, 1835, vice Hamilton, cashiered.

Brevet Second Lieutenant Henry Turner, to be Second Lieutenant, 15th August, 1835, vice Van Derveer, promoted, (brevet 1st July, 1834.)

First Regiment Artillery.

First Lieutenant Lemuel Gates, to be Captain, 1st October, 1835, vice Henry Whiting, resigned.

Second Lieutenant Miner Knowlton, to be First Lieutenant, 23d July, 1835, vice Palmer deceased.

Second Lieutenant John F. Kennedy, to be First Lieutenant, 1st October, 1835, vice Gates, promoted.

Brevet Second Lieutenant John F. Lee, to be Second Lieutenant, 23d July, 1835, vice Knowlton, promoted, (brevet 1st July, 1834.)

Brevet Second Lieutenant Charles B. Chalmers, to be Second Lieutenant, 31st August, 1835, vice Harris, resigned, (brevet 1st July, 1834.)

Brevet Second Lieutenant Louis A. B. Walbach, to be Second Lieutenant, 1st October, 1835, vice Kennedy, promoted, (brevet 1st July, 1834.)

Second Regiment of Artillery.

Brevet Second Lieutenant Charles J. Whiting, to be Second Lieutenant, 10th September, 1835, vice Prentiss, resigned, (brevet 1st July, 1835.)

Brevet Second Lieutenant George M. Legate, to be Second Lieutenant, 31st October, 1835, vice Vance, resigned, (brevet 1st July, 1835.)

Third Regiment of Artillery.

Brevet Second Lieutenant Robert R. Mudge, to be Second Lieutenant, 31st August, 1835, vice Bryant, resigned, (brevet 1st July, 1833.)

Fourth Regiment of Artillery.

Brevet Second Lieutenant Alexander E. Shiras, to be Second Lieutenant, 6th October, 1835, vice Petigru, deceased, (brevet 1st July, 1833.)

Third Regiment of Infantry.

First Lieutenant Ous Wheeler, to be Captain, 31st October, 1835, vice Loring, resigned.

Second Lieutenant Nathaniel C. Macrae, to be First Lieutenant, 31st October, 1835, vice Wheeler, promoted.

Brevet Second Lieutenant George P. Field, to be Second Lieutenant, 25th July, 1835, vice Baldwin, deceased, (brevet 1st July, 1834.)

Brevet Second Lieutenant Cary H. Fry, to be Second Lieutenant, 31st August, 1835, vice Legate, resigned, (brevet 1st July, 1834.)

Brevet Second Lieutenant Thomas O. Barnwell, to be Second Lieutenant, 31st October, 1835, vice Macrae, promoted, (brevet 1st July, 1834.)

Fourth Regiment of Infantry.

Brevet Second Lieutenant Benjamin Alvord, to be Second Lieutenant, 21st July, 1835, vice Manning, deceased, (brevet 1st July, 1833.)

Fifth Regiment of Infantry.

Brevet Second Lieutenant Thomas Stockton, to be Second Lieutenant, 31st August, 1835, vice Scott, resigned, (brevet 1st July, 1831.)

II. APPOINTMENTS.

Staff.

Brevet Major Henry Whiting, Captain in the First Regiment of Artillery, to be Quartermaster, 23d September, 1835.

Charles M. Hitchcock, to be Assistant Surgeon, 17th August, 1835.

William W. Hoxton, to be Assistant Surgeon, 24th August, 1835.

Regiment of Dragoons.

Cadet Abram R. Johnston, to be Brevet Second Lieutenant, 1st July, 1835, to take rank next below Brevet Second Lieutenant Hanly.

Third Regiment of Infantry.

Cadet Hugh McLeod, to be Brevet Second Lieutenant, 18th September, 1835.

Fourth Regiment of Infantry.

Cadet Henry Prince, to be Brevet Second Lieutenant, 18th September, 1835.

III.—CASUALTIES.

Resignations.

Captains.

Henry Whiting, 1st Artillery, 1st October, 1835.
Henry H. Loring, 3d Infantry, 31st October, 1835.

Second Lieutenants.

David B. Harris, 1st Artillery, 31st August, 1835.
Henry E. Prentiss, 2d Artillery, 10th September, 1835.

Joseph C. Vance, 2d Artillery, 31st October, 1835.
William Bryant 3d Artillery, 21st August, 1835.

Stephen B. Legate, 3d Infantry, 31st August, 1835.
Moses Scott, 5th Infantry, 31st August, 1835.

Brevet Second Lieutenants.

James N. Ellis, 1st Artillery, 19th October, 1835.
Montgomery Blair, 2d Artillery, 10th October, 1835.

Herman Houpt, 3d Infantry, 30th September, 1835.
Lucius Bradbury, 7th Infantry, 1st October, 1835.

Deaths.

Brevet Lieutenant Colonel William Linnad, Quartermaster, 20th September, 1835.

First Lieutenant William Palmer, 1st Artillery, 23d July, 1835.

Second Lieutenant Charles Petigru, 4th Artillery, 6th October, 1835.

Second Lieutenant Alexander G. Baldwin, 3d Infantry, 25th July, 1835.

Second Lieutenant David A. Manning, 4th Infantry, 21st July, 1835.

Assistant Surgeon Foster Swift, 18th August, 1835.

Assistant Surgeon Robert French, 13th August, 1835.

Revoked.

Charles Little, Military Storekeeper, 31st August, 1835.

Cashiered.

First Lieutenant James W. Hamilton, Dragoons, 15th August, 1835.

2.—The Officers promoted and appointed, will report accordingly, and join their proper stations, and companies, without delay; those on detached service, or acting under special orders and instructions, will report by letter to their respective Colonels.

IV.—"RULE TO BE OBSERVED IN ORDINARY CASES OF PROMOTION."

3.—"If a field officer, the officer promoted will join the regiment and station of his predecessor; if a company officer, he will join the particular company where the vacancy to which he succeeds may have occurred."

By order of
ALEXANDER MACOMB,
Major General, Commanding in Chief.
R. JONES, Adj't. General.

TRANSFERS.

Brevet Second Lieutenant James H. Stokes, of the 2d Regiment of Artillery, transferred to the 4th Artillery.

Brevet Second Lieutenant William H. Betts, of the 7th Regiment of Infantry, transferred to the 1st Regiment of Artillery.

The following gentlemen were admitted at the present term of the Supreme Court, as Attorneys and Counsellors:

Attorneys.—George K. Andrews, Walter W. Allen, Horatio P. Allen, Augustus L. Allen, Chas. H. Bramhall, John M. Bradford, Daniel A. Baldwin, George Buckham, John E. Brackett, Horatio Bogert, Lorenzo D. Brock, Howard Chipp, Solomon B. Conely, Stephen B. Cushing, Phedrus Carter, William Calkins, Ebenezer Clark, Sullivan Caverno, Alexander Fonda, Joseph Genter, Daniel Gray, Thomas Graham, Milton N. Halsey, John Howes, Augustus S. Hills, Abraham Hoes, Joseph D. Jordan, John James Kane, William H. Leonard, Edwin C. Litchfield, John L. Lewis, jr., Daniel T. Mosely, Henry B. McClure, George W. Newell, Franklin J. Osborn, Robert O. Reynolds, Hiram Riggs, Henry J. Ruggles, Charles A. Sherman, Walter W. Seymour, Allen M. Sherman, Charles Stuart, Charles W. Swift, Erasmus P. Smith, Wessel S. Smith, Gilbert M. Spier, Marshall M. Strong, Alexander B. Thompson, Charlesmagne Tower, Peter A. Van Bergen, Isaac V. Van Der Poel, Don Carlos Woodcock, Abel B. Watkins, jr., Arthur C. Southwick, John Wait, Henry P. Wannmaker, Henry Whitney.

Counsellors.—Henry G. Colton, Joseph Crapoo, John L. Curtenius, J. L. Endress, Amos Gould, Joseph D. Husbands, Charles M. Jenkins, Alex-

ander Hursheerd, Robert H. Martin, Nathan Westcott.—[Albany Eve. Jour.]

TEA IN INDIA.—A Calcutta paper gives the following account of the discovery of the Tea plant in India, from which it appears possible that it may become an article of trade from that country.—[Boston Adv.]

TEA PLANT.—We understand that further discoveries of the Tea plant have been made on our eastern frontier among the Muneepoor hills, and that some specimens of the leaves have been sent down to the Agricultural and Horticultural Society, and are now in possession of Dr. Wallick.—Major Grant has the merit of this new discovery. The plant was pointed out to him in the hills by Shans, who knew it well, having visited the tea garden cultivated by the Chinese. But we are told, the specimens of the leaf, (which we have not seen,) from want of a proper curing, are not in a state to render it possible at present to judge of the quality of the tea that might be obtained in that district. In the meantime it is very satisfactory to know that the plant is common among those hills in a large extent of country, and that we have thus a double resource in our own neighborhood, which may hereafter render us independent of China for a commodity become so necessary to the comfort of Europeans, and so very important as an object of trade. The hills in Muneepoor, on which the tea plant is indigenous, must be of considerable elevation, for in a letter we have seen describing the successful result of a late harassing expedition against some freebooters, it is mentioned that, in two days' march from Sangonoo, the party found themselves among pine and oak forests, and that the nights, even in the middle of March, were extremely cold.

LATER FROM EUROPE.—By the packet ship *Virginian*, Harris, master, from Liverpool, we have our London papers to the 7th ultimo, inclusive—from which we make such extracts as appear of interest, though, at present, there is not much of certain intelligence respecting Spain, the chief point of attention.

The following article from the London Times of 7th October, presents a brief summary of the latest intelligence from the Continent:—[N. Y. American.]

The Paris papers of Monday, 5th October, received, with a number of private communications, by express, bring no further intelligence from the interior of the Peninsula, and as the resignation of M. Mendizabal on the 25th of September, rested exclusively on the authority of the *Memorial Bordelais*, the absence of direct intelligence from Madrid, joined to the continued silence of the telegraph on the subject, might have given to the statement a sufficient contradiction. Even the *Journal des Debats* had begun to express some reluctant doubt on the subject, and the *Moniteur du Commerce*, a Ministerial print of the same political complexion with the *Memorial Bordelais*, is the only paper published in Paris on Monday, which still professes to believe in M. Mendizabal's resignation. Starting from that point, it is pretended that a commercial crisis, the result of political anarchy, had already arisen in Catalonia. Commercial orders having been in a great measure suspended, a number of manufacturers had been obliged to dismiss the most of their workmen, and upwards of twenty manufacturing establishments at Barcelona had been entirely closed, while others had announced their intention of winding up their affairs for the purpose of escaping from utter ruin. The cotton trade has suffered more severely than any other, having attained to a high degree of prosperity under the system of absolute prohibition against the importation of cotton goods, which has heretofore prevailed in the Peninsula. The number of workmen employed in this branch alone is stated at 100,000; the annual amount of their wages at 150,000,000 reals, the amount of fixed capital expended in buildings and machinery at 180,000,000 reals; and the annual value of the produce at 325,000,000 reals. A fourth part of this trade is said to be concentrated in the city of Barcelona; and this Ministerial journal, the *Moniteur du Commerce*, is at great pains to impress on the minds of the 100,000 workmen of Catalonia, that the distress to which they are exposed, arises from the undue advantage which England has taken of the confusion which prevails in the country, by throwing into Spain immense quantities of British manufac-

tures, at a moment when it was impossible for the custom-house officers to watch over illicit transactions with their customary care.

From the returns of the French custom houses, also, there appears to have been a considerable deficit on the first three quarters of 1835, as compared with the corresponding period of former years. At Havre alone the diminution amounts to 3,644,000 francs, as compared with the receipts for the three first quarters of 1834; and at Marseilles, although the returns for September have not yet been made up, it is known that a considerable deficit arises in the receipts for the first eight months of the year. This state of things, however, is not ascribed to the influence of England, but to the non-arrival of the usual supplies of colonial sugar, arising, it is said, from a belief that the privileges enjoyed by the French colonies, make raw sugar dearer in France than in any other country.

The *Venetian Gazette* of the 22d of September announces the arrival there three days before, of Don Miguel of Portugal, who had come from Rome, travelling under the name of the Count de Ramalhao, and the *Precursor*, a Portuguese journal published in Italy, contains a proclamation, bearing the signature of Don Miguel, and dated from Rome, before his departure for Germany, in which His Highness protests against the sale of ecclesiastical property in Portugal, and against all the sacrilegious violence and usurpation in which the present Government has indulged on the subject. He promises to do all that his religion, his honor, and his love for the Portuguese people can require of him, to frustrate their designs, and when he reappears in Portugal to reascend the throne which belongs to him, he declares that he will not recognize these sales, but that he will be inexorable in causing the purchasers, whether natives or foreigners, to lose the capital they may have expended.—Neither law nor justice, he says, can give validity to such sales, nor impugn the protest he makes against them.

Our Bayonne correspondent, who writes on the 1st inst., throws discredit on a report which prevailed there of Don Carlos having clandestinely quitted his army. No authentic intelligence had been received from the seat of war since the despatches of General Evans and Colonel Wyld, of the 22d ult., and no credit was given to the account of actions said to have taken place near Orooco, 6 leagues from Bilbao, on the 30th ult.

Our letter from Barcelona of the 23th states that despatches had been received from General Pastors, giving an unfavorable account of his operations. The greater part of a strong detachment of the line belonging to his division had been cut to pieces near Castellbo, by the Carlists.

[From the *Journal du Commerce*.]

They write from Philadelphia, under date of Sept. 7th, as follows: "Nothing new relative to the state of affairs between France and the United States. The President maintains a profound reserve. None of the ministers hazard an opinion, either that the money due by France, will, or will not, be paid. During the last absence of General Jackson from Washington, a person in conversation with him, having alluded to this question, the President said but few words, and those far from satisfactory. He expressed himself thus: 'I will never say yes or no to the French government, to ensure the payment of the money stipulated in the Treaty.'"

The London money market has become much easier.

LONDON, Oct. 6th.—The extinction of the monopoly of the East India Company, and the great increase in the exports of cotton and woollen manufactures to India, China, the Pacific, and the U. States, is rapidly attracting capital from private sources to supply the place of that establishment, and to carry on those important branches of commerce with enterprise and vigor. A mercantile association upon a very extensive scale has been formed for this purpose in the city, and is to commence, it is understood, on the 1st of January. One gentleman, a member of this firm, has, it is stated, proceeded to the United States to arrange a system of banking and mercantile operations with that country, and to form connecting links with the Pacific, Calcutta, and Canton, where establishments have already been appointed to act in concert with the London firm.

The transactions to-day in the English Stock market were unimportant, and the price of Consols remained almost stationary at 90 7-8 for the

account, and 90 3-4 for money. Omnium closed at 3 3-4, and Exchequer bills at 15s to 17s premium.

PARIS, BOURSE, Oct. 5, quarter to 4 p. m.—The Rentes have remained steady to-day, between 81f. 70c. and 81f. 75c. The Spanish stocks were looking down at the earlier part of the Bourse, on the report that M. Mendizabal had resigned; this, however, appears to be untrue, and, on the contrary, some good news having arrived from Spain, the securities have considerably improved.

It is reported that Louis Philippe is inclined to set at liberty Prince Polignac and his fellow-prisoners in Ham Castle. This is said to have been promised to M. Sauzet (who is named as likely also to get a seat in the Cabinet) for his so promptly undertaking to draw up the report on the Press Bill.

From the returns of the French custom houses, there appears to have been a considerable deficit on the first three quarters of 1835, as compared with the corresponding period of former years. At Havre alone the diminution amounts to 3,644,000 francs, as compared with the receipts for the three first quarters of 1834; and at Marseilles, although the returns for September have not yet been made up, it is known that a considerable deficit arises in the receipts for the first eight months of the year.

The *Messenger* contains the following:—"There has been a rupture among the members of the Cabinet, which is no secret to the confidants of Ministers. According to accounts we have received, the King is very much dissatisfied, and has taken several of these gentlemen at their words, on their telling him that affairs of State would not permit them to go to Fontainebleau, and consequently M. Persil will alone go there. It is added that expresses have been sent to M. Dupin, Marshal Soult, and M. Sauzet, but these personages are less likely to ally themselves with M. Persil, than with the Doctrinaires. The only alternative will be therefore to make a complete clearance, but this probably will not be done, and therefore the whole will end in a new accommodation."

PARIS, Sept. 30.—A telegraphic despatch from Calais, dated to-day, announces that the King and Queen of the Belgians have arrived here last evening, and that they embarked to-day, at 2 o'clock, for Ramsgate.

LONDON, Oct. 5.—In the churches of the metropolis yesterday, and in the chapels of the Dissenters, the "Reformation" and its chiefest and most glorious concomitant, the publication of the Holy Scriptures in the English language, were most fitly and most zealously commemorated. We are sure that as speedily as the announcements can be forwarded, we shall have to tell that the pastors, as well of the establishment as of separated congregations of Protestants, in the country, directed the attention of their hearers principally, if not exclusively, to those inestimable works—glorifying God that he was graciously pleased to put it into the hearts of their ancestors to attempt the structure of monuments of such imperishable fame, and praying that they may prove themselves worthy of the great and good men from whom they are descended, and honestly fulfil their first duty to posterity by preserving perfect, and intact, wherever the dominion of Britain extends, the fate which so many martyrs joyfully sealed with their blood.

The *Venetian Gazette* of the 22d of September announces the arrival there three days before of Don Miguel of Portugal, who had come from Rome, travelling under the name of the Count de Ramalhao.

LISBON, Sept. 26, 11 o'clock, P. M.—The obsequies celebrated on the 24th for the repose of the soul of the late Don Pedro, at the church of San Vicense de Afora, were attended by both Her Most Faithful and Her Imperial Majesties, all the Peers and other nobility, Deputies in Lisbon, the Foreign Ministers, Lord Howard de Walden, having come on purpose from Cintra; Generals, Admirals, and officers; the Council of State, the Ministers of the Crown, and by the most respectable people in town.

A slave trader has lately arrived in the Tagus, consigned to Mr. S—, a German. She returns, after having sold her slaves at Rio Janeiro and the Havana, with a net profit of 95,000 crowns, or 10,000l., after deducting every outlay, and she will soon start again on another creditable and humane expedition of this kind. There are three French residents here concerned with Mr. S— in the nefarious and infamous expedition, and, unless, our

government adopt some other course, the traffic from hence will increase.

SPAIN.

PARIS, Oct. 1.—It is said on Change that letters of the 25th from Madrid, are received, stating that the Marquis de Las Navas has placed himself at the head of the volunteers of Andalusia, and that the garrison of Madrid has departed for the army of the North. If this is true, it would seem to imply that the Constitution of 1812 had been proclaimed at Madrid.

A telegraphic despatch dated Bayonne, Oct. 29th, announces the following nominations in the Gazette de Madrid:

"Mina is appointed Captain General of Catalonia; Palafox, Captain General of Arragon; Aspinosa, of Andalusia; and Quiroga, of New Granada."

A telegraphic despatch, dated Perpignan, September 28th, announces that on the 24th General Averte beat 4000 Carlists near d'Olot. Their loss is estimated at 2000 men.

The Jauto of Barcelona has declared that it will retain its power until a Captain General arrives who possesses their confidence.

A recent engagement is spoken of as having taken place between Bilbao and Vittoria, in which the Queen's party revenged itself completely. A Carlist division which attempted to oppose the march of Gen. Espeleta, suffered much loss, having been pressed on the one part by that General, and on the other by Gen. Cordova.

LONDON, Oct. 7.—Despatches dated the 28th ult., in the highest degree satisfactory to the friends of Spain and of the Government of her Catholic Majesty, were received from Madrid on Monday afternoon, at the hotel of the Spanish Embassy in Paris. The Conde de Almodovar, late President of the Chamber of Procuradores, who had placed himself at the head of the Junta Consultativa of his native province of Valencia, and who afterwards felt himself constrained to accept the Presidency of the Junta de Gobierno, although from the violence of his associates he was compelled almost immediately after to retire for personal protection on board an English vessel in the harbor, has testified his submission to the central government at Madrid, in the most unequivocal terms, by shipping off the rest of the junta to the Spanish penal settlement on the coast of Africa, while he himself at the same time has signified his acceptance of the office of Minister at War. The Junta of Galicia has in like manner sent in the unconditional submission of its members to the Queen's Government, and has at the same time pronounced its own dissolution. The Junta of Barcelona has also announced its readiness to dissolve itself, as soon as the Queen's government shall have appointed some one, in the absence of the Captain-General, to assume the command of the armed forces of the principality. With regard to the troops under the command of Las Navas, no further apprehension was entertained respecting them. As the whole secret of his strength consisted in the expression, almost unanimous, of public opinion against the administration of Toreno, it was clear that, as the provincial juntas had agreed to support the government of Mendizabal, any attempt on the part of Las Navas to push forward to the capital could only lead to his own destruction. Indeed, the cry had already been raised in Madrid, that he ought to be hanged for not dispersing his troops and laying down his arms on the first intimation of Toreno's downfall. In addition to these interesting facts, it is announced in Mendizabal's despatches, that the Cortes have been convoked for the 16th of November, in the ordinary course, under the provisions of the *Estatuto Real*, thus affording a circumstantial and conclusive contradiction to the minister rumors so industriously spread by the organs of the French Government, if not by one of the highest of the diplomatic functionaries.

SANTANDER, Sept. 29.—The steamboat not having started as yet for Falmouth, I have an opportunity of communicating to you the news from Madrid, which is highly favorable to the new Ministry. The soldiers who were moving from Andalusia towards Madrid, stopped at Valdepenas on receiving intelligence of the change of Ministers. The nomination of Mina to be Captain General of Catalonia, that of Palafox to be that of Arragon, of Caratala to be that of Valencia, of Rodil to be that of Estremadura, of Quiroga to Grenada, and of Buiton to be that of New Castile, has given satisfaction to the popular party. The Queen Regent has also ordered the pay due to her husband's rank to be given during life to the widow of Torrijos,

and has paid the first instalment out of her privy purse, until the Cortes shall have sanctioned the pension as a public one.

The new Ministry was not yet fully arranged, nor was it expected to be so until after the arrival in Madrid of General Alava, which may take place towards the close of this week.

Senor Mendizabal, whose activity astonished the people of Madrid, was attacked by a severe cholera one night last week—his illness was magnified, and all the operations in the funds stopped for the day. He is now fully recovered.

The following article is copied from one of the Madrid papers:—"It is stated that one of the chief officers having applied to Senor Mendizabal to know what he ought to do with the garrison of Madrid, in case the troops from Andalusia should approach the capital 'Join together and march to Navarre; I will remain here alone with the Urbanas,' was the reply, coolly given. This answer has given satisfaction to all parties favorable to the cause of the Queen."

Addresses continue to pour in from all quarters to the Queen Regent; and the ferment of the public mind being allayed, nothing remains for the ministry, after its formation, but to call the Cortes together to make good laws, and to establish proper reforms, and to put down the rebels.

One great act of Senor Mendizabal has been to oblige the Gazette, which has long been a nonentity on political subjects, to publish articles of immediate utility in order to illustrate the public mind.

BILBOA, Sept. 26.—The British Auxiliary Legion continues in this city, where the improvement of the soldiers in discipline and in the musket is such as to give satisfaction to their warmest friends; while on the other side the Carlist adherents do not conceal their rage and disappointment on finding this town placed beyond their reach.

Rumors have, during some days, been afloat of some skirmishes between the Carlists and the division of Espeleta, which left this town on last Friday; and although the rebels assert that that General was beaten, that he lost three thousand men &c., the best informed state that nothing occurred except some trifling skirmishes. On the other side the Queen's friends speak of intelligence having arrived of a victory gained by General Almodovar on the 15th, over the Navarrese battalions in the neighborhood of Mendigorria, in which the latter lost in consequence of the repeated charges of the Queen's cavalry 800 killed and 200 wounded. The confirmation as well as the details of this action are much desired.

BAYONNE, Oct. 1.—No authentic intelligence has reached Bayonne from the seat of war in the northern provinces of Spain since the despatches from General De Lacy Evans and Colonel Wyke, on the 24th ult., from Bilbao.

The report of a battle also in the neighborhood of Oroso, on the 20th ultimo, 6 leagues from Bilbao, is not confirmed; indeed it is scarcely possible that any thing of the sort could have taken place, the letters from Bilbao of the 22d ultimo, at so short a distance from the pretended scene of action, having made no mention whatever of it.

THE CONGRESS OF SOVEREIGNS.

TOPLITZ, Sept. 23.—The diplomatic corps has nearly completed its numbers; however the King of Prussia is not expected until the 26th, and the Emperor of Russia about the 29th of this month. The Kings of Bavaria and Wurtemberg, and the Grand Duke of Baden, who were on the list of Royal invitations, have sent apologies. It is also thought that the meeting of the Sovereigns will be of shorter duration than at first anticipated, but it is probable that our monarch will be able to persuade the other Sovereigns to accompany him for a few days to Prague. The crowd of strangers arriving here increases from day to day. The usual ceremony of inscribing their names on the visitor's list, is still adhered to, and even the crowned heads observe this regulation as well as private individuals. The Emperor and Empress of Austria were entered under the numbers 2642 and 2643. Several strangers have been under the necessity of seeking lodgings in the surrounding villages, as all the apartments in the town are as full as they can hold.

LONDON, Oct. 25.—In Paris on Saturday afternoon accounts had been received at Toplitz of a formal proposal having been made by Russia to her Austrian and Prussian allies, the objects of which were to produce a direct intervention in Spanish affairs, for the ostensible purpose of restoring the tranquility of the Peninsula; and secondly for such a definitive adjustment of the Bel-

gian question as would afford some protection to the interests of the King of Holland. It is to the decisive rejection of this double proposal that the extreme firmness of the money market in Paris, during the last week, is ascribed, some of the principal speculators having several days before, been in possession of correct information on the subject. Public confidence had been further confirmed by the proceedings of the councils-general in the French departments, which afford an accurate and satisfactory test of the general prosperity which prevails throughout the country.

GREECE.

A letter from Toulon, of the 26th ult., has the following: "The sloop *Cornetie* has arrived with important despatches from Admiral Massieu de Clerval, touching the present posture of affairs in Greece. At the departure of the *Cornetie*, several engagements had taken place between the insurgents of Romelia and the Bavarian troops sent in pursuit of them. The latter have already experienced several checks. The rallying cry of the insurgents is 'The Constitution for ever.' A letter from Salamis of the 7th, states, that 'the Bavarian troops and National Guards, sent against the Constitutionists, who have raised the standard of revolt in the western provinces, have been beaten. Intense agitation exists in every quarter, and great irritation prevails against Count d'Arma-berg. The people detest the Bavarians, who occupy every place; they ruin the country, and send our money to their native land—hence specie is very scarce."

Another letter from Salamis contains the following:—"Greece is in insurrection. Coleia has quitted on board the *Nelism*. He remained until the latest moment, in expectation of a revolution in Athens and the Pyraus. The government neglects to drain the marshes, and fevers prevail—six thousand persons are sick. The diplomatic body has been outwitted by the Austrian Ambassador, who has concluded a separate treaty with the Greek Government. The three powers, in return for the loan of the 60 millions, desired the establishment of a foreign tribunal for their respective subjects who might commit offences in Greece. A proposal to this effect was rejected, and the Austrian Ambassador, by not seconding the point, has insinuated himself into the good graces of the Greek Government. The annual expenses continue to exceed the revenue by six millions, and nothing is done."

A new and beautiful Steamboat called the *Shark*, has recently been built in this city for O. Mauran, Esq. She is upwards of 300 tons burthen, 150 feet in length, and finished and furnished in the most splendid style. She has been built under the superintendence of Cornelius Vanderbilt, Esq., and from the trials that have been made, she is believed to be one of the fastest boats ever built. We understand Mr. Mauran sails in her shortly for Havana, where he proposes to establish her as a regular packet between Havana and New Orleans, and if possible form a regular line from Charleston to Havana, which, with the present line to Charleston, would form one regular communication from this port to New Orleans. Such an undertaking deserves patronage, as it would be of great public utility and importance.—[Daily Adv.]

The Charleston Courier of Monday last relates the particulars of the breaking up a den of infamy in that city, kept by a man named June—where unfortunate women were forcibly retained, in order to allure seafaring men and others. These female victims of the most detestable and cold blooded speculation, were mostly brought on from this city—where the wife of the monster June, is understood, now is, in search of a fresh supply.

The wretched women were taken away from the house, and put in charge of the civil magistrate.—Their names are as follow:

Jane Smith, aged 22, of New York; has a mother and sister in Columbia street, who are respectable.

Hannah Baker, aged 23, belongs to Philadelphia.

Henrietta Hutchins, aged 20, of Philadelphia; was once married to a Captain of a vessel.

Eliza Wilson, 17 years old last March, of Newburgh, New York.

Sally Sherwood, aged 26, of New York.

Elizabeth Buckley, of New York.

(FOR THE N. Y. AMERICAN.)

Starlings.

Oh! not to me, oh! not to me, that look of cold disdain—
From others I could calmly brook
The careless word—the chilling look—
But, oh! from thee—'tis pain.
The silver chord—the silver chord—when severed
may unite
With other ties, but oh! when broke,
The Lute from whence those chords awoke,
It may no more delight,
As to the Sun—the glorious Sun—the bending Persian
prays,
And lingers till he views no more
Its light—nor ceases to adore
In gloom, its parted rays.
So in my heart—my faithful heart—the love that bud-
ded there
Still clings, as when in youth it clung,
For mem'ry, constant mem'ry, hung
With fond and anxious care.
So many thoughts—so many thoughts—of bliss, o
of love, of pain—
When I would drive thee from my mind
Her magic wreaths thine image bind—
The effort is in vain.
Then, not to me, oh! not to me, that look of cold dis-
dain—
From others I could calmly brook
The careless word, the chilling look—
But, oh! from thee—'tis pain. ELLA.

A little girl named Elizabeth, daughter of J. R. Winters, 63 South-Fifth street, Philadelphia, fell over the bannisters of the 3d story, and died in a few minutes.

STEAM ENGINE WANTED.

A good, second hand, Steam Engine, of 10 or 12 horse power, is wanted for a boat to be used on a Canal. Any gentleman having an engine suitable for that purpose, which he can sell cheap, may address a note to, or call upon, the Editor of this Journal, who is desired to make inquiry, and to communicate the result to the advertiser.

JAMES RIVER AND KANAWHA CANAL, VIRGINIA.

NOTICE TO CONTRACTORS.

THE Board of Directors of the James River and Kanawha Company, having resolved to place under contract seventy-three miles of the line of their improvement, viz: All that part extending from the water works dam at Lynchburg, to the end of section No. 118, in the village of Scottsville, and the thirteen miles between the Seven-Island Falls, and the village of Columbia—

Sealed proposals will be received by the Secretary of the Company, at their office in the city of Richmond, from November 18th, to December 7th, inclusive, for all the excavation, embankment and walling in that distance.

The portion of the line which it is intended to let, comprises many difficult points, and a considerable amount of river walling and blasting.
The line will be prepared for examination by the 18th of November; after which date, up to the time of letting, a full and useful information will be given, and the maps and profiles exhibited to contractors, on application being made to either of the Principal Assistant Engineers, Simon W. Wright, in the village of Cartersville, Daniel Livermore, a Scottsville, and Charles Elliot, Jr., in the town of Lynchburg.

It is expected that the proposals of contractors who are not personally known to either of the Assistant Engineers, will be accompanied by proper testimonials of character and experience, from the Engineers of other works on which they have been engaged.

The seals of the proposals will be broken on the 10th of December, and the acceptance of the propositions by the Board, made known as soon after, as will be practicable. By order of the President and Directors

W. B. CHITTENDEN, Secretary.

Note—This advertisement is not intended to embrace the Locks, Dams, Culverts, or any other of the works of art—Prior to the letting of which, as well as of the residue of the excavation and embankment between Scottsville and Maidens' Adventure, due notice will be given. 44—C7D

ENGINEER DEPARTMENT,
BALTIMORE AND SUSQUEHANNAH RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received between the 20th and 25th of November next, for the Graduation and Masonry on 20 miles of this Road.

ISAAC TRIMBLE,
Engineer B. & S. R. Co.,
WILLIAM GIBBS McNEILL,
Consulting Engineer.

ENGINEER DEPARTMENT,
WRIGHTSVILLE AND YORK RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received in York, Penn., between the 20th and 25th of November next, for the Graduation and Masonry, of the whole line of Road.

ISAAC TRIMBLE,
Engineer W. & Y. R. Co.,
WILLIAM GIBBS McNEILL,
Consulting Engineer.
Oct. 31,—3E.

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
38—6t

New-Lisbon, Ohio, Sept. 17, 1835.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—tf

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Graduation and Bridging of the same.

The Superintending Engineer, E. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications. This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.
H. J. RANNEY,
Chief Engineer N. O. & N. Railroad.
Engineer Office, N. O. & N. Railroad,
Aug. 25, 1835. 37

RAILROAD IRON WORK.

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices. Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention. Paterson, Aug. 19, 1835. 34—ly

AMES' CELEBRATED SHOVELS,
SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Socket Shovels and Spades,
150 do do steel plated Spades,
Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.,
2 Liberty street, New-York.
BACKUS, AMES & CO.,
8 State street, Albany.

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by HOWLAND & ASPINWALL,
265 10t 55 South street.

RAILWAY IRON.

250 tons of 1 inch by 3 inch, Flat Bars in lengths of 300 do. 1 1/2 do. do. 14 to 15 feet, counter sunk
40 do. 1 1/2 do. do. do. holes, endcut at an angle
800 do. 2 do. do. do. of 45 degrees, with split
800 do. 2 do. do. do. cling plates and nails to soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 36, 33, and 30 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 23, 21, 3, 34, 34, and 34 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. G. BALSTON,
9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. 671meowr

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May—6

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other descriptive of castings required for railroads. R-ly 5614

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. 334 17

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J. S. ROGERS, KETCHUM & GROSVENOR
PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 2 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are furnished with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to. HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by 1. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 232 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

F. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing as to keep pace with the daily increasing demand for his Spikes. 132sam H. BURDEN.

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

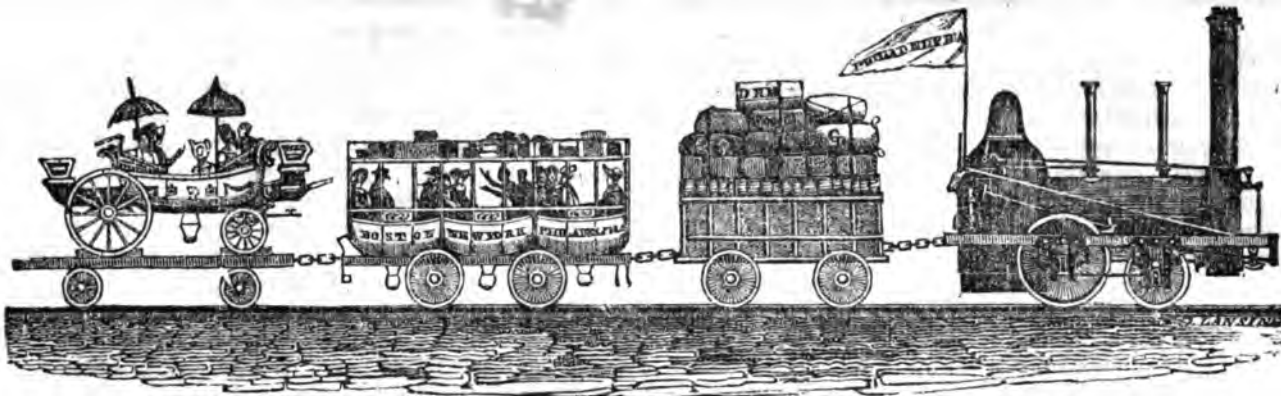
E. H. GILL, Civil Engineer.
Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
Germantown and Norrist. Railroad

mf 1y



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, NOVEMBER 14, 1836.

[VOLUME IV.—No. 45.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, NOVEMBER 14, 1836.

COMMENCEMENT OF THE NEW-YORK AND ERIE RAILROAD.—We find in the New-York American of the 10th instant, the following announcement of the commencement of the construction of this important work. The Editor of the American says:—

"It is with feelings of the highest satisfaction that we announce the important intelligence, that the construction of this great work was commenced on the morning of the 7th November instant, by breaking ground at sunrise, at the western extremity of section No. 200, on the Delaware River, in the village of Deposit.

The members of the Executive Committee of the Board of Directors, consisting of Messrs. J. G. King, P. C. Stuyvesant, S. B. Ruggles, and W. B. Lawrence, under whose immediate charge this duty was performed, report—that on the preceding day, forty miles of the work were put under contract pursuant to previous notice—that the sections (44 in number) were taken by twenty-six different contractors, of approved standing and experience, many of whom will proceed to commence the work without delay—and all of whom are required to do so, on or before the 15th of next month.

There were more than seventy contractors on the ground, and several offers to take the whole route.

The graduation of this particular section is comparatively the most expensive of the whole line between the Hudson and the Lake,—but for that, among other reasons, it was selected by the Directors as the portion first to be undertaken, in order to subject to a severe test the correctness of the previous estimates. It has resulted in conclusive-

ly establishing the accuracy of Judge Wright, who, in his report to the Legislature, had estimated this division at \$9,500 per mile, and nevertheless, it has been now put under contract at prices *short* of 8,500 dollars, and that too at a season when the prices of labor and provisions are unusually high.

The aggregate saving in this forty miles will be between fifty and seventy thousand dollars.

Encouraged by this very gratifying result, it is the intention of the Board to press forward the work with all practicable despatch, and if possible, to get ready another considerable section for contracts, before the 15th of next month. The last lingering doubts as to the practicability of completing this great undertaking at a very moderate expense, must now be removed, and we cannot but congratulate the public and the Stockholders, upon the flattering prospects thus opened to them."

This is, indeed, an important era in the history of New-York. It is another event, which, like that of the commencement of the Erie Canal in 1817, will give new life and energy to the business operations of the State. It will prove, and especially so to the Southern part of the State, a refreshing, and fertilizing shower, which will unquestionably enable thousands to reap golden harvests, where they have heretofore, with the most unremitting industry, obtained a bare subsistence. It will cause a line of flourishing villages, and eventually cities, to spring up—where now, or recently, the howling wolf roamed at large, committing his depredations upon the adventurous flocks of the hardy pioneer—and compete with those brought into existence by the Erie and other Canals. It will be to the South part of the State, what the Canals are to the North; and, like the CANAL, it will throw out its branches in every direction, which will afford to the neighboring villages the benefits of easy access; and to the stockholders a prospect of increased income. It will enable the farmers of Delaware, Broome, Tioga, and the counties west of them, to supply the market of this City with fresh provisions, at prices satisfactory, both to them, and to us; and what is of greater importance still,

to this City, it will open another ready avenue to the fertile valleys of the garden of the world; the produce of which, having become too enormous to find an outlet through the other channels prepared for it, will, on its thousand cars, come rolling down upon us like the mountain avalanche; producing of itself an increase of business on this Island, little anticipated, by the thousands who have looked on with apathy, or doubt, or of selfish jealousy, during its early history. It is, indeed, a proud era to those who have stood by it, with unflinching determination, through its darkest days; and they will yet, we trust, realize their most sanguine hopes and anticipations. To those who have doubted honestly, we say, go and doubt no more—and to those who have been selfish in their opposition, we say "go and sin no more"—against light, and the best interests of the State.

CONVENTION, INTERNAL IMPROVEMENTS, &c.—The delegation appointed by the citizens of New-York, to attend the Internal Improvement Convention, proceeded on Monday last to Utica, for the purpose of representing the interests of this Commercial Emporium. The gentlemen selected to discharge that important duty, are most of them, we believe, either now, or recently, active, persevering, and successful business men. They are intimately acquainted with, fully understand, and *duly appreciate*, the value and importance to the city of New-York, of those works, and Internal Improvements, so wisely commenced, and so successfully completed by the State—works, in truth, which have operated as a *leaven*, not only upon our own country, but also upon the whole civilized world; and have given an impulse to the spirit of improvement, which will produce results as much beyond the estimate and calculation of even the *present* most sanguine and active friends of the "good work," as we are now advanced beyond the first settlement of the American Continent.

To many, this may appear wild and visionary, and even madness; but if they will only reflect for a moment, and imagine the increasing velocity, and overwhelming power of a mighty river, supplied by the streams of a thousand hills drenched by the torrents of an equinoctial storm, not only of a week, but of *years* continuance, he will then have a faint idea of the *growing* impulse throughout the world, in favor of INTERNAL IMPROVEMENTS!!!

This, even, is not visionary. It is only an enlarged view of the subject—a subject, indeed, of more importance to *this*, than to any other country under the sun; and it should therefore be made as familiar to every citizen of the Union, and especially to the rising generation, as household words.

Is proof required for these opinions? Facts, innumerable, might be adduced to establish them, but we will mention one or two only—and first, the population of this city in 1810, was 96,373—in 1825, it was 166,086, giving an increase of 69,713 in *fifteen* years, *previous* to the completion of the various Canals, and commencement of the Railroads.

Now contrast this statement with the following, a result *mainly* to be attributed to the increased facilities for business, afforded by the Canals and Railroads.

In 1830 the population of the city was 207,621, and in 1835, by the census just completed, it is 269,872; showing an increase in *five* years of 62,251, which is *nearly* equal to the increase of fifteen years as shown above. Secondly, we will refer to the line of *almost* cities, from the Hudson to Lake Erie; the progress, and indeed origin, of which, in many instances, is mainly, if not wholly attributable to the Canals; as well as the unparalleled increase in the value of real estate in their vicinity—an increase, indeed, of more than ten times the cost of *all* the Canals in the State, *over and above what it would have been*, if they had not been built. Thirdly, the unparalleled increase of population, wealth, and prosperity, in the *great and fertile West*—a prosperity which, but for our Canals, would have been of the *next*, rather than of the *present* century.

Who, that takes a calm and dispassionate view of this whole subject, will not come to the same conclusions that we have, in relation to our own country? *All*, *all* will do it sooner or later.

As to the operation of the same spirit in Europe, as well as in this country, the evidences are increasing daily; and while writing this article, we find in the *Mercantile Advertiser*, an extract from a letter which confirms it as to Germany; and in another column, will be found similar evidence as to other parts of the continent. Of Great Britain, we need hardly speak, save in a spirit of commendation, of the immense and numerous works going on, and in con-

templation. They are the best evidences of liberal forecast, and public spirit, of the English people.

The letter referred to is as follows, and alludes, if we are not in error, to our worthy citizen, JAMES H. BELL, Esq., now the Chief Engineer of the Mad River Railroad in Ohio.

Extract of a letter, from a gentleman in Leipsic, to his friend in this city, dated Sept. 21st, 1835.

"It is with sincere regret, I see from a letter I have just received from M—, that we have no chance of seeing the hopes I expressed to you in my last letter, written in May, realized, viz: to see J. B. the leading Engineer of our Railroad from Leipsic to Dresden. I am the more disappointed, because I think there will be very brilliant prospects for an intelligent and experienced engineer in this country. The whole north of Germany has been seized with a Railroad fever since we set them an example, and I think the time is not far distant, when this whole country will be covered with a perfect net of Railroads."

If, then, our predictions are eventually to be realized, how important it is, that the CONVENTION at Utica, now in session, should view the subject in a proper light; and discard all local or sectional feeling; and show themselves the representatives of a mighty State, whose interest they have at heart.

Their deliberations should be how to benefit the greatest number, in the shortest period, at the least outlay of capital; how they can most effectually promote those works which, at the same time that they advance the interest and convenience of our own citizens, also induce the citizens of other States, and especially of the West and South, to make us their carriers, commission merchants, shippers, and bankers.

It is now an established fact, that no considerable work of improvement can be completed in any part of the Union, which will not in some degree benefit New-York; yet it is important that our own works should be so constructed as to meet, if possible, and correspond with those made in other States; and highly important that we should open avenues which will compete successfully with any of our rival neighbors.

NORWICH AND WORCESTER RAILROAD—BREAKING GROUND, &c.—We have received a very polite invitation from the President of this Company, to attend the ceremony of breaking ground, which is to take place on the 18th instant. We need hardly say, that we should be highly gratified to accept of the invitation; and to participate in the pleasure, which the ceremony will undoubtedly afford to those who have, with so much perseverance, pursued this noble object, which will now, beyond all question, be speedily accomplished.

Judging from the Report of the Committee, which, with the Act of Incorporation—and a most liberal one it is too—has been received—this Road, connected, as it

will be, with the *Boston and Worcester* Railroad, and passing through the most populous, wealthy, and enterprising part of Connecticut, will most assuredly become an exceedingly valuable investment. It is truly surprising to learn the amount of business which is now done on the line of this Road; but more so to reflect what it will be when this Road shall have been a few years in successful operation.

Its whole route is along the water courses, and its greatest inclination is under 35 feet per mile, and its average under 12 feet, with an abundance of materials along its route for its construction.

Thus it is that the whole country is becoming checkered with Railroads. Boston has its Providence, its Lowell, and its Worcester Railroads; and Worcester, in its turn, becomes a point of radiation, and will soon have its Norwich, its Springfield, and, at no distant day, its *Albany*, Railroads; whilst each of these will give rise to others of less extent, but not of less utility, to the flourishing villages, and rapidly improving country, to be benefitted by them.

It appears, by the report, that the first charter was for a Canal; but on discovering the superiority of Railroads—and it would be very singular if the people of Connecticut did not make that discovery—the Canal project was abandoned, and a Railroad substituted. By this change the immense water power is preserved, and the facilities for travel and transportation greatly increased; whilst with a Canal, much of the former would be destroyed, and of the latter, transportation only would be benefitted.

There are instances, undoubtedly, where Canals are preferable; but since the American people have become so much of a locomotive race, and so impatient of control and delay, it has become highly essential that the works of Internal Improvement should at once combine the advantages of speed, and capacity for transportation—at low rates.

Of the certain, and immense reduction of expense of transportation on Railroads, we do not entertain a doubt. Experience, in other modes of transportation, will bear us out in saying that such improvements will yet, and soon, be made in the construction of Railroads, and its machinery, as, in fifteen years, to reduce the cost of transportation more than one half.

It would, indeed, be singular if the first projectors and makers of Railroads, were to jump at once to a state of perfection in the art; whilst the developments of the advantages, and the improvement in Canals, have been going on for ages; and in arriving at the present condition of steamboats, the united and devoted efforts of many of the ablest men in the world have been engaged for more than a quarter of a century.

The field, for improvement in, in our opinion, far greater in Railroads, and its

machinery, than in steamboats; and yet we see a reduction in the price of transportation of passengers in the latter, reduced, in a few years, from \$10 to \$8—\$6 \$4—\$3 \$2, and even to \$1, from New-York to Albany. At the last named price, very little profit can be made; but at \$2—or one fifth of the first prices, and in less too than 30 years, from the first introduction of steamboats on the Hudson—fortunes could be made in carrying passengers to Albany.

If, then, such reductions have been made in steamboats, why may we not also anticipate corresponding improvements, and reductions in the prices of transportation on Railroads?

The following extract and summary of the report will give a very good idea of the route, the road, and its prospects.

The wonderful improvements of a few years past, justify us in anticipating that in a very short space of time, there will be one continued line of Railroad from Maine to New-Orleans, and the physical structure of the country seems to point out the valleys of those streams leading to Norwich, as the true route for this link of the great chain of communication.

From what has been stated it appears—

1. That the route of the Norwich and Worcester Railroad is a direct route to Worcester, by the valleys of rivers—with a country in every respect favorable, with an elevation to be overcome in no point more than thirty feet per mile, and the average elevation of 1177-100 feet per mile—and that the materials of construction are at hand, and the expense would be unusually small.

2. That within five miles of the route there are seventy-five cotton manufactories, twenty-seven woollen mills, about one hundred stores, and numerous mills for the manufacture of iron, paper, &c.—that the number of cotton spindles employed in the two counties in Connecticut through which this Railroad passes, is officially ascertained to be 106,220, being more than three quarters of the entire cotton manufactories of the State, and that there is probably nearly an equal amount in the county of Worcester, and that there is not, in any part of this country, a region so abounding in manufactures as on the borders of this route.

3. That the present amount of transportation to market from towns very near and on the borders of this route, is at least equal to 30,000 tons annually transported through the entire route, and would be greatly increased by transportation from towns on the borders of the Boston and Worcester Railroad, from Boston and from the country north of Worcester.

4. That there is unoccupied water-power, on and near the borders of this route, ascertained by survey to be not less than sufficient to carry 1,000,000 spindles.

5. That there are in various places, on and near the route, valuable stone quarries for building, and in the town of Killingly inexhaustible quarries of flagging stone, pronounced by Professor Mather superior to any now in use in this country.

6. That the Railroad from Norwich to Worcester, and from Worcester to Boston, pass through the most populous part of this country, and that the counties through which these Railroads will pass, exclusive of the county embraced by Boston, contained in 1850 a population of 279,606, and that

there is a population north of Worcester, and of the Railroad from Boston to Worcester, which would find this the most direct route to New-York, not less than 250,000, exclusive of Boston.

7. That the route by Railroad from Boston to Worcester and Norwich, and thence by steamboat to New-York, is 100 miles by Railroad, and 130 by steamboat; and when completed, the passage may be made in 16 hours, and is the best existing route between Boston and New-York, being the easiest, cheapest, most direct, and rapid.

8. That the route from Boston to Norwich may be readily reduced to 88 miles—that Norwich is within three miles as near New-York as Stonington—and the route from Boston by way of Norwich to New-York would be as near as by way of Stonington.

9. If a Railroad is constructed on Long Island, the distance from Norwich to its termination is 28 miles, and from Stonington 25 miles, enabling the Norwich and Worcester Railroad to avail themselves equally well of the Long Island Railroad.

10. That a Railroad constructed on the borders of Long Island Sound, would accommodate the long travel, and would receive an immense amount of local travel—it being estimated that the number of passengers annually passing in the steamboats and the towns on the border of the Sound is not less than three hundred thousand, and that the distance from Norwich to New-York is 130 miles, and from Stonington to New-York, including two ferries, is 122 miles.

11. That by the extension of the Railroad communication to Lowell, and thence farther north and east, every part of the chain is benefitted, and this part greatly improved.

12. That the extension of the Boston and Worcester Railroad to Springfield, and thence to Albany, by opening the valley of the Connecticut, and affording a Railroad communication with the interior of New-York and the West, will add to the revenue of this Railroad.

HUDSON AND DELAWARE RAILROAD, OF THE Effects of Internal Improvements.—The following exceedingly well written—and nothing more just and true—communication is from the Newburgh Gazette, of 31st ult.

It refers to a circumstance, in relation to which the Editor of this Journal had, in the fall of 1830, an argument with a worthy citizen of Newburgh, who contended that “the attempt to introduce Towboats, in the place of sloops, to do the freighting business of that flourishing village, would prove a failure.” He insisted that *steam*, and *tow-boats* could never compete with sloops for freight; whilst it was contended by us that they would eventually supersede sloops for most kinds of freight, as much as they had then superseded them for passengers. Were we not correct? Let the citizens of Newburgh answer.

It is not necessary that we should exult in the so speedy fulfilment of our prediction; nor that we should express our satisfaction at the highly flattering prospect which greets us, of the certain completion of the Hudson and Delaware Railroad.

This Railroad was one of the very first

which came under our observation, when we commenced the Journal; and although, in the multiplicity of business, *aside* from that of the Journal, we may have seemed to loose sight of it, we have never doubted its importance to Newburgh, and shall hereafter take much pleasure in contributing our mite in this, our *only* possible mode, towards its completion.

The annexed is a list of the officers of the Company, which is composed of gentlemen who will make the Road—of gentlemen who will not permit it to be *canonized*—if we may be allowed the expression.

It is but just five years since our enterprising neighbor, CHRISTOPHER REEVE, first applied Steam to the transportation of produce and merchandize between this village and New-York. It was then regarded as a hazardous experiment, and one that must certainly fail, and bring ruin upon its projector. Such was the universal opinion at that time, and men could not see how a person of Mr. Reeve's sagacity, and experience in business, could embark in a scheme so wild and visionary. If any one had foretold that in five years we should have five Steamboats of the first class engaged, and successfully engaged, in the business of transportation, actually bearing away the palm of speed and superiority from the best boats on the river, he would have been deemed a madman at least, and the wise men of the day would have sighed over the folly as well as the frailty of poor human nature. Yet we actually see these predictions realized, and more than realized, every hour that we live; and we venture to assert that there are none now so bold as to foretell with any thing like certainty or truth what the next five years will bring forth in the way of improvement, should the country happily continue to be exempt from those calamities which baffle human foresight, and arrest the progress of human exertion.

The truth is, there are none of us who can properly appreciate the advantages of our position—the advantages of a free country, acting under the influence and impulse of a popular government, where individual enterprise and exertion are left to the free enjoyment of a fair field, and the unlimited scope of its own native energy. We are to apt too compare our country with others—to liken the liberal and enlightened age in which we live, with the semi-barbarous and gloomy eras that have gone before us, and to measure our advancement in the useful arts, and the work of public improvement, with the slow and sluggish progress of those nations who never have enjoyed our peculiar advantages. In countries where wealth is unequally distributed, and where aristocratic laws and institutions of government operate to make the rich man richer and the poor man poorer, the acquisition of wealth and the accumulation of capital is slow, compared with what it must be in a country where wealth is continually changing, and its distribution measurably equal, and where the laws and constitutions of government place men upon a footing of equality, and where there is no superiority, but that which springs from superior talents and industry. With us surplus capital is applied to the purposes of internal improvement and other objects of public and universal usefulness; while in the monarchies and

despotisms of the Old World it is wasted in desolating wars, in the destruction of human life, and the prostration of human industry, in the construction of works of defence, and the erection of monuments of art, which minister to the pride and pamper the vanity of the few, without meliorating, in the slightest degree, the condition of the many. We have no privileged classes who claim an exemption from the public burdens. We have no pensioned, pampered idlers, who live upon the labors and industry of their fellows. We have no wars, and but few works of public defence. We maintain, comparatively speaking, no army, and, for our extensive commercial marine, a limited navy. We have no public debt, and pay neither taxes nor tythes, but we are living in the enjoyment of equal laws, equal rights, and under institutions of our own creation. We have the cheapest government now existing, or that ever did exist. Our population are all producers, actively and eagerly engaged in the acquisition of property, and contributing by their exertions to enlarge the volume of wealth and capital.

It is this immense increase of capital, uniting with that which flows in upon us from foreign countries, that is constructing our Railroads and opening our Canals, building our cities and villages, and operating to advance the price of real estate of every description; and unless our prospects and prosperity are marred by some unforeseen and untoward accident, new works of internal improvement will be projected and executed, new cities and villages will be called into existence, and real estate increase in value far beyond its present prices.

Unless our surplus wealth can find employment in the purchase of lands, in the construction of public works, in new fields of commercial adventure, and in the various branches of manufactures and the mechanic arts, we are at a loss to know what is to become of it. Men will not bury their money in the holes and caverns of the earth, or hide it in the depths of the deep sea. While the country was oppressed with a heavy public debt, and individuals were borne down with similar embarrassments, it was more easy to lend than to borrow money. But the times are strangely out of joint in this particular, and those that have money to loan are sadly perplexed to find borrowers. The national debt has been extinguished, and the State is offering eight or nine per cent. for the privilege of paying off its Canal loans. Bonds and mortgages have been erased from the public records by thousands, and it is far more common to find men searching for the debt to apply the means, than the means to pay the debt. The reign of the Sharks and Shylocks seems fast hastening to its close, and men of moderate means may now venture into the money market, and not become a prey to the spoiler.

Such are some of our reasons for the opinion that real estate in this vicinity has not by any means reached its maximum value; and these reflections will also exhibit in part the basis of our faith when we express our sincere belief that the Hudson and Delaware Railroad will be completed and put in operation in far less time than that limited by the act of incorporation. We confess we are exceedingly gratified at the manner in which the Company has been organized, and we regard it as an especial subject of congratulation that the stock has fallen into the hands of our own citizens, and its management confided to

the individuals who compose the present Board of Directors. Had the stock been taken by the jobbers and speculators, men who would have used the scrip as black-legs use the cards, to cheat and deceive the unwary, regardless of the ends and objects of the charter, or had it fallen into the possession of mere strangers, men who had no concern with our interests, and had no hearts for our prosperity, with the case of the Canajoharie and Catskill Road fresh in our recollection, we certainly should have had some fears for the result. But now that the capital is within our own control, and with ample means of our own to carry the project forward to its final completion, we consider the construction of the Road an event which no longer admits of a doubt. The question hereafter will not be whether the Road will be made, but where it will be located, and what is the shortest time possible in which it can be put under contract and completed. The interest taken in the successful issue of the project is not confined to the citizens of our own immediate vicinity. It was not amongst the least gratifying circumstance which occurred at the election for Directors to witness the presence of numerous and respectable delegations from Walden, Washingtonville, Montgomery, Phillipsburgh and Middletown, tendering their hearty aid and co-operation should the line of the Road fall any where near those flourishing villages.

We think also that the selection of the present Board of Directors is another earnest of the speedy construction of the work. It was well remarked in our hearing the other day, that the Board combines within itself more sterling talent—more real substantial wealth, persevering energy, and untiring industry, than any similar body of men selected for a similar purpose within the county of Orange. We all know that the gentlemen are largely interested in the stock, and that they have within themselves ample means to make every foot of the Road without interfering with or interrupting any of their other pursuits. Their high character for honor and probity is unquestioned, and their enterprising spirit, and successful industry, is exhibited and made manifest in the numerous works of substantial improvement commenced and consummated in our vicinity within the last five years. Amongst the Directors will be found the projectors and early advocates of the Road when its success was doubtful—who have clung to the project and cherished the hope of its ultimate accomplishment, through every change of good and evil fortune. It is an effort in every way worthy of their genius and enterprise, and the liberal and enlightened age in which we live.

At a meeting of the Directors of the Hudson and Delaware Railroad Company, held at the Orange Hotel on Saturday evening, 24th inst., the following officers were chosen, viz:

THOMAS POWELL, President; J. W. KNEVELS, Vice President; JOHN LEDYARD, Treasurer; JAMES G. CLINTON, Secretary; D. W. BATE, Esq., Attorney and Counsellor.

The Directors have taken measures to secure the immediate services of a distinguished engineer, for the location of the route.

RAILROADS.—The Boston Daily Advertiser says—We remarked a few days since upon the changes about to be produced, by the introduction of Railroads, on the growth and prosperity of commercial cities. The channels of communication, instead of depending as heretofore upon the course of rivers which intersect the various commer-

cial countries, will be determined and established, by the enterprise of those cities which have the foresight to seize first upon the routes which the face of the soil admits of being established. We alluded in those remarks more particularly to the improvements, of this description, likely to be introduced in this country. The same questions present themselves with equal force in Europe. A French Journal, just received, contains the following information, under date of Frankfort on the Maine.

"If our information is correct, great and powerful rivalships are about to take place in the sphere of internal improvements. Several companies encouraged and assisted by Bavaria and its bankers, have formed the project of making a Railroad from Bamberg to Leipsic, so as to unite the Elbe with the Danube, by means of the canal of Bavaria, thereby giving to Hamburg the supply of colonial goods to all Germany. Another company, among the members of which figure several great houses of Strasburgh and Metz, have a project of establishing a Railroad from Strasburgh and Metz to Sarrebruck, for the conveyance of coal, provided the Bavarian government will undertake to continue the Road, in connexion with the neighboring states from Sarrebruck to Mayence, so as to unite Metz and Strasburgh with the canal of Maine and Central Germany, thus excluding from the commercial movement of Germany, all the Lower Rhine, Belgium and Holland on one side, and Baden and Wurtemberg on the other. However active the undertakers of this project may be, a serious opposition is already prepared. It consists of an undertaking to establish the Canal of the Black Forest, which will have for its object to unite the North Sea with the Rhine at Kehl, with the Mediterranean by the Canal of Monsieur, and with Lake Constance and Upper Italy by a Canal which the Company of the Canal of the Black Forest are about to undertake. The funds of this last Company are secured by several houses of Amsterdam, Brussels and Cologne. Such are the facts, and such the projects which agitate the world of industry. We undertake only to be its historian, leaving it for the future to decide which of these great rival enterprises will obtain the victory."

We transcribe this passage from a foreign journal, for the purpose of showing that the same sort of rivalry in this species of improvement has sprung up in Europe, which exists in this country. The works above mentioned are but a part of the projects which we see from time to time mentioned in the European papers. In regard to the class of improvements which will obtain the victory, we have no hesitation in believing that in most cases Railroads will decidedly take the precedence over Canals, and chiefly for two reasons, one, that Railroads have a wider range in the choice of their route, not being confined to channels in which a large body of water can be made to flow, and the other, which is the most decisive, that besides being a channel for commerce, it is at the same time a channel for the conveyance of persons, and in a manner so far superior to every other mode of conveyance, as to give it the monopoly of travelling, and in consequence, to afford it the richest source of income.

Railroads, it is true, as hitherto conducted, have not been able to transport goods at so low a rate of expense as canals. This, however, is to be attributed chiefly to the fact, that an economical mode of transportation has never yet been adopted on the great public Railroads. The reason is,

that the transport of passengers on all these Railroads has been the leading object, and the conveyance of merchandize a subordinate one. A different system may undoubtedly, and will be introduced, by which merchandize shall be conveyed at a comparatively slow rate, with engines of a different construction, of less speed and greater power, to travel in the night only, leaving the Road free for passengers in the day time. Travelling by night on Railroads is unsafe only because it is rapid. If engines be so constructed as to reduce their speed, and increase in the same proportion the weight of the load which they are capable of moving, they may travel by night with perfect safety, and may convey those loads with as little cost, as loads of the same magnitude on Canals. Such we believe will be the result of future experience. Railroads will therefore possess the double advantage of rapidity of conveyance when quickness of movement is desired, and of cheapness whenever a saving of time is unimportant. It will consequently possess the advantage of deriving an income from both these sources, and of combining at the same places the facilities of business resulting from both, and will therefore in a great measure supersede an improvement which possesses but one, and that the least important of these advantages.

The preceding remarks from the Boston Daily Advertiser, are worthy of being republished in every newspaper in the Union. The writer judges the future by the past—and he is correct in saying, or rather in *showing*, that great and important improvements are yet to be, and certainly *will be*, made in the use of Railroads.

They are yet altogether in their infancy—not more advanced in their progression than Canals were a century ago. They will, however, advance more rapidly than Canals have done; and in *twenty years*, the transportation on them of *most* articles will be *more rapid, more sure, more safe, and less expensive*, than on Canals—and what is of vast importance to this country, they will traverse it in *all* directions, bringing every part of the country comparatively near market—and easy of access.

According to the Baltimore Patriot, the tolls on the Pennsylvania Canals and Railroads, for the year ending on the 31st ult., amount to about 690,000 dollars—nearly double the receipts of the preceding year.

Thus it is that the works of Pennsylvania are becoming more and more productive.

To the Editor of the Railroad Journal:

SIR—My attention was forcibly drawn to the remarks of your correspondent, in the January number of the Journal, on the subject of Suspension Bridges, and more especially with his liberal and magnificent design of erecting such a structure at the Fulton Ferry. The views of that gentleman are worthy of the enlightened state of the arts, and in keeping with the advancements of the age; and although the measure he proposes has elicited no public attention, that I at this distance am aware of, it has doubtless made a permanent impression upon the minds of those within whose peculiar province it falls.

It is not my intention to say any thing in addition to the subject of his communica-

tion; but as it is connected, in my mind, with the design of this paper, a recurrence to it serves as a suitable introduction to a notice of a Bridge upon a new plan, which the inventor is about to patent, and which, to my view, seems to possess a peculiar adaptation to the site of the Fulton Ferry, whilst its general application would not be less profitable in minor constructions.

A Bridge of the form that I am about to speak of, may be termed (without impropriety, I suppose,) a Suspension Bridge; but the important point on which I differ from those at present known, consists in the employment of continuous bars of wrought iron, instead of chains made up of links; thus (*ceteris paribus*, diminishing the weight of the metal one half, and probably in the proportion of two to five, and also enabling the architect to extend his bars much more tensely than can be done with chains in the present mode of erection. Indeed, in a span of one hundred or one hundred and fifty feet, the tension can be given so as to present but a slight departure from a straight line, and the curvature will be nothing more than that which results from the elasticity of the metallic bars themselves.

It is proposed to secure these bars, at their extremities, and to pass them over abutments (and piers where they may be required by the breadth of the stream,) in a manner no wise different from the usual chain-fastenings; but as they will assume but a very slight curve from *sagging*, compared with the catenarian curve, which gives a corresponding obstruction to the waterway, unless the suspension towers have considerable elevation, these abutments will be required to be raised but to a moderate height above the surface of the stream, thus reducing to a great extent the cost of a bridge in all situations, and demonstrating the practicability of its erection on sites where otherwise the expense would not admit of them for many years to come, and in some, most probably, never.

Moreover, a Bridge of this construction may be provided with a draw, upon a plan, which I believe, is equally novel and ingenious. This is to elevate the two piers, inclosing the draw, to a height sufficient to pass the tallest vessel that may apply, and over these to extend a second series of the continuous bars, terminating in braces, which may be securely fastened in various ways at the ends. The moveable floor is suspended from these by pendulous rods, whose upper extremities are attached to the axles of two or more flanged or grooved wheels, plying upon the upper series of bars in such manner that when the draw is closed, the wheels repose in the midway of the opening, and as it is opened, recede *pari passu*, with the floor towards the pier. If a Bridge on this plan were built at a point of great thoroughfare, an accessory pathway for foot passengers might be made by a stairway over the summits of the piers, while the opening of the draw would only obstruct the passage of vehicles.

In addition to economy of construction, the inventor thinks it is an important feature, that if any parts need renewal, they may be removed without impairing the strength, and replaced by others, and thus the whole structure be consecutively renewed, like the gradual absorption and deposition of the particles of the living frame.

It was not my purpose to say more (nor indeed so much) of the form of this Bridge at present. That objections may be suggested against it, I have no doubt, but I think they are all susceptible of removal or obviation, and none can apply that do not

attach with much greater force to Chain Bridges, whose utility and adaptability to the most critical and difficult situations are not now matters of question. My object was to call to it the attention of those of your readers who are more qualified by their habits and experience to judge of its claims, and perhaps to draw forth their opinions.

S. M.

Baltimore, March 12th, 1835.

Accompanying this communication we received drawings of two forms of this Bridge, both intended for draws, and one in illustration of the stairway, for foot passengers. They were not intended for publication, yet they are at the service of any gentleman who may desire to examine them. The plan certainly has novelty, if no other merit for its recommendation—and we ask for it an attentive perusal.

QUERIES TO ENGINEERS.—We have been requested to submit the following queries to the consideration of Engineers, and to request replies to them through the Journal.

1st, What rate of ascent per mile is preferable for the use of locomotive steam power, to that of stationary, upon a straight line of Railroad, the distance the same in both cases, the cost for construction the same in both cases, the freight, passengers, and as many as can be transported upon a good permanent double tract, upon a level Road?

2d, What rate of ascent per mile is preferable for the use of locomotive steam power, upon a curved line, say 1000 feet radius, to that of stationary power, by making the curves between the planes of a smaller radius, say 500 feet, and the planes for stationary power on straight line, distance, cost, and transportation, as before mentioned?

3d, What rate of ascent per mile is preferable for the use of locomotive steam power, to that of stationary, as in the 1st and 2d question, provided the transportation is only half the Road is capable of doing?

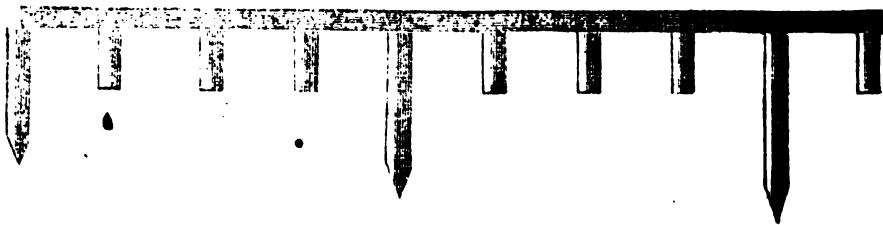
4th, What rate of ascent per mile is preferable for the use of locomotive steam power, to that of stationary, as in the 1st, 2d, and 3d questions, with the exception of passengers, as freight and transporting produce and merchandize?

5th, What extra distance is equal, by going around an elevation and depression, to that of going over at the rate of 60 feet per mile, for a distance of 2 miles, 1 mile each way from the summit, the level the same on both sides of the ridge, the curves the same in both cases, the cost for construction the same in aggregate, transportation to be passengers, as in the 1st question?

6th, We will fix the rate of ascent for locomotive power, at 60 feet per mile for this question, and say, we have 10 miles to ascend at the same rate, for the transportation of passengers, as in the 1st and 2d question, cost for grading is \$10,000 per mile=\$100,000, and further say that a location can be made near the one proposed, by rising 40 feet per mile, for the 1st 5 miles, and the remaining 5 miles will ascend at the rate of 80 feet per mile, this location will cost less money than the 1st, how much less should it cost to make it equal to the 1st, distance the same in both cases?

I have asked the above, questioned in that simple, plain, and pointed way, in order to prevent the gentlemen avoiding the answers of some kind.

HASKINS' PLAN FOR CONSTRUCTING RAILROADS.



The following plan for constructing Railroads, is submitted for the consideration of our readers. It will be found useful, in many parts of the country, for passing soft or marshy ground, and perhaps for the construction of cheap roads. We are truly obliged to Mr. Haskins, as we are to every gentleman, who favors us with his views on the subject of Railroads.

Mr. Minor, —I subjoin, for your publication, a plan for constructing Railroads, which, so far as I know, has not been advanced by others, and which may be found useful. I made a suggestion, some four years since, embracing the principle, in an article upon the Mad River Railroad, which appeared in one of our public journals. In April last, I drew out a plan and specifications, and submitted them to the Directors of the Aurora and Buffalo Railroad Company; since which, some copies thereof have been obtained for Engineers upon other works for examination.

Durability, and the *maintenance of fixed levels*, are matters of the first importance, in Railroads. I believe Engineers do not estimate the durability of these works, when constructed upon any one of the most approved plans at present in use, at over ten or twelve years; that is, without expenditures which almost equal the cost of rebuilding upon the same grade. If this is so, I believe the subjoined plan for constructing will prove valuable; for, while its cost will be found (where suitable timber is plenty) intermediate between the *most* and the *least* expensive Roads that have been made, it will produce a Road which, without any material repairs, will maintain its level, and remain good from sixty to eighty, and in some cases even one hundred years. I know full well that *driving piles* is nothing new in Railroad construction. Over marshy grounds these Roads have always been carried on piles, but on dry ground, the expense would be too great to drive as many piles as would be needed for *all* the rests. The proposed plan is designed to secure a fixed level for very long periods of time, without undue expense. The grading will be the same in this as in other cases.

The engraving below, exhibits a vertical section of Road, the stretchers which are to receive the rails, resting at either end, upon piles driven into the earth, and immediately upon blocks of wood. The stretchers and piles are each one foot through, and the blocks the same. The piles varied in length, as the soil varies in which they are to be driven, the depth being always such as to secure their firm position, against the action of frost, or of rains, in softening the soil. Piles thus driven, at distances to accommodate the length of the stretchers, when cut off to the grade, become *fixed points of level*. The blocks—used intermediately, to save expense—to have sawed, parallel ends, and

to be adjusted to the same level as the piles, the earth being driven in tight around them. Their length I have assumed at three feet. When at hand, a flat stone might be laid beneath each block, with advantage. These blocks, by the use of the Road, will, in time, settle more or less; but, as each end of the stretchers remains *fixed* upon the piles, these central depressions may, at any time, be elevated to a horizontal line, by wedges driven under the stretchers, upon the heads of the blocks—a process alike cheap and effectual.

The length of the stretchers, and the distance between the supports, or blocks, will be matters of consideration. The former I have assumed at twenty feet, and the latter four feet. Probably, as the stretchers will rest upon the soil, the distances between the supports may, in many Roads, be considerably greater than this. The stretchers should be tied, at suitable distances; though few ties will be necessary, if the stretchers be firmly bolted to the heads of the piles. These ties, when a horse-path is intended, should be cut away in the centre, so that the gravel of the path will form a smoother surface above them.

The piles, blocks, stretchers, and ties, which constitute *the whole work*, except the iron rail—if of beach, cedar, or locust, and cut in winter, will exceed in durability, the extreme of human life.

R. W. HASKINS.

Buffalo Sept. 4, 1835.

To the Editor of the Railroad Journal:

Mr. Minor, Sir,—In your Railroad Journal there has been much said on the subject of the tenacity or cohesion of iron, but in regard to the particular shape or form for Rails, (for wear and economy,) I am not aware that the subject has been much dwelt upon. From my observations of the different Railroads that I have seen, I am convinced that there is an immense difference in the economy and wear of the different kinds of Rails, and have no doubt that it is owing to the different shapes that the iron is wrought into, more than to the quality of iron used in their manufacture.

I have observed a great difference in regard to the splitting and scaling of Rails, by compression, (*from use*)—it appears to me that the flat or plain Rails can, and would be wrought more compact, and in wear there would be at least 50 per cent. in their favor.

From conversations with many of the Directors of Railroads, I have not found that the subject has been much thought of. The safety in travelling on Railroads depends much on the solidity or compactness of the iron. The Rails that split or scale the most, must of course be more dangerous; the next consideration is economy in their results, for long use, and not for the mere consideration of their first cost only.

Will some of your numerous correspondents take the subject into consideration?

Yours obediently,

P. FANNING.

—We cannot reply to the above questions for want of experience, and therefore call upon those of our practical and experienced friends to answer them for us, through the Journal.

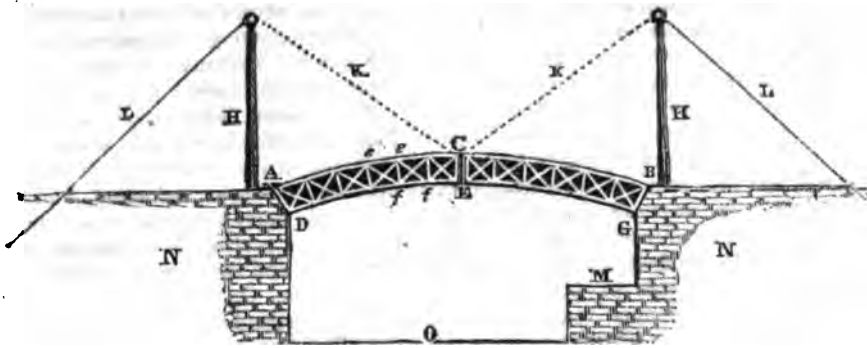
—It is important that this subject should receive attention, and we are ready to do our part, *publish* it, when we receive the answer.

The contemplated Railroad from Winchester, up the great Virginia Valley, to Staunton, merits the decided countenance and support of this community, and we are happy to find that there is a daily growing interest on its behalf among us. The construction of this work, it seems to be admitted both by its friends and enemies, will settle the question of the course which the trade of western and southwestern Virginia will take, in favor of Baltimore. The valley route to market is conceded on all hands to be the natural one, and with the facilities offered by a continuous Railroad from Staunton to Baltimore, the current of trade would set so strongly to this market, that no inducement which rival works could offer, could divert it from this channel. Once extended to Staunton, the line will never stop in its progress until in the first place it intersects the Railroad which is to unite the James and Kanawha improvements, and until it finally passes through Tennessee to a junction with the Nashville and New-Orleans Railroad.

[From the New-York American.]

We understand that considerable progress has been made, during the past season, in the works for the improvement of the navigation of the Hudson river. The whole amount of the first appropriation (\$70,000) will have been expended by, or before, the close of the season; in addition to which the Corporation of Albany have advanced \$10,000, to be applied, if deemed necessary by the Superintending Engineer, towards completing and securing those portions of the plan now in process of execution. The existing plan is the one recommended by a Special Board of Engineers, convened in 1834, subsequently modified, in a slight degree, at the suggestion of the Superintending Engineer, Captain Andrew Talcott. It proposes to remedy the present defects in the navigation of the Hudson, by contracting the main, and closing the lateral channels, and by protecting the shores, or those portions of them which may be endangered by the action of the current, by a covering of small rough stone. By the first operation, the waters are confined within narrower bounds, and to their consequent increased velocity, especially during the Spring freshets, the Engineers chiefly look for the removal of the existing bars and shoals. Dredging machines are likewise to be employed to effect this object; and the sand and gravel, thus removed from the bed of the river, are the materials used in the construction of the dykes, by means of which the channel is to be contracted. The covering of stone on the channel shores is intended to protect them from the abrasion of the waters, and thus, in so far as that measure is available, to prevent future deposits. There seems to be no reason to doubt the excellence of the plan in theory, or its eventual success in practice. In the latter event, Albany will possess a free navigation to the ocean for all vessels of or under 10, or, perhaps, 12 feet draught.

HOPKINS' CAST AND WROUGHT IRON DRAW BRIDGE.



Chamblay, Oct. 24th. 1835.

D. K. MINOR, Esq.

Dear Sir,—I am anxious to try steam-boats on the Canal that is at the point of completion here. I have a schooner which is well calculated to receive an engine of ten or twelve horse power, and would put one in her if I could get it cheap. Will you please to advertise in such a way, for a small engine, that I need not be obliged to take it, if beyond my means of payment. I should like a second hand one, and if high pressure, I should not object. Will you let me know the answer to your advertisement, and if an engine is offered cheap, I will come on and see it.

I have just been making a cast and wrought iron draw bridge, of 35 feet span, of which I send you a sketch; it cost \$1500, stone work and all.

From A to B is 36 feet, the versed sine of the arch is 2 feet, and the depth of the rib from C to E is 2 feet. The bridge is composed of 3 ribs, like the one A C B E, braced together, and planked over the top. The upper bar A C B, and the posts e f, are composed of iron cylinders (cast), through which wrought iron rods are passed; the cylinders are 2½ inches in diameter, and the rods passing through them are 1½ inches; the rods passing through the post cylinders have eye bolt heads, and the rod that threads the upper cylinders passes also through these eyes; the post rods pass through the lower bar D E G, which is of wrought iron, ½ inch by 3 inches; the braces should be hollow cylinders, whose exterior diameter is 1½ in., and which are ½ in. thick; but it was found difficult to cast them here, and they were cast feathered. At G and D are cushions of wood to receive the bridge, in descending the posts. H H are hollow cylinders, furnished at top with a cross rod and drums for the lifting chains K K, and a counterpoise of 6 cwt.

The weight of iron is,

Cast Iron,	14,312 lbs.
Wrought Iron,	9,389

You will see that the object in making the upper part of the bridge cast iron was to resist the crust, and that the lower part was wrought to resist extension.

Will you send me your Canal Map?

Your obedient humble servant,
WM. R. HOPKINS.

[From the New-York American.]

I am one among the many who hailed with delight the Report of the Directors of the New York and Erie Railroad, published in your paper of the 3d inst. This document I consider as putting an end to all doubts, on the subject of the construction of that great work, and silencing at once the cavils of its enemies, and the fears of its friends. Confidence is now firm, that New York will have the honor of constructing the greatest railroad, as she has of making the largest canal, in the world;

and what is more, of taking the lead in both grand enterprises.

I was particularly struck with the facts mentioned in the Report, in relation to the many branches proposed to be connected with this main route, leading to various parts of the State. The branch leading through the Unadilla valley to Utica, especially, must prove of great importance, connecting with a point where so many great public improvements concentrate, and penetrating into the heart of the most flourishing country in the world. This branch is called the Utica and Susquehanna Railroad, and, as I understand, is now in actual progress. The advantages of such a communication must be obvious to all. Allowed to transport freight as well as passengers, it enables the city and country to transact business, as usual, even after the canals and rivers are closed by the frost; it affords a winter outlet for the produce of the farmer, who can take it to Utica by sleighing, as soon as it is ready for market, and get his money, instead of waiting, much to his inconvenience and loss, till the canals are open; and, in short, it facilitates vastly the transaction of business, not only with the centre of our own flourishing State, but with the great West in general.

There is another point of view, in which the branch to which I allude, is of importance. Public opinion, has fixed upon Utica as the seat of State government, and the removal will probably follow immediately the announcement of the census now taking; and a direct railroad communication from this city to the Capital of the State, especially as the sessions of the Legislature are generally held in the winter, will be a great convenience at least.

But there is still another point of view, in which the Utica and Susquehanna Branch is of more importance; I mean as a link in the chain of railroad communication to Lake Ontario. The distance from Utica to Oswego is less than 80 miles, and by continuing the railroad to the latter place, we communicate by the nearest possible route, with that Lake, the immense country bordering upon it, and the vast valley of the St. Lawrence. It may be a question, also, whether this will not prove in practice the best route of communication with the other great Lakes further west, especially when a ship canal is constructed on the American side round Niagara Falls. But these considerations, if followed up, would lead me into too vast a field for a newspaper article, and I will only add, that I hope the communication by railroad and canals, with the great Lakes, by way of Utica and Oswego, will meet the attention it deserves, at the approaching internal improvement Convention at Utica.

CLINTON.

[From the Ellicottville, Cattaraugus Co. Republican.]

INTERNAL IMPROVEMENT.—CATTARAUGUS CO. —We would direct the attention of the reader and men of enterprise, to the communication of a "Dutchess County Farmer," which will be found in another column of this week's paper. The superior advantages which Cattaraugus possesses over many counties in this State, begin to attract the attention of men of enterprise. Cattaraugus, is by nature, one of the first counties in the State; her advantages are many, and need only to be examined and improved to become universally great. A water communication from Olean, in this county, into thirteen States of the Union, are advantages which every county of our State cannot boast of:—

Mr. Shankland: Sir—In looking through your interesting section of the State, and viewing the

advantages which a few weeks have enabled me to discover, I cannot but be surprised that our Eastern capitalists have not before improved them.—When the great fertility of the land, its aptitude for grazing and other purposes are known; when it is generally known that Cattaraugus is equal to any county in the State for grazing, and not inferior to many counties for raising wheat, corn, and other grain, it will be improved and its fertile hills and valleys will be covered with those useful animals, the sheep and the ox. There is land in the Eastern part of the State used for raising cattle and sheep, considered worth more than \$100 per acre. Lands here equally as good for that purpose are sold from three to twelve dollars per acre. So great a difference in the price of lands equally as valuable cannot long exist.

But independent of the fertility of the soil there are other advantages in this section equally if not more important. The extensive hydraulic privileges, the abundance of pine and oak timber in many parts of the county, the many indications in numerous places of extensive beds of coal, gypsum and lime, which have already been discovered, will have a tendency to make this county at no remote period one of the richest in the State. There has been during the last year more than three hundred million feet of lumber carried down the Allegany river, which at \$10 per thousand would be worth \$3,000,000. And there is no reason why there cannot be as extensive speculations in the lands in this section, situated as they are, where the timber can be so easily taken to market, as in the timber lands in Maine.

But when we see these advantages and take into consideration the population of the county, which is now nearly thirty thousand inhabitants, located where they must be particularly benefitted by the great public improvements now in agitation, we can then form but an imperfect idea of the future wealth of this portion of the State. The New York and Erie Railroad, which is in extent and importance, before any public improvement in the world, and the Genesee canal, will make the location of Cattaraugus better (excepting the city and county of New York,) than any county in the State.

Either of these improvements will give this county the carrying trade of to the eastern section of the United States—to thirteen of the southern, south western and western States. As goods can be transported much safer, cheaper and earlier in the spring on the river than on the lakes, the river would be preferred, and the trade of the rich, extensive valley of the Mississippi will be done through this channel. There is now a communication from Olean in this county, of more than 20,000 miles on navigable rivers into thirteen of the United States, which embrace half of the population of the Union. The produce of those States can be carried on this river to the Atlantic cities, and the merchandize consumed there can be conveyed either by the way of the Erie and Genesee canal, or Hudson and Erie Railroad, and down the Allegany, making that river one of the greatest thoroughfares in the world. If the merchandize and produce of the eastern and south western States are exchanged through this channel it must create a steamboat conveyance on the Allegany not surpassed by that of the North river.

Why is there not a fair prospect of as extensive a mart and large city at the intersection of the Genesee canal and railroad with the Allegany river as any in the interior of America? It will have at least as many advantages as Buffalo.

From these facts it will be seen at once that this railroad and canal will not only enrich this county, but be of immense benefit to the city of New York, and of more importance to the United States than any other improvement that has yet been made.

Hoping that the citizens of your county may enlarge upon the many advantages which your location possesses, I remain yours, &c.

A DUTCHESS COUNTY FARMER.

Franklinville, 26th Oct., 1835.

WESTERN TRADE.—A gentleman of this city has sold a lot on Ashton street, running into the Schuylkill at the corner of Filbert street, the proceeds of which paid for a water lot on the Delaware below Lombard street, of equal size. The former entirely unwharfed or improved otherwise, the latter has a wharf and large stores erected on the same. It was predicted not long since, that the time would come when the Schuylkill front of the city would be more valuable than that of the Delaware. How soon has that prediction been verified!—[U. S. Gazette.]

FIRST ANNUAL FAIR OF THE
MECHANICS' INSTITUTE.

General Committee of Arrangements:

SAMUEL CARTER,
JOHN BELL,
WILLIAM BALLARD,
JONAS HUMBERT, Jr.,
HENRY DURELL,
JOHN M. DODD,
N. S. HUNT,
GEORGE BRUCE,
JOHN THOMAS,
WILLIAM STEBBINS,
PETER WALTERS,
UZZIAH WENMAN,
L. D. GALE,
S. S. WARD,
WILLIAM BELCHER,
WILLIAM PARTRIDGE,
OLIVER WHITE,
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DAN'L A. ROBERTSON,
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THOMAS TIMPSON,
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JOHN WINDT,
P. C. CORTELYOU,
COLIN LIGHTBODY,
WILLIAM NORRIS,
FITCH TAYLOR,
ADAM HALL,
ROBERT SMITH,
WILLIAM EVERDELL,
ALEX. MASTERTON,
L. D. CHAPIN,
WILLIAM FRISBY,
WALTER N. DE GRAW,
L. FEUCHTWANGER,
AUGUSTUS CAMPBELL,
SAMUEL BAILEY,
WM. L. CHURCHWELL,
ALEX. J. DAVIS,
W. J. MULLEN.

REPORT.

To the Mechanics' Institute of the City of New-York, the General Committee of Arrangements respectfully report:

That the first Annual Fair of the Institute was held at Castle Garden, and that the Exhibition was opened to the public on the 29th of Sept. and continued until the 3d of the present month inclusive, during which time they estimate that 40,000 of their fellow citizens visited the Garden.

Although free admission was given to the members of the Institute and depositors of goods, and cards of invitation issued to the judges, the municipal authorities of this city and the neighboring places, the gentlemen connected with the press, and numerous distinguished individuals, the total receipts amounted to \$2,188, which it is believed will be found

very nearly or quite sufficient to defray the expenses on that occasion, a detailed account of which will be presented as soon as the Sub-Committee on Finance shall have closed their labors. This result is more flattering than could have been anticipated, when it is recollected that a beautiful plate for printing diplomas and a pair of dies for striking medals have been procured, and are now the property of the Institute; an expense which will necessarily not again recur. Among other advantages to the Institute, the accession of rising 300 members may be enumerated.

The Committee must remark, that the quantity and variety of the articles exhibited, exceeded their most sanguine expectations, and that the quality reflected the highest credit upon the skill and ingenuity of the contributors, and gave irresistible and gratifying evidence of the rapidity with which our country is advancing in the arts and in manufactures.

The Committee herewith submit notices of the various articles exhibited, and a list of the premiums that have been awarded. They have been prepared by their Sub-Committee on Premiums, and the attention of the Institute is invited to them.

Although the publication of these papers has been delayed for a longer period than was desirable, and many articles of merit have remained unnoticed in consequence of the want of information from contributors themselves, yet the Committee trust that the inexperience attendant upon, to them, a novel undertaking, will be considered a sufficient apology; and they feel assured that the valuable knowledge acquired in this first attempt will enable future Fairs to be conducted with greater pecuniary benefit to the Institute, and with increased interest to the public.

In presenting to you the results of our duties, and to the public a detailed exposition of the late Fair, it may not be irrelevant to the occasion to recall the cheering reflections arising from our present circumstances and future prospects.

It is impossible that we should not feel animated by the fact that our present number of active members is more than one thousand, and that the united energies of so large a portion of moral and intelligent citizens are, in their associate capacity, directed solely to the promotion of useful knowledge. Deeming knowledge both power and happiness, we should not be insensible to the influence which our efforts, well directed, may have upon our fellow citizens; nor can we think they will be unmindful of our objects and exertions. The diffusion of knowledge lays the foundation for every virtuous sentiment, and presents us with all the elements by which we are to be great or happy. Our means, derived from the public exhibition of American industry and individual contributions, concentrate in this great purpose, and we feel justified in anticipating a satisfactory result to ourselves, and an honorable appreciation by the public.

Lectures upon the Sciences and the Arts, a Reading Room and Library, now mark the efforts of our Association and the discriminating patronage of our liberal minded citizens. Further and still more efficient means are in progress to diffuse useful information, and thereby to advance the interests of a most important part of the community. These interests are, however, unlimited, and every honorable man, approving the objects we propose, is invited to co-operate in the measures and share in the effects of this Association. On reviewing our condition, our objects, and our resources, we are induced to proceed with additional zeal, we are stimulated to increased exertions, and encouraged in every laudable hope.

SAMUEL CARTER, Chairman.

L. D. GALE, Secretary.

Notice of the various Articles exhibited,
comprising the Premiums awarded.MACHINERY, MODELS, PHILOSOPHICAL AP-
PARATUS AND INSTRUMENTS.

No. 8. *Double Power Under Shot Water Wheel.* Invented by W. F. Brown. This Wheel is simple in construction, and works with very little friction. From the form and relative position of the flights, and an inclined chute under the wheel, the water is used in the most effectual manner. The wheel can be driven with very little head, and works well when completely submerged. By the addition of gates, it will answer a good purpose for tide mills. The Committee have awarded to the inventor the Silver Medal of the Institute.

No. 2. *Bromly's Portable Shower Bath.* Considered very useful and ingenious. The Diploma of the Institute.

No. 124. *Assay Balance.* Jones & McDonald, 83 Fulton street. Workmanship beautiful, and sensible to the 500th part of a grain, when loaded with ten penny weight. The Committee award to the manufacturers the Silver Medal of the Institute.

No. 258. *Machine for Making Sea Biscuit.* Deposited by J. & C. Bruce, 121 Bowery. A very excellent invention, for which the Silver Medal of the Institute has been awarded.

No. 212. *Shingle Machine.* Invented by D. Flagg, and deposited by S. S. Webster. The Machine consists of a frame to support the machinery, a gate working vertically, with a frow or knife to cut the shingles from the bolt; a vibrating beam attached to this and to a crank-shaft to work the knife up and down; two knives to shave the shingles, with screws and wedges to graduate their distances, and to secure them; a driver, working horizontally, to drive the shingle through between the knives attached to the wrist of the crank-shaft by a pitman. In operating, the shingle bolt is placed on the rest against the guide plates, and as the crank-shaft revolves the end of the vibrating beam is brought down, whilst its other end ascends with the gate and knife which cuts off the shingle, and the next half revolution of the crank forces

forward the driver with the shingle, carrying it through the casing between the scoring saws and knives, where it is shaped and shaved.

With two or three horse power the Machine turns out from 120 to 150 shingles per minute, and probably without more waste of timber than by the common method. The Committee award the inventor the Silver Medal of the Institute.

No. 6. *A Continual Draft Buoyant Paddle Wheel.* By N. Dodge.

No. 26. *Centrifugal Pump.* By Isaac Sloan.

No. 1. *Patent Platform Scales.* By Fairbank. This appears to be a good article.

No. 29. *Model of a Weighing Machine.* By H. Bartley.

No. 31. *2 Steamboat Models.* By John Clark.

No. 149. *1 Platform Scale.* By John J. Rohr, 242 Canal street. The Diploma of the Institute.

No. 95. *Portable Grist Mill.* Invented by D. Fitzgerald. The Judges decided this Mill to be by far the best in its construction, and most convenient for use, they have ever become acquainted with, and the Committee have awarded the Silver Medal of the Institute.

No. 253. *Iron Grist Mill.* By Payne & Reynolds. In this Mill metal has been substituted in the parts where burr stone is commonly used. From its convenient size, and the rapidity with which it grinds corn, it promises to be very useful.

No. 201. *Model of a Grist Mill.* By I. Sloan.

No. 262. *Iron Threshing Machine.* By Wm. G. Borland, Herkimer, N. Y. Yale & Curtis Patentees.

No. 217. *Threshing Machine.* By S. F. Warren.

No. 286. *Threshing Machine.* By James Maxwell.

No. 243. *Rotary Air Pump, new plan; Electro-Magnetic Apparatus.* By Hiram French, of Lansingburgh. Both of these are very ingenious, and worthy of the Diploma of the Institute.

No. 245. *Double Thread Screw Press.* A very good contrivance.

No. 197. *1 Copying Press, 1 Notarial Press.* Both of good workmanship. For exhibition, by Robert Hoe & Co. the makers.

No. 221. *Machine for Pressing Straw Hats.* By James Maxwell, 259 Bowery. Was considered by the Judges a very ingenious and valuable contrivance. The Committee have awarded to Mr. Maxwell the Silver Medal of the Institute.

No. 277. *1 Cider Mill.* Justin Ware. Simple and good. The Diploma of the Institute has been awarded.

279. *Safety Ladder.* Invented by John Schriber. Simple in its construction, expeditious in its operation, and with the assistance of guys on each side to prevent the oscillations attendant upon great elevations, may be made very useful. The Committee have awarded the Diploma of the Institute to the inventor.

No. 49. *1 Iron Safe,* made by Birk-

beck & Co. Brooklyn, L. I. The Silver Medal of the Institute.

No. 76. *1 Iron Safe,* by Cruttenden & Riley, Brooklyn, L. I. The Diploma of the Institute.

No. 57. *Iron Safes,* by J. Delano. These were considered very good.

No. 37. *Moveable Platform Scale.* Cole & Smith. The principle of this Scale was pronounced very correct, and the workmanship excellent. The Committee, at the recommendation of the Judges, have awarded to the makers the Silver Medal of the Institute.

No. 190. *Model of Steam Safety Boiler.* Invented by G. R. Clarke. This consists of a double boiler, one inclosed within another.

No. 33. *Model of an Apparatus for preventing explosions in Steam Boilers.* Invented by S. Kennedy, 22 Hudson street.

No. 236. *Machines for Morticing,* by George Page. One for cutting common mortices, and one for morticing Wheel Hubs. Both are very good and valuable machines. The Silver Medal of the Institute was awarded to the inventor.

No. 189. *Hydraulic Pump,* by Ridgeway & Co. A good article.

No. 120. *1 Pump, Suction and Force,* by John Conroy.

No. 215. *Machine for Cutting Straw,* by H. Haxley & Co.

No. 176. *Model of a Rail Road Axle.* Deposited by D. K. Minor. Very ingenious, and promises to be useful.

No. 149. *Jack Screw,* by John J. Rohr, 242 Canal street. Very good.

No. 223. *Jack Screws,* by W. Ballard. Good articles.

No. 32. *Portable Forge and Bellows.* Fairley, Concklin & Co. Very excellent, and so constructed as to be removed with great facility. The Committee have awarded a Silver Medal.

No. 68. *Model of a Patent Bellows.* By C. D. Holmes. This is a neat wood model of a Square Bellows, blowing a stream of air, at both the up and down strokes, into a rising head. The intention of the inventor is to produce a steady blast—a desideratum in the arts. The workmanship of the model is quite creditable to the inventor; but the object to be attained, namely, a steady blast, will, we fear, be a failure. In practice it will be found that the blast will not be so strong at the end of the stroke, on change of motion, as it will when the piston is in the centre, or half way of the box. The Bellows now in use, to wit, leather Bellows, with rising head-tub or cylinder, will each of them produce quite as steady a blast as the one referred to. Probably the best way of producing a perfectly steady blast, is either by using a fan Bellows, or two or more cylinder Bellows, acting at half centres, blowing into a reservoir or rising head.

No. 41. *Model of a Patent Lithographic Printing Press.* By P. Langlume. For exhibition.

No. 38. *1 Platinum Lamp, and Model of a Door Spring.* By F. Schott. The workmanship of the Lamp was good, and the price, \$2, although above that required in

the list of premiums offered, is less than the same article, of equal quality, has been previously sold at. The Committee have awarded to Mr. Schott a Diploma for the Door Spring, which is ingenious and well calculated for the purpose for which it is intended.

No. 35. *4 Ploughs and Improved Windlass.* By Wiley, Concklin & Co. Peekskill. For the Windlass, the Silver Medal of the Institute has been awarded. It is neat and compact, and so constructed that the lever need not be removed, and therefore much time is saved in its operation.

No. 252. *Model Churn, Angevine's Patent.* Deposited by F. S. Lane. Considered good.

No. 134. *Washing Machine.* By Asa W. Soule. Thought to be a good article.

No. 265. *Model of a Machine for Polishing Plate Glass.* The property of the Institute.

No. 220. *Model of a Fire Engine.* L. Campbell.

No. 209. *Electrical Cannon, and Cylinder for Electrical Machine, also Model of a Steam Engine.* Jonas Humbert, jr. Deposited for exhibition.

No. 104. *Balance Level.* Invented by F. Bartholomew. Intended as a substitute for the common Spirit Level. Workmanship very good.

No. 91. *Dipping Needle, Transparent Compass, Circular Protractor.* By Brown & Hunt. The Dipping Needle has the pivots turned very fine, and acting on agates. The horizontal circle on which the instrument turns is divided into single degrees, and has opposite verniers to read to five minutes. Spirit Levels, with adjusting screws, are also attached. Both the action and workmanship of the instrument are very excellent. The Circular Protractor has opposite verniers to read to single minutes, with an additional arm to carry the Rack Work motion. This instrument, as well as the Transparent Mariner's Compass, is a beautiful specimen. The Committee have awarded to the makers a general premium of the Silver Medal, and for each of the articles noticed, the Diploma of the Institute.

No. 133. *A Barometer, Thermometer, Hydrometer, in one Case. 10 Thermometers, 1 Surveyor's Compass.* By John Roach, 3 Wall street. The Committee have awarded Mr. Roach a Diploma for the Compass, which is a well made instrument.

No. 289. *Printing Press of the New-York Transcript.* This Press is the Double Napier, improved by Mr. S. Newton, one of the firm of Robt. Hoe & Co. and was built for the Editors of the Transcript, by those enterprising gentlemen. The Press will run from 23 to 2500 impressions the hour, and was put in operation and the paper worked off every evening during the exhibition. The beauty of its operation attracted the attention of thousands of the visitors at the Fair. The Committee take this opportunity of making their acknowledgments to the Editors, Messrs. Hayward, Stanley & Co. for the kindness evinced by them in removing their press, at considerable expense, to the Garden,

and they have no doubt that its exhibition contributed much to the gratification of visitors.

No. 71. *Armillary Sphere, or Problem Globe*. G. Vale, 84 Roosevelt street. Considered by the Committee of very great practical importance. The Diploma of the Institute.

No. 102. *An Extension Ladder, or Fire Escape*. John B. Gasner, 132 Chatham street, New-York City. Not having seen its practical operation, in cases of fire, the Committee are not prepared to speak of its utility; but if it can be made effective its advantages are incalculable. The inventor is entitled to great praise for so laudable an effort.

No. 103. *Model of a Brig*. George Slaughter, 7 Division street, New-York City. For exhibition.

No. 140. *2 Artificial Legs*. James Kent, Brooklyn, N. Y. The Committee cannot, within the limits allowed them by this report, do justice to the skill and ingenuity of Mr. Kent in the manufacture of these articles. The application of artificial feet to the stumps, below the knee, having been tried and failing in Europe, the success of Mr. Kent will be duly appreciated, we believe, by a discriminating public. Lieut. Young having lost both feet, these artificial feet have been applied with complete success, so that the gentleman walks easily with the assistance of a cane only; he is a relative of Mr. Stoneall, Shakspeare Hotel. The Committee award the Silver Medal of the Institute for the Lady's Foot.

No. 207. *1 Gig Patent Screw Boat—of Spanish Cedar*. Josiah Farr. This was uniformly admired for the beauty of its model, and its superior finish. The Committee are happy in awarding for so elegant an article, and one so deserving of competition in this City, the Silver Medal of the Institute.

No. 142. *Machine for Splicing Leather for Machine Cards*. Isaac Pierce. For exhibition.

No. 251. *2 Magnets*. Jonas Humbert, jr. These were very powerful, and well made. For exhibition.

CHEMICALS.

No. 23. *Specimens of Polishing Powder. Do. Paste and Water Proof Paste*. To be reported upon and information communicated on trial.

No. 67. *4 Boxes Austen's Patent Indian Rubber Oil Blacking*. Russel Austen, 113 Pearl street. Said to be water proof, and an excellent article for the preservation of leather. The judges, knowing its composition, can say with confidence that its materials will not injure leather, and from the specimens they have seen tried, they feel safe in inviting the public to make trial of the article.

No. 84. *3 Bottles of Lemon Syrup*. Mr. Groening. The Syrup, the Committee think superior to any exhibited, and, indeed, of a most excellent quality. The Diploma of the Institute.

No. 94. *Samples of Plaster*. Duncan & Arthur, corner of Jane and West streets. Considered very good, but the Committee

could not decide upon its merits in a powdered state, without a trial.

No. 96. *Chrystalized Prussiate of Potash*. Richard Brakell. Considered a most splendid specimen of chrysalization, and indicating great purity.

No. 110. *1 Case of Perfumery, and 2 Glass Jars of Fancy Soap*. Johnson & Co. 39 Cedar street. The quality of these articles, generally, was the very best, and they were got up in elegant style. The Diploma of the Institute.

No. 118. *5 Samples of Soap Stone Paint*. F. Bunker, 100 Barclay street, N. Y. This new article the Committee think bids fair to be very valuable in the arts; they therefore cheerfully recommend it to the public for a more particular trial of its merits.

No. 44. *1 Dozen Lemon Syrup*. M. Haulenbeck, 144 Nassau street. Considered of excellent quality.

No. 196. *Lucifer Matches*. Hopper, 364 Broadway. For exhibition.

No. 158. *1 Bottle of Writing Ink*. Noble Heath, No. 8 Heater street. The Committee think this the best ink they have ever seen, and they recommend it to public notice. A remarkable property of this ink is that it presents, when used on cards, &c. all the prismatic rays; it is really quite unique, and of surpassing beauty. The Diploma of the Institute.

No. 202. *1 Box Allum, 1 do. Saltpetre, 1 do. Copperas, 1 do. Oil Vitriol*. Messrs. E. Peck & Son. The Copperas the Committee consider of a superior quality, and not surpassed by any ever manufactured. The Nitre was thought to be of the best quality also, but the Committee could not well determine its purity. The Oil of Vitriol was excellent. The Diploma of the Institute.

No. 124. *Chemical Preparations*. Dr. Lewis Feuchtwanger, Broadway, New-York City. The great variety of Chemical and Medicinal preparations here presented for exhibition, attracted the particular attention of the Committee, and they would say, in general terms, that the preparations were of great purity and usefulness, and worthy of special notice. The indefatigable industry of Mr. F. in manufacturing Chemicals, hitherto imported, many of which are superior to the foreign article, will, we trust, be duly appreciated by the public.

No. 39. *1 Box of White Lead*. E. Clark, Saugerties, N. Y. This specimen was considered equal, if not superior, to any in the country. The great purity of an article so worthy of competition, induces the Committee to award the Silver Medal of the Institute.

No. 271. *1 Can of Copal Varnish*. Wm. Tildon. To be tested and reported upon.

No. 182. *1 Can of Coach Varnish*. P. B. Smith. To be tested and reported upon hereafter.

No. 206. *2 Bottles of Ink, and 1 Frame*. F. B. Callender.

BOOTS, SHOES, LASTS, AND LEATHER.

No. 36. *Ladies' Boots and Shoes*. F. S. & M. Morris, 388 Grand street, N. Y. No. 63, *1 Pair Dancing Pumps*. J.

Field, Newark, N. J. Considered of excellent quality.

No. 69. *Gentlemen's Gaiter Boots*. Lewis J. Durand, 159 Centre street. Best exhibited. The Diploma of the Institute.

No. 70. *Ladies' Slips and Wadded Boots*. John Broqua, 331 Broadway, New-York City. The Committee consider the Wadded Boots the best article exhibited. The Diploma of the Institute.

No. 83. *Children's Pumps, Sandal Slips, and Misses' Gaiter Boots*. Thomas Weeks, 157 Delancy street. For the best pair of Misses' Gaiter Boots and Sandal Slips, the Committee awarded the Diploma of the Institute.

No. 106. *1 Pair Light Boots, 1 Pair Light Pump Boots, 1 Pair Cork Sole Pump Boots, 1 Pair Double Cork Sole Pump Boots, 1 Pair Dancing Pumps, 1 Pair Opera Pumps*. Kimble & Rogers, 104 Broadway, New-York City. The light boots and dancing pumps the Committee consider the best exhibited; they therefore award the Diploma of the Institution.

No. 135. *14 Pair Moccasins*. Mrs. Nichols, 106 Chatham street. These were considered very good by the Committee, and worthy the Diploma of the Institute.

No. 138. *2 Boxes of Lasts*. G. Coit & Sons, 305 Pearl street. The Gentlemen's Boot Lasts were the best offered, and thought worthy the Diploma of the Institute.

No. 145. *Ladies' Gaiter Boots and Slippers*. Made by W. J. Watson, 67 Fulton street, Brooklyn, N. Y. The best exhibited. The Silver Medal and Diploma of the Institute.

No. 160. *1 Pair Double Sole Water Proof Boots*. Robert Walker, 44 Greenwich street. These were the second best exhibited, and of an excellent quality.

No. 191. *4 Pairs Water Proof Boots*. Henry Brisch. These were considered by the Committee most excellent water proof articles. The Diploma of the Institute.

No. 51. *Ladies' Gaiter Boot Lasts*. Deposited by C. R. Williams, 62 Frankfort street. Considered the best offered. The Diploma of the Institute.

No. 194. *1 Side of Sole Leather*. Wm. Brown, Brooklyn. This was of an excellent quality, and an article the Committee were pleased to see offered for competition. The Diploma of the Institute.

No. 107. *1 Double Sole Boot, 2 Light do. and 1 Shoe*. C. B. & J. C. Green, 416 Broadway. Very good workmanship.

No. 204. *1 Case, 2 Pair of Boots*. Robert Webber.

No. 210. *1 Case Ladies' Shoes*. Benjamin Shaw.

No. 62. *1 Pair of Dancing Pumps*. E. Severance, Newark, N. J.

No. 211. *3 Lasts*. Wm. Shaw.

HATS, CAPS, AND FURS.

No. 69. *1 Case of Water Proof Hats*. Edward Townley, 148 Canal street.

No. 111. *3 Silk Hats*. G. B. Alvord, 12 Bowery. These specimens were of

nal notice of the Committee. For the best \$3.50 Hat they award the Silver Medal of the Institute.

No. 114. 1 *Silk Hat*. Isaac M. Henderson, 133 Lewis street.

No. 92. 1 *Case of Otter Ladies' Caps*, do. *Gentlemen's*, and 1 do. *Misses*. Charles C. Plaisted. The Committee consider these articles worthy of particular notice, and recommend Mr. Plaisted's work to the patronage of the public.

No. 163. 1 *Satin Beaver Lady's Hat*, *Drab* do. do. S. Tuttle, 208 Chatham street. The Committee thought these, of superior quality, and received the specimen from the elegance of their finish, deserving the Diploma of the Institute.

No. 233. 3 *Straw Hats*. Mrs. Harrison, 3½ Division street. The ladies merit particular attention in the specimens of mechanical skill which they present for exhibition to the public, and the Committee are happy to find that attention so well deserved, as in Mrs. Harrison's Hats. The extreme fineness of the braid, the charming neatness with which they were sewed, and this perfection of the model, though unpressed, entitles this lady, in their opinion, to the Silver Medal of the Institute.

No. 238. 1 *Russia Silver Fox Boa*, 1 *Siberian Blue Ice-Fox* do., 1 do. *Squirrel Cape*, 1 do. *Blue Fox* do. Christian G. Gunther. Considered very beautiful, and finely made. The Diploma of the Institute.

No. 248. 2 *Fur Hats*. A. & A. Barker. The Committee have thought these highly creditable specimens of workmanship, and therefore award the Diploma of the Institute.

No. 261. 2 *Ladies' Hats*. B. J. & J. W. Hunt. These were beautiful specimens of Ladies' Beaver Hats, and worthy the Diploma of the Institute.

No. 143. 4 *Otter Caps*. James La Tourette, Pearl street. These were specimens of great superiority, and were not excelled by any exhibited, if they can be equalled in the country. The Committee cheerfully award the Silver Medal of the Institute.

GOLD AND SILVER ARTICLES.

No. 43. A *Case of Watch Dials*. William J. Mullen, New-York City. The Committee consider these specimens of American workmanship worthy of special notice, both for originality of design and elegance of workmanship. They have never been equalled by any articles of the kind, foreign or domestic; and when it is considered that heretofore a large sum of money has been sent abroad annually for these articles, the Committee feel at liberty to express unqualified praise in favor of the articles here exhibited; they therefore award to Mr. Mullen the Silver Medal of the Institute.

No. 52. 19 *Articles manufactured of Argentine, or German Silver*. H. Powell, Belleville, New-Jersey. These articles were of superior workmanship. The Silver Medal of the Institute.

No. 127. 1 *Case Pencil Cases*, (No. 42, *Ever Point*.) Woodward & Hale.

Some of these evinced a most elegant style of workmanship, whilst the patterns were of the most chaste and approved kinds.

No. 184. 1 *Case of Spectacles*. J. L. Moore, 142 Chatham street. Considered neat and elegant patterns, and very finely wrought. The Diploma of the Institute.

No. 213. *Patent Lever Temple Spectacles*. P. Williamson, 270 Division street. These are an improvement of the ordinary Spectacle Frame, by means of the intersecting levers of which the temple part is composed. The levers being about one inch in length, are made circular, so that when riveted to each other, they are adapted to the conformation of the head. The whole arrangement of levers gives to these spectacle bows great elasticity and uniformity of action, and is, withal, very neat and novel. The Diploma of the Institute.

No. 228. *Gold and Silver Thimbles, and Spectacles*. Platt & Brothers. The patterns of the Thimbles were much admired, and the Spectacle Bows were highly distinguished for their neatness, convenience, and elegance of finish. The Committee awarded the Diploma of the Institute.

No. 242. 2 *Bars of German Silver*, 2 *Rolls* do. do. Dr. Spieker, 191 William street, N. York. Considered by the Committee a valuable article, and capable of being appropriated to a great variety of useful domestic purposes: these specimens were of the finest quality. The Diploma of the Institute.

No. 205. 24 *Watch Dials*. Berger Webster & Co. These were a beautiful article, and thought by the Committee worthy of the Diploma of the Institute.

INDIAN RUBBER ARTICLES.

No. 123. 2 *Pair Indian Rubber Boots*, 1 do. *Shoes*, 1 *Knee Cap*, and 1 *Shoulder Cap*. Stephen C. Smith, 66 Chatham street. Many of these articles were considered by the Committee of superior quality, and particularly the *Ladies' Shoes*, from the admirable manner in which the cloth linings were incorporated with the rubber, so as to prevent them from becoming troublesome to the wearer, as they often do by being detached from the shoe. This is an invention of Mr. Smith's, and one which he applies with equal success to boots and clothing. The Diploma of the Institute.

No. 59. 17 *Pairs of Indian Rubber Shoes*, also 1 *piece Virgin Rubber*, and 1 *Sheet*. Corning & Son, 144 Water street. Considered of an excellent quality.

No. 179. *Machinery Banding, Stage Thorough Brace, and Gas Bag of Indian Rubber*. H. Raymond & Co. The superior excellence, and practical advantage, of the first named articles, entitle the gentlemen, as the Committee think, to the Silver Medal of the Institute.

No. 216. *Specimens of Indian Rubber*. Charles Goodyear, 13 Gold street. The Committee are of the opinion that of all the useful modifications and applications of this article, none exceeds, in novelty

or utility, that discovered by Mr. Goodyear. The original coloring matter, by a process peculiarly his own, is removed from the material, and any other given to it, whilst, at the same time, it is deprived of all of its unctuous and aqueous qualities, and yet retains its elasticity, durability, and imperviousness. The Committee can have no doubt of the utility and success of this discovery, and therefore recommend it to the immediate attention of the public. The Silver Medal of the Institute.

No. 232. 1 *Roll Indian Rubber*, 1 *Coat and Pantaloon* of do. Samuel Chase.

No. 272. *Case of Indian Rubber Balls*. H. Percival & Co. Considered very good, and handsomely made.

CABINET FURNITURE.

No. 9. *Camp-Bed and Table*, (enclosed in the lid of a trunk.) Wm. W. Woolley, Broadway, New-York City. Considered remarkably convenient and ingenious. It will, no doubt, be in great demand, particularly with travellers. The Silver Medal of the Institute.

No. 40. 1 *Lady's Work Box*. John F. Hanson, 57 Poplar street, Brooklyn, N. Y. First rate workmanship. The Diploma of the Institute.

No. 108. 1 *White Polished Door*. Solomon Pancoast, 54 Spring street, New-York City. This was an elegant article, and its beautiful finish was particularly admired. The Diploma of the Institute.

No. 125. 1 *Lady's Work Box*. Edward Senior, 138 Bleeker street. Considered a good specimen of workmanship.

No. 81. *Lady's Work Box*. A. Paterson.

No. 171. 1 *Centre Table, Mosaic top*. Wm. Fulcher, 88 Elm street. An elegant article, and worthy the Diploma of the Institute.

No. 187. 1 *Sofa Bedstead*. Francis Breckles. Considered by the Committee the best specimen offered, and really of superior excellence. They award to the maker the Silver Medal of the Institute.

No. 193. 1 *Breccia Top Centre Table—Column of Marble*. Wm. Vine. The Diploma of the Institute.

No. 287. 1 *Sofa and 1 Centre Table*. S. Carter, 51 Beekman street. For exhibition.

No. 144. 1 *Portable Desk*. Lawrence Ryer. For exhibition.

No. 154. 1 *Sofa Bedstead*. W. Woolley, Broadway, New-York City. In Mr. Woolley's good style of workmanship.

No. 237. 1 *Divan Bedstead and Royal Foot Rest*. W. Woolley.

CUTLERY, EDGE TOOLS, AND HARDWARE.

No. 7. 2 *Pounds Bright Wire—six miles long*. 1 do. *fine* do. 1 *Bundle Square Wire*, and 1 do. *Round* do. No. 12, *Copper*. From E. Peck & Son, New-York City. Considered wrought in a superior manner. The Silver Medal of the Institute for the 2 lbs. bright wire.

No. 82. 62 *Gross Wood Screws*. Goodell & Co. Newburg, N. Y. The Diploma of the Institute.

No. 824. *Four Plumb Spirit Levels*. J. & H. M. Pool, Easton, Mass. N. B. The Messrs. Pools are the inventors of this valuable instrument, and secured the patent in 1833. Too much credit cannot be awarded to these enterprising gentlemen, for their useful invention. The Silver Medal of the Institute.

No. 824. *5½ dozen Shovels and Spades*. Deposited by Mitchell Ames & Co. No. 2 Liberty street. Considered very good.

No. 98. *14 Pairs Shears*. Rochus Heinisch. The specimens exhibited were of superior workmanship and finish, and deserving public notice. The Silver Medal of the Institute.

No. 112. *1 Case of Stocks and Dies*. Daniel B. King, Waterford, N. Y. The Committee are of the opinion that these are equal, if not superior, to any of the kind in the country. They award the Silver Medal of the Institute.

No. 80. *Invoice of Files*. George Rothery, Bloomfield, N. J. Many of these were considered equal to any imported, doing much credit to the manufacturer, by so successful a competition with the foreign article. The Silver Medal of the Institute.

No. 132. *1 Case Steel Pens*. C. Atwood, 72 Maiden Lane. Considered very good in style and execution. The Diploma of the Institute.

No. 141. *6 Dirk Knives*. Robert Ward. The Committee think these specimens of workmanship have great elegance and perfection. They award the Diploma of the Institute.

No. 167. *4 Bundles of Iron Wire*. E. Peck & Son. These specimens were thought by the Committee to be of superior quality and workmanship.

No. 268. *2 Augers*. Upson & Campfield, Humphreysville, Ct. These were superior articles, doing much credit to the manufacturers.

No. 269. *9 Auger Bits*. Clark & Hartshorn, Humphreysville, Ct. These articles have been brought to great perfection by the makers.

No. 274. *One Case of Stocks, Dies and Taps*. I. Sloat. The Committee considered these very good, and awarded the Diploma of the Institute.

No. 276. *1 Set of Coach Springs*. Henry C. Jones, Newark, N. J. A superior article, and entitled to the particular attention of the public, as well as the Silver Medal of the Institute.

No. 173. *Traphining Instrument, and 4 Pairs of Razors*. C. A. Zeitz. The Surgical Instrument here exhibited is certainly a very beautiful specimen of workmanship. The absence of the ingenious inventor prevented a better knowledge of its applicability. The notice of the professors of surgery is invited to it. The Committee award the Silver Medal of the Institute.

No. 177. *4 Boards of Brass Ware*. M. W. & J. A. Emmons. For the excellence of this Ware the Committee award the Diploma of the Institute.

No. 200. *1 Concave Screw Auger*. Wheeler & French, 18 Pine street. The Committee consider this a very valuable

article, and one which they cannot commend too highly to public notice. They award the Silver Medal of the Institute.

No. 214. *Patent Graduated Diamond-Point Pens*. George Williamson, 270 Division street.

No. 250. *1 Clock Main Spring, 2 Chronometer do. 1 Lever and 1 Lepine do.* Desaulles & Clerc, 27 Madison street. These were most excellent specimens of American workmanship, equal, if not superior, to any imported. The manufacturers should be patronized in this new article. The Diploma of the Institute.

MUSICAL INSTRUMENTS.

No. 60. *1 Grand 7 Octave Piano Forte, and 1 do. 6 Octave do.* Bridgeland & Jardine, 338 Bleecker street; sold by Otto Torp & Co. Broadway. The latter of these was distinguished for mellowness and sweetness of tone, and considered the second best exhibited; for which the Committee awarded the Diploma of the Institute.

No. 89. *1 Piano Forte—grand action.* John Abbot, 66 Walker street. The Silver Medal of the Institute. The Committee consider this instrument possessed of great brilliancy of tone, pleasant touch, and made in a superior manner.

No. 151. *1 Bass Double-slide Trombone, 1 Kent or Keyed Bugle, 1 Keyed Trumpet, 1 Tenor Trombone, and 1 Slide Trumpet.* John Rosenberk, Utica, N. Y. Though there was no competition in these articles, the Committee are gratified in stating that, in addition to their own judgment, they have that of some of the best performers in this or any other country, for saying that these specimens have never been surpassed by any of the kind, either for tone or workmanship. They award the maker the Silver Medal of the Institute.

No. 165. *1 Piano Forte—clutch-round cornered.* A. G. Smith.

PRINTING AND BOOK BINDING.

No. 20. *Fancy Card Printing.* By C. L. Adams. These were uncommonly beautiful specimens, and quite equal to engraving. The Diploma of the Institute.

No. 49. *Specimens of Xylographic Engraving.* Wright & Prentiss, 45 Maiden Lane. Considered beautiful specimens of the art. The Silver Medal of the Institute.

No. 65. *1 Rotary Printing Press—for Cards.* Charles F. Voorhies, Newark, N. J. The Committee think this Press extremely ingenious, and admirably adapted for the printing of Cards. The originality displayed in the invention, and the rapidity with which it executes work of this kind, is deserving of general, as well as of our own particular notice. The Silver Medal of the Institute.

No. 117. *6 Blank Books.* David Felt, 245 Pearl street. The specimens of Binding here exhibited are of superior order in the taste with which they are got up, the elegance of their style, and the strength of their workmanship. The spirit of enterprise manifested by the manu-

facturer, in producing specimens of these, the Committee think deserve special notice from the public. They award the Silver Medal of the Institute.

No. 126. *5 Boxes Printing Ink.* P. Prout, 63 Spring street. These specimens are so well known as not to need commendation from the Committee.

No. 259. *1 Printing Press.* James Maxwell, 259 Bowery, N. York. Considered an excellent press both for the perfection of its work, and its simplicity. The committee were much pleased with it, and awarded the Diploma of the Institute.

No. 148. *4 Specimen Books of Type, 16 Pages of Types, and a Furnace in casting Types.* George Bruce & Co., New York City. These books exhibited great perfection and beauty to which the manufacturers of types and typographical ornaments and illustrations have brought the art.

No. 254. *Specimens of Bookbinding.* Coolidge & Lambert, 65 Wall street. These were very good specimens of work.

No. 109. *1 Bible.* Charles A. Fed

For exhibition.

No. 273. *2 Composition Rollers.*

Thomas. For exhibition.

FINE AND ORNAMENTAL ARTS.

No. 3. *Astral Lamp, Candlestick, Writing Stands, Portrait Frame, Shells, Studs, &c., &c., made of Anthracite Coal.* From E. W. Kirk, 233 Chestnut street Philadelphia. By Anderson & W. The Silver Medal of the Institute. The specimens were considered by the Committee superior, in point of workmanship to any articles of the kind ever exhibited in this country.

No. 10. *Imitation of Quincy Granite.* A. Kent, 100 Concord street, Brooklyn, N. Y. A very fine specimen of imitation.

No. 15. *2 Pieces of Sculptured Granite.* A. Lawrence. Very good workmanship. The Silver Medal of the Institute.

No. 16. *Pantographic Drawing of Chief Justice Marshall.* Wm. L. Ormsby, 11 Nassau street, New-York City. Considered of superior merit. The Diploma of the Institute.

No. 19. *Transparencies and Etchings.* W. I. Hannington. Considered extremely beautiful. The perfection to which Mr. Hannington has brought this art does him great credit. The Committee have awarded the Silver Medal of the Institute.

No. 22. *Ionic Capitals—two specimens of Carving in Wood.* Luff & Moore, 105 Elm-st. New-York City. Fine executed. The Diploma of the Institute.

No. 25. *12 Specimens of Penmanship.* By Isaac Goward. Exhibiting much industry.

No. 46. *19 Specimen Imitations of Rosewood, Mahogany, Marble, &c. in Mosaic Table Top,* in this collection, of inimitably fine, and worthy of the estimation uniformly expressed by visitors. Executed by George Bird, 94 Andover street. The Silver Medal of the Institute.

No. 48. *Two Framed Designs.* By Thomas, 37 Canal street, New-Y.

one representing a magnificent duct and Bridge across the East river, from Brooklyn to New-York, the committee think indicative of no ordinary talent in the young artist, by whom it was executed. The Bridge is supposed to have a row of Stores on either side; and abutments and arches, 6 in number, of granite, except the central one, which is designed to be of cast iron, 180 ft. high.

No. 61. 1 *Painting of a Dog's Head*. William Malbone. The Committee considered this a picture of superior merit, exhibiting great freedom in penciling and fineness of touch, for which they award the Silver Medal of the Institute.

No. 64. 1 *Painting of St. John*. John Bon, 94 Anthony street, New-York City. The execution of this was thought to be good.

No. 74. *Framed Specimen of Carving*. Heron, 419 Water street—Frame executed by Mott & Stuart. The ornamental work is very ingeniously wrought, with much labor.

No. 84. 3 *Framed Engravings*. Geo. Piccott, 359 Broadway. Considered very spirited Drawings, and well executed. The Diploma of the Institute.

No. 88. *Framed Samples of Clinton's Portland Cement*. Deposited by N. H. Gale. The Diploma of the Institute. The committee are induced to invite public attention to this article, from the great credit it is said to possess, by those who have used it, for the walls of buildings; much as it is both very beautiful and strong. From its great hardness, it is susceptible of being washed, like marble, without affecting its polish. Patented. Charles Clinton, West Town, Orange N. Y.

No. 116. 11 *Specimens of Penmanship*. John W. S. Mackie. The Committee are of the opinion that Mr. Mackie's specimens of writing are distinguished by a free and intelligible style.

No. 246. 1 *Framed Drawing, City of U, Brooklyn, N. Y.* Wm. Brown.—This Drawing did the artist much credit, particularly on account of its shading.

No. 222. 1 *Vase of Shell Work*. John B.

No. 93. 1 *Specimen of Needle Work, after Creatoria*, 1 *Bell Rope* and 1 *Lamp*. Mrs. Hardrop, 3 Roosevelt street. The first of these articles, wrought with the needle, is considered by the committee of extraordinary merit; exhibiting both great skill and uncommon industry. They are not surprised that it received, as it deserved, the uniform expressions of admiration from the visitants at the Fair: they therefore award to the artist the Silver Medal of the Institute.

No. 113. *Case of Shell Work and Shells*. John Lee, 271 Broadway, New-York City. These specimens of ingenious workmanship the Committee consider very flattering evidences of the taste and skill of the artist; they therefore award the Diploma of the Institute.

No. 119. *Specimens of Penmanship*. William Jones, 183 Broadway. The first of these specimens is particularly

free and bold, and, in these respects, worthy of special notice.

No. 183. 1 *Large Glass Punch Bowl*. Birch & Scarlett, 12 Liberty street. This massive article, from the truly beautiful manner in which it was cut, and the richness of its pattern, was particularly admired by all who saw it. The Committee take pleasure in awarding the Diploma of the Institute.

No. 147. *Pedestal of Scagliola*. Patrick Foley. The almost perfect resemblance of this to marble, both in touch and color, with the beautiful polish which it possesses, has received particular attention from the Committee. The Diploma of the Institute.

No. 153. *Statue of Napoleon Bonaparte, in Brown Stone*. David White, 80 Charlton street. The execution of this specimen of sculpture, by a journeyman stone cutter, does the artist much credit.

No. 156. 1 *Case of Artificial Teeth*. James Alcock. The Committee were particularly attracted to these specimens of a useful and ornamental art, by the great perfection of the enameling; a point not sufficiently considered in estimating the value of artificial teeth. They award the Diploma of the Institute.

No. 157. *Specimens of the Mending of Lace*. Mrs. Heath, No. 8 Hester street. It is with no common satisfaction the Committee recommend this art to public notice. The rents in the specimens exhibited, though large, could scarcely be detected by the closest examination. The Diploma of the Institute.

No. 162. *Specimens of Pantographic Engraving*. T. S. Woodcock. These specimens prove that this valuable branch of the arts, though somewhat new, has been brought to a degree of elegant perfection. The Committee award the artist the Silver Medal of the Institute.

No. 178. 2 *Framed Drawings*. J. Davis. The taste and art displayed in these Architectural Drawings, together with the effective management of the lights and shades, readily show them to have come from the hand of a skillful artist. The Diploma of the Institute.

No. 192. 1 *Colossal Bust of McDonald Clarke*. James V. Stout. The truth of the likeness, and the superior finish of this specimen of modelling, the Committee think entitles this to more than ordinary notice. It will have appeared to all who have seen it that, in addition to the likeness and finish, it is in perfect keeping, and replete with the spirit of life. It has not been surpassed, if equalled, by any specimen of the kind in the country. The fact that this is the second effort at modelling from life by this young artist, and yet that the relative proportions, the character and perfection of anatomical development, has been so wonderfully preserved in every delineation, goes further to prove his talents in the minds of mature judges, than our public expression of praise. The Silver Medal of the Institute.

No. 195. *A Bank Note Plate*. C. P. Harrison. Considered good.

No. 219. 6 *Specimens of Scagliola*. J.

W. Clark. These specimens were extremely beautiful, and particularly admired by the Committee for the variety of their colors, and for the ornamental purposes to which the article may be applied. They award to the manufacturer the Diploma of the Institute.

No. 231. 2 *Vases of Artificial Flowers, made of Feathers*. J. B. Fisk, Brooklyn, N. Y. The Committee would make mention of these beautiful specimens, for the almost perfect resemblance they have to the natural flower; they display much ingenuity and skill.

No. 241. 1 *Framed Specimen of Needle Work*. Alfred N. Brewer.

No. 244. 1 *Framed Specimen of Penmanship*. F. W. Williams.

No. 255. 3 *Specimens of Bank Notes*. Casseloir, Durand & Co. The execution of these notes were in the well known good style of the engravers.

No. 257. 1 *Design of the Chapel of the N. Y. University, 1 do. of City Hall, Brooklyn*. A. J. Davis. These designs were in the best style of the artist, so well known as an architect in this city. The tone of shading and truth of perspective, were particularly admirable. The Silver Medal of the Institute.

No. 275. 2 *Shell Card Racks*. Miss Shipman. For exhibition.

No. 281. *A Basket and Box of Grecian Ornamental Glass*. Miss Minor. Thought by the Committee to be very neat, and creditable to the lady's taste and skill.

No. 283. 6 *Looking Glasses*. Ed. S. Hill, 130 Chatham street. The Glasses were excellent.

No. 288. 1 *Map and 3 Engravings*. Wm. J. Mullen, 175 Broadway. For exhibition.

No. 164. *Architectural Drawings*. John Mitchell. For exhibition.

No. 199. 2 *Specimens of Penmanship*. J. A. Lee, 18 Pine street. For exhibition.

MISCELLANEOUS.

No. 12. *Specimens of Tool Handles*. By N. Couenhoven. Considered good.

No. 17. *Miniature Ship*. Capt. Bissel, 368 Broadway, New-York City. A good model.

No. 18. 31 *Specimens of Pottery from the Salamander Works*. Deposited by M. Lefoulon, 62 Cannon street, New-York City. These are beautiful specimens, and the Committee feel justified in saying that they have seen nothing to equal them in this country. In articles of this kind, where competition is so successfully prosecuted with the foreign article, the special notice of the public is merited by the enterprising manufacturers. The Silver Medal and Diploma of the Institute.

No. 21. *Type Moulds*. Mr. Abbys. Highly finished, and apparently very good. The Diploma of the Institute.

No. 30. 1 *Rifle Walking Cane*. A. D. Cushing, Troy, N. Y. Considered a very ingenious and important instrument, and finished in the most workmanlike manner. The Silver Medal of the Institute.

No. 34. *Castor Frames, Lamps, Candelsticks, of Britannia Ware*. I. Weeks & Co. Poughkeepsie, N. Y. Very good and highly finished.

No. 45. *Cork Mattress, Spring do. and Cork Bag.* John L. Norwood, 240 Water street. The Committee consider them very good, and worthy of special notice from those who use such articles.

No. 54. 11 *Samples of Snuff.* B. L. & H. Joseph, 136 Front street, New-York City. Diploma of the Institute. The Committee consider the quality of these specimens very superior, and in this they were borne out by the olfactory evidence afforded by visitors.

No. 55. *Naval Bombshell—Patent.* Dr. Scudder, New-York City. Cast by Johnson & Geer, Troy, N. Y. and the spikes wrought by Burden & Knower, of Burden's Patent Spikes. This is eminently calculated to effect the destructive purposes for which it was designed.

No. 58. 1 *Beer Pump and Cask.* D. F. Sergeant, 40 Fulton street, Brooklyn N. Y. This is a self-supplying Double Power Pump, with little friction, and well suited to the purposes of Bar Rooms, Cisterns, &c. It is also well adapted for the uses of Wine, Cider, or Porter Bottlers, as it will empty casks without disturbing, in the least, the sediments therein.

No. 97. 2 *Printed Table Covers, and 1 Piano Cover.* Duncan & Cunningham. Considered of great beauty and firmness of texture. The Diploma of the Institute.

No. 100. 250 *Scripture Gems.* Colton & Jenkins. Considered very well executed.

No. 121. 8 *Specimens of Children's Clothing, viz. 4 Suits and 4 Tunics.* Mr. Durando, 60 Chatham street. Many of these were considered by the Committee very beautiful, and got up in fine taste. The Diploma of the Institute was awarded.

No. 75. 1 *Fancy Reel, for Winding Silk.* S. H. Platt, 128 Spring street, New-York City. Considered a very useful article.

No. 77. 2 *Boxes of Spermaceti Candles.* Samuel Judd. These were extremely beautiful, and not surpassed by any in the country. The Diploma of the Institute.

No. 76. 1 *Bed Quilt, of 3,180 pieces.* Lydia Todden. Considered a beautiful article, and the result of much labor.

No. 128. 1 *Pair Jacks.* 2 *do. Cards.* 1 *Machine Card,* 3 *Shuttles,* 1 *Cleaner,* 3 *Bobbins,* 1 *Side Lace Leather.* John Whittemore, 66 Frankfort street. The Cards and Shuttles were considered by the Committee of superior workmanship, and the *Lace Leather* as possessed of extraordinary merit, and think that it will come into great use.

No. 129. 6 *Pieces Mole Skin Buffalo Cloth.* Peter H. Schenck, 35 Pine street, New-York City. These were thought by the Committee superior articles, and highly meriting public attention. The Diploma of the Institute.

No. 131. 4 *Pieces Carpeting.* G. W. & G. Betts, 434 Pearl street, New-York City. All these specimens were considered good, but that of the Venetian

Carpeting was thought to be very heavy, and in pattern and workmanship particularly excellent. The Diploma of the Institute.

No. 155. 3 *Coffee Urns,* 1 *Egg Coder,* 1 *Tea Pot,* 1 *Water Dish and Cover.* James Grant, 315 Broadway, New-York City. These are considered by the Committee of superior workmanship; they therefore award to Mr. Grant the Diploma of the Institute.

No. 161. 1 *Pair Window Blinds.* Francis Baker, 366 Hudson street.

No. 168. 3 *Fishing Rods and 1 Reel.* John Conroy. Considered good articles.

No. 175. 1 *Pair Ottomans, Foot Stool, Lamp Mats, &c. &c.* Mrs. Shultz, 45 Lispenard street. Some of these specimens were considered by the Committee extremely beautiful, and highly creditable to the lady who wrought them. The Diploma of the Institute.

No. 181. 4 *Port Folios, or Manifold Writers.* James Gilchrist, 102 Broadway, New-York City. The utility of this contrivance for copying Letters, &c. the Committee think to be generally known. The Diploma of the Institute.

No. 174. 1 *Brass Trip, or Counter Scale.* W. H. & S. Nichols. Remarkable for its convenience.

No. 115. 3 *Trusses and Case.* Dr. A. G. Hull, 132 Fulton street. The Committee think this instrument admirably adapted for the purposes described; they award the Diploma of the Institute.

No. 186. 3 *Pairs Mantle Lamps,* 2 *Stand do. and 1 Astral do.* Samuel Wignall. These were beautiful patterns, and very richly ornamented with cut glass. The Committee awarded the Diploma of the Institute.

No. 198. 1 *Travelling Trunk.* Orlando Williams, 6 Norfolk street. Considered the best specimen offered, and of excellent workmanship. The Diploma of the Institute.

No. 203. 2 *Lamp Stands and Case.* Mrs. Whatmough. These specimens for competition were considered deserving the Diploma of the Institute.

No. 208. 1 *Frame of Castings.* Jones Kiem & Co. The Committee thought these very good, and meriting the Diploma of the Institute.

No. 229. 1 *Patent Coffee Roaster.* G. H. Clark, 4 Fletcher street. This was thought to be very convenient and durable, wherefore the Committee awarded the Diploma of the Institute.

No. 234. 1 *Cherry Stone, containing 24 dozen Silver Tea Spoons.* Charles Smith. This exhibited great skill and ingenuity.

No. 264. 1 *Speaking Trumpet.* Colin Lightbody. Considered very well made, and entitled to the Institute's Diploma.

No. 266. *Apparatus for Injecting the Veins.* Dr. J. Mauran. This is for injecting liquids into the veins, and is an appendage adapted to a self-injecting apparatus. It consists of a glass bulb with tubes fitted with screws, so as to be attached to Mob's self-injecting instrument, and so constructed as to prevent the possibility of the passage of air into the veins. The

Committee think the instrument superior to every other for the purpose, and therefore award to the inventor the Silver Medal of the Institute.

No. 267. *Dahlia Flowers.* William Prince & Sons. The Committee are under special obligations to Mr. Prince for the splendid flowers which he sent to grace the exhibition hall of the Institute.

No. 291. 2 *Specimens of Fire Works.* Reuben Rider. The Committee thought the pieces very good, and they were much admired by the large company of spectators at the closing of the exhibition at Castle Garden, when Mr. R. made a very brilliant display of the pyrotechnic art. He was awarded the Diploma of the Institute.

No. 280. 1 *Fancy Musket.* John Mulen, 187 1-2 Greenwich street, N. Y. The Committee think this made in the neatest and most workmanlike manner. They award the Diploma of the Institute.

No. 285. *Specimens of Sealing Wax.* Lewis & Co. The Committee consider this the best article they have ever seen of the kind, foreign or domestic. The fancy colored wax in this large collection, does credit to the manufacturers and should, with all the kinds here exhibited, receive the attention of the public. They award the Diploma of the Institute.

No. 72. 1 *Waggon.* Walters, Barre & Co. Brooklyn, N. Y. A fine specimen of workmanship.

No. 105. *Samples of Mustard.* J. Cogswell, 77 Canal street. For exhibition.

No. 180. *Model of Patent Metal Roofing.* John Woolley. For exhibition.

No. 170. 1 *Tin Trunk.* L. Lester 213 Water street, New-York City. This was a new and ingeniously made article and one which the Committee particularly noticed.

No. 85. *Pen and Ink Drawing, 1 Etching, 1 Engraving of Ornamental Iron Work and 1 Frame of Cards.* W. M. Thompson, 167 William street, New-York City. For exhibition.

No. 188. 1 *Ship in Case.* Wm. Searle. For exhibition.

No. 218. 1 *Churn.* Justin Ware.

No. 235. 1 *Miniature Rail Road and Clock.* W. S. Jacks. This was an ingenious piece of work, and was in operation during the Fair, to the delight of the visitors. For exhibition.

No. 247. 1 *Bed Quilt.* L. R. Sweetland. For exhibition.

No. 249. 1 *Bottle, with Reel of Silk.* For exhibition.

No. 263. 1 *Glass Hive.* Mr. Kelsey. For exhibition.

No. 270. *Map of the United States.* James McChesney. For exhibition.

No. 278. 1 *Door Weight.* Dr. Davidson. For exhibition.

No. 24. *Sea-Horse Hide.* Remarkable for thickness.

No. 260. 1 *Framed Oil Painting.* D. Avigney, 183 Broadway. This specimen had no inconsiderable merit.

No. 230. 1 *Large Tabular Plate, and 16 Lights of Glass.* New-York and Brooklyn Crown Glass Company. The

Company was incorporated in 1832; capital \$60,000; employs 50 hands, and produces 10,000 feet of Glass weekly; their Factory is in Brooklyn, near the Navy Yard. The quality of this Glass was considered by the Committee most excellent. The Plate was of great dimensions, with equal clearness and uniformity in thickness. The Diploma of the Institute.

STOVES.

No. 282. 1 *Summer Cooking Stove*. Charles Vale, Newark, N. J. This was a superior article, and adds to the reputation of Mr. Vale, as a manufacturer of Stoves.

No. 47. Sent for exhibition.

No. 13. 1 *Parlor and 1 Cooking Stove*. Sylvester Parker, Troy, N. Y. Beautiful and convenient articles. The Diploma of the Institute.

No. 27. 1 *Cooking Stove*. Seth Lowe & Co. Made by Mr. Town, Salem, Mass.

No. 56. 1 *Cooking Stove—of Sheet Iron*. Charles Vale, Newark, N. J. Considered a most ingenious arrangement for domestic purposes, whilst it is admirably adapted for an economical appropriation of heat. The Silver Medal of the Institute.

No. 101. 1 *Stove*. James Hinds, 200 Canal street, New-York City. The Committee consider this a very handsome article. The Diploma of the Institute.

No. 122. 3 *Coal Cooking Stoves*. Joel Curtiss, 222 Greenwich street. Considered very neat and useful articles. The Diploma of the Institute.

No. 166. 3 *Cooking Stoves*, 1 *Fancy and 1 Parlor do*. Jordan L. Mott, 248 Water street. The Committee consider the two last mentioned stoves novel and useful.

No. 185. 2 *Rotary Stoves and Fixtures*. M. N. Stanley & Co. The ingenuity displayed in the structure of these, and their utility, entitle them to the Diploma of the Institute.

No. 139. 2 *Cooking Stoves*, 1 *Globe do*. Doyle & Patterson, 213 Water street. For exhibition.

No. 146. 1 *Coal Cooking Stove*, 1 *do for Heat*. 3. C. Lawrence, 125 Broadway, New-York City. For exhibition.

No. 27. 1 *Cooking Stove*. Seth Lowe & Co. 211 Pearl street. Wm. Town, maker, Salem, Mass.

No. 66. *Doric Fireplace and Minerva Grate*. Wm. Mallory, Agent. The Committee highly approve of these articles, both for their model and workmanship, combining, as they do, great neatness and utility: the Grate is admirably adapted for the burning of anthracite coal. The Committee award the Silver Medal of the Institute.

No. 79. *Spoor's Patent Coal Stove and Scuttle*. J. F. Clarkson, 51 Fulton street, New-York City. Considered very good and very neat. For the Stove the Committee award the Diploma of the Institute.

APPRENTICES' WORK.

No. 4. *Two Mantle Lamps*. Made by James McGovern, New-York City, an apprentice one year. Considered very good. Privileges of the Institute.

No. 5. *Two Astral Lamps*. William Moors. Considered very good.

No. 11. 2 *Pictures*. George Heister, aged 15.

No. 14. 1 *Cask*. George Thompson, aged 18 years—1 year an apprentice—55 Goerck street, New-York City. Deserving great praise. Silver Medal and Privileges of the Institute.

No. 28. 1 *Iron-bound Cask*. James Flinn, an apprentice, 19 years old, 3 years at trade. Diploma and Privileges of the Institute.

No. 39. *Frame of Cards*. By James Everdell, 135 William street, N. Y. C., a boy aged 15 years. The Silver Medal and the Privileges of the Institute.

No. 50. 1 *Iron-bound Barrel*. James Thomas, an apprentice; 2 years at trade. Privileges of the Institute.

No. 51. *Gentlemen's French Boot Lasts*. Those in Box No. 3 were made by a boy 14 years old, to whom the Committee award the Privileges of the Institute.

No. 85. 1 *Case of Jewelry*. George Street, an apprentice, 18 years of age, 3½ at trade. The Diploma and Privileges of the Institute.

No. 90. 1 *Case of Surgical Instruments*. James Turkington, 51 Clinton street; an apprentice, 18 years old. The Silver Medal, and the Privileges of the Institute. The Committee are of the opinion that the case of Surgical Instruments, here presented, exhibits talents and zeal in the maker worthy of being stimulated to further exertions, and that these specimens of his workmanship are of surpassing elegance and finish.

No. 136. 1 *Silk Hat*. James Patterson, 94 Canal street—1 year an apprentice with Mr. John Wright. Considered, from the short experience of the maker, an uncommon evidence of skill.

No. 137. 1 *Clock Stand*, and 1 *Marble Ink do*. Wm. Patterson, 33 Canal street, 3½ years an apprentice to Mr. Barnes. Considered excellent work. The Privileges of the Institute.

No. 150. 1 *Leather Travelling Trunk*. Geo. Dapignac, 28 Hester street, nine months an apprentice to O. Williams. The Committee take pleasure in noticing the early efforts of apprentices, and this specimen is one among those to which their attention has been called. The Privileges of the Institute.

No. 78. 2 *Tables*. Joseph Fisher, 15 years old; an apprentice 1½ years. The Diploma and Privileges of the Institute. These specimens certainly gave great promise of talent in the young mechanic, and were duly appreciated by the Committee.

No. 155. To Wm. Taylor, an apprentice, 19 years of age, manufacturer of a *Coffee Urn*, the Committee award the Privileges of the Institute.

No. 240. 3 *Carpenter's Ploughs*, and 7 *Spare Irons*. Isaac Battie, Providence, R. I., 18 years old, apprentice 3 years to J. R. Gale. The superiority of workmanship displayed by this young man, in the make of these articles, entitles him, in the opinion of the Committee, to the Silver Medal of the Institute.

No. 53. 5 *Ladies' Straight Lasts*. R. Coit, a lad 16 years of age; 1 year at the trade. The Privileges of the Institute.

No. 87. 1 *Carved Ionic Cap*. Samuel Smith, aged 16 years. Well executed.

No. 152. 1 *Engraving of McDonald Clarke*. Lewis P. Clover, aged 16, first attempt, 6 months at trade. Considered an evidence of uncommon merit in his business, and therefore worthy of the Diploma and Privileges of the Institute.

No. 84. *Machine for Corking Bottles*, made by Augustus Williams, an apprentice, deposited by F. Groening. Privileges of the Institute were awarded to the apprentice for the workmanship, which was excellent.

No. 91. 3 *Pairs Pocket Compasses*. By Gerrett Barney, 16 years of age. Apprentice to Brown & Hunt. These have much merit. A Diploma, together with the Privileges of the Institute, have been awarded to the apprentice.

During the evening which closed the Fair of the Institute, Dr. Gale made several brilliant and interesting experiments, with the Institute's powerful Galvanic Battery. The combustion of Charcoal, and Platinum, displayed an intensity of action, power of heat, and vividness of light, which astonished the numerous auditors. The light was altogether too dazzling for the sight, and could be viewed only a few moments at a time. The combustion of metals in water was not the least interesting to the ladies and gentlemen present, who repeatedly manifested their surprise and gratification, during the performances, by loud and cheering applause.

The novel exhibition of *Walking upon the Water* was also presented from the Garden to thousands of our citizens during the Fair of the Institute. Mr. Macintosh, the successful experimenter, entered the water near the Battery, and walked a considerable time in the North River, sustaining himself in an upright position, and moving with much apparent ease, though the surface of the water was agitated by rough and high waves. This experiment satisfactorily proves the importance of the simple apparatus used on the occasion, for fording rivers, and for preservation against accident.

GEORGE BRUCE,
HENRY CUNNINGHAM,
WILLIAM PARTRIDGE,
HENRY DURELL,
JOHN M. DODD,
ADAM HALL,
JOHN BELL,
W. H. HALE,
J. S. REDFIELD.

Committee
on
Premiums.

LAW OF MARINE INSURANCE AND PROYAC. —The report of an interesting case, in which the question between the insurers and the insured, turned on the point, of whether the master of the vessel had not improperly hazarded his ship, by standing on too long without a pilot, will be found in our columns to-day.

The Chicago American states that the Prairies were burning in all directions, during the first part of last week. The flames had approached to within a short distance of that village. No other damage had been sustained, but the burning of a number of haystacks.

LINES,

BY THE AUTHOR OF "CORN-LAW RHYMES."
Written after seeing the *Plates of Audubon's Birds of America*.

"Painting is silent music," so said one
Whose prose is sweetest painting.* Audubon!
Thou Raphael of great Nature's wood and seas!
Thy living forms and hues, thy plants, thy trees,
Bring deathless music from the houseless waste,
The immortality of truth and taste:
Thou giv'st bright accents to the voiceless sod,
And all thy pictures are mute hymns to God.
Why hast thou power to bear the untravell'd soul
Through farthest wilds, o'er ocean's stormy roll,
And to the prisoner of disease bring home
The homeless bird of ocean's roaring loam,
But that thy skill might bid the desert sing
The sun-bright plumage of the Almighty's wing?
With his own hues thy splendid lyre is strung,
For genius speaks the universal tongue.
"Come," cries the bigot, black with pride and wine,
"Come and hear me! the word of God is mine."
"But I," saith He who paces with suns his car,
Or makes those suns his coursers from afar,
And, with a glance of his all-dazzling eye,
Smiles into crashing flame the boundless sky—
"I speak in this swift sea-bird's speaking eyes,
These passion shiver'd plumes, these lucid dyes;
This beauty is my language; in this breeze
I whisper love to forests and the seas:
I speak in this lone flower, this dew-drop cold,
That hornet's stings, yon serpent's neck of gold—
These are my accents: Hear them! and behold
How well my prophet-spoken truth agrees
With the dread truth and mystery of these
Sad, beautiful, grand, love-warbled minstrelies!"
Yes, Audubon! and men shall read in thee
His language, written for eternity:
And if, immortal in its thoughts, the soul
Shall live in Heaven, and spurn the tomb's control,
Angels shall re-transcribe, with pens of fire,
Thy forms of Nature's terror, love, and ire,
Thy copied words of God—when death-struck suns ex-
pire. [Rousseau.]

JAMES RIVER AND KANAWHA CANAL, VIRGINIA.

NOTICE TO CONTRACTORS.

THE Board of Directors of the James River and Kanawha Company, having resolved to place under contract seventy-three miles of the line of their improvement, viz: All that part extending from the water works dam at Lynchburg, to the end of section No. 118, in the village of Scottsville, and the thirteen miles between the Seven-Island Falls, and the village of Columbia—

Sealed proposals will be received by the Secretary of the Company, at their office in the city of Richmond, from November 18th, to December 7th, inclusive, for all the excavation, embankment and walling in that distance.

The portion of the line which it is intended to let, comprises many difficult points, and a considerable amount of river walling and blasting.

The line will be prepared for examination by the 18th of November; after which date, up to the time of letting, all useful information will be given, and the maps and profiles exhibited to contractors, on application being made to either of the Principal Assistant Engineers, Simon W. Wright, in the village of Cartersville, Daniel Livermore, a Scottsville, and Charles Elliot, Jr., in the town of Lynchburg.

It is expected that the proposals of contractors who are not personally known to either of the Assistant Engineers, will be accompanied by proper testimonials of character and experience, from the Engineers of other works on which they have been engaged.

The seals of the proposals will be broken on the 10th of December, and the acceptance of the propositions by the Board, made known as soon after, as will be practicable. By order of the President and Directors.

W. B. CHITTENDEN, Secretary.

Note—This advertisement is not intended to embrace the Locks, Dams, Culverts, or any other of the works of art—Prior to the letting of which, as well as of the residue of the excavation and embankment between Scottsville and Maiden's Adventure, due notice will be given. 44—17D

ENGINEER DEPARTMENT,
BALTIMORE AND SUSQUEHANNAH RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received between the 25th and 28th of November next, for the Graduation and Masonry on 50 miles of this Road.

ISAAC TRIMBLE,
Engineer B. & O. R. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.

ENGINEER DEPARTMENT,
WRIGHTSVILLE AND YORK RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received in York, Penn., between the 25th and 28th of November next, for the Graduation and Masonry, of the whole line of Road.

ISAAC TRIMBLE,
Engineer W. & Y. R. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.
Oct. 31.—3c.

STEAM ENGINE WANTED.

A good, second hand, Steam Engine, of 10 or 12 horse power, is wanted for a boat to be used on a Canal. Any gentleman having an engine suitable for that purpose, which he can sell cheap, may address a note to, or call upon, the Editor of this Journal, who is desired to make inquiry, and to communicate the result to the advertiser.

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
3d—6c

New-Lisbon, Ohio, Sept. 17, 1835.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, Immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New-York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.
33 The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—1f

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of December next, for the Graduation and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,

Chief Engineer N. O. & N. Railroad. }
Engineer Office, N. O. & N. Railroad, }
Aug. 25, 1835. 37

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices.

Orders addressed to them at Paterson, N. J., or 24 Broad street, N. Y., will meet with immediate attention.
Paterson, Aug. 19, 1835. 34—1y

AMES' CELEBRATED SHOVELS,
SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,	
75 do do round-pointed do	
150 do do cast steel Shovels and Spades,	
100 do do Socket Shovels and Spades,	
150 do do steel plated Spades,	

Together with Pick Axes, Churn Drills, and Crow Bars, steel plated, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
9 Liberty street, New-York.
BACKUS, AMES & CO.
8 State street, Albany.

34—yif

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by
HOWLAND & ASPINWALL,
55 South street.

RAILWAY IRON.

95 tons of 1 inch by 3 inch, Flat Bars in lengths of	
300 do 1 1/2 do do 14 to 16 feet, counter sunk	
40 do 1 1/2 do do holes, end cut at an angle	
800 do 2 do do of 45 degrees, with splicing	
800 do 2 1/2 do do plates and nails to suit.	

soon expected.
250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 3, 3 1/2, 4, and 4 1/2 inches diameter for Railway Cars and Locomotives of pattern iron.

The above will be sold free of duty, to State Governments and incorporated Governments, and the Drawback taken in part payment.

A. G. RALSTON,

9 South Front street, Philadelphia.
Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71mcsow

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-1f

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Blacker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J35tf

RAILROAD CAR WHEELS AND BOXES AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.
Also, Flange Tires turned complete.
J35 ROGERS, KETCHUM & GROSVENOR
PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent), are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 233 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. H. BURDEN. J32sam

SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested. Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use, or the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLE, Sup't of Construction

of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

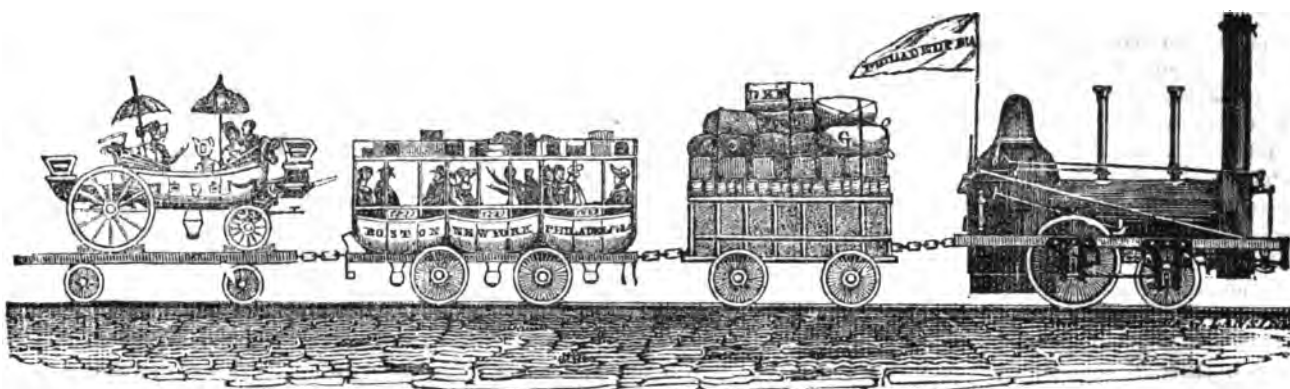
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.

German. and Norrit. Railroads

ml 1y



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, NOVEMBER 21, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, NOVEMBER 21, 1835.

NORWICH AND WORCESTER RAILROAD.—

It is now over three years since the Legislature of Connecticut chartered a Company to construct a Railroad from Norwich to the Massachusetts line, in the direction of Worcester, with a view of opening another easy and direct communication between New-York and Boston. In March, 1833, the Legislature of Massachusetts chartered a Company to construct a Road from Worcester, to meet the Norwich Road, by which the line, between the metropolis of New-England and the growing city of Norwich, is complete.

Since these charters were granted, examinations and surveys have been made which show a highly favorable route; and the immense amount of business along its line, which must pass over it, together with that portion of the travel from New-York, and the interior of New-England, which will naturally take this direction, will, it is believed, afford an amount of transportation which will render it, not only a very useful work, but also a productive investment to its stockholders. That such will be the result, and that it will greatly enhance the value of property along its line, we do not entertain a doubt; Norwich, especially, will feel its influences, and participate largely in the benefits resulting from its operations.

The commencement of such a work, des-

tinued, as we believe this is, to change the appearance of the whole country along its line, is worthy of especial notice; and we therefore availed ourselves of an invitation, politely tendered by the President of the Company, to witness the interesting ceremony of breaking ground. In order to do this, we left New-York on Tuesday evening, 17th, at 4 o'clock, in that excellent steamboat, *Bunker Hill*, Capt. Sandford, for Norwich, where we arrived at half-past 8 o'clock on Wednesday morning, having remained at New-London from a quarter before 2 until half-past 6 A. M., in time to witness the whole of the proceedings. On her passage, the *Bunker Hill* stopped at New-Haven, and received on board His Excellency Governor Edwards, and suite; Mr. Ellis, Collector of the Port; Mr. Brewster, President of the New-Haven Railroad Company, and several other distinguished citizens, all of whom participated in the gratifying ceremonies.

We will now endeavor to give our readers some account of the proceedings, although we cannot expect to impart to them any portion of the thrilling interest which they afforded us; it being, singular as it may appear, the first opportunity, of which we have been able to avail ourselves, to be present at the commencement of a Railroad.

On the arrival of the *Bunker Hill* at Norwich, the Governor and suite, and other invited guests, were received at the boat by Messrs. Adams, and L'Homedieu, two of the Marshals of the day, and escorted to the Franklin Hotel. After remaining here a short time, affording an opportunity to some of the citizens of being introduced to the Governor, they were conducted to the Merchants' Hotel, and there joined the procession, which moved at 11 o'clock towards Greenvillage, (where the ceremonies were to be performed,) under the direction of ASA CHILD, Esq., Grand Marshal of the day. The uniform companies, accompanied with music, took the lead; next the Governor and suite; the Reverend Clergy; revolutionary

soldiers; the Corporation of Norwich and New-London; invited guests; and citizens generally; followed by a procession of several hundred boys, belonging to the schools, with banners; forming one of the most interesting spectacles of the whole exhibition. The procession was closed by an immense car, drawn by six horses, on which was displayed samples of the numerous manufactures on the line of the Road. Among the articles, we noticed the following: ingrain carpeting and rugs, domestic goods, blank books, earthen, tin, wooden, and hardware, carriages, boats, cordage, ship blocks, saddles, trunks, cutlery, weaver's reeds, brooms, stoves, harness leather, scythes, axes, glass beads, &c. &c.

The procession passed through the principal streets of Norwich, the windows and doors of the houses on each side being occupied by the ladies, neatly and appropriately dressed; and adding quite an agreeable feature to the scene. On leaving the town, the line of march extended along the banks of the Quinnebaug, from the heights of which minute guns were fired until the procession reached Greenvillage. The ground selected for operations is near the centre village, and directly in front of the splendid manufactories of Greenvillage. As the procession approached the ground selected, it passed under a beautifully decorated arch, on which was again displayed numerous and beautiful specimens of the products of Yankee industry.

The ground selected was staked out, and on the south side an immense staging was erected, with ranges of seats rising one above another, covered with ample awnings, beneath which, upon the staging, were near a thousand ladies seated, who appeared highly pleased with the display. The military were formed into three sides of an immense hollow square, the ladies on the staging forming the fourth—the procession marched in and entirely occupied the square, except a space reserved for the ceremonies of the day.

The procession having been arranged, and the invited guests stationed near the platform—the President of the Company, Wm. C. GILLMAN, Esq., in a few appropriate remarks, alluding to the ancient usages of the Pilgrims of commencing all enterprises, either of danger or magnitude, with prayer, introduced the Rev. and venerable Dr. NORR—whose snow white locks indicated an intimate personal acquaintance with nearly one half the entire history of Connecticut—who addressed the Throne of Grace in a short, but exceedingly appropriate prayer—after which CALVIN GODDARD, Esq., of Norwich, was called upon, and made a few remarks. He was not unaffected, he said, by the disappointment in not hearing an address from a gentleman who was expected to be present, but who was unavoidably prevented from attending. [The speaker alluded to the Hon. DANIEL WEBSTER.] He then remarked that they had assembled on no common occasion; every thing had hitherto been auspicious, and judging from the past, he had no fears for the result of the enterprise in which they were that day engaged. He adverted to an allusion of the Reverend gentleman to their present situation and that of their Pilgrim fathers. It is an interesting historical fact, said he, that two hundred years ago, last Monday, the Pilgrims passed through this county from Massachusetts Bay, having travelled through dense forests, and been fourteen days in performing the journey. It was indeed remarkable, that they should now be engaged in a work, which, whenever completed, would enable us to accomplish the same distance in one half as many hours. There was something peculiar and interesting in these facts. Mr. Goddard next alluded to the scenes of warfare with the then owners of the soil, the savages—to the death of MIAHTIKOMO—who, he said, was killed by Uncas, and buried but a short distance from where they then were—to the brave Uncas, the friend of the white man—asking, very appropriately, where are those brave warriors? Where are their people? *Dispersed, degraded, and destroyed*,—they have disappeared before the progress of civilization. He also alluded to the fact that it was in this town where the brave Mason fell, and that they were surrounded by interesting incidents of former times. What is our present condition? Compare it with all its advantages and impulses, and what will it or rather what will it not be two centuries hence?

He then referred to a single fact in the government of Connecticut, which was worthy of record—the formation of the government by the people themselves, in their primary assemblies. This was a peculiarity which belonged to no other State.—“We have,” said he, “always been under a government of the people.”

In alluding to the want of energy and progress heretofore, in the works of inter-

nal improvement in Connecticut, Mr. G. observed, that Connecticut had furnished the men, the material, to accomplish such works in most of the other states of the Union, and therefore Connecticut had been permitted to remain in a great measure unimproved—but that now, fortunately for her, a different spirit prevails. The sons of Connecticut, and indeed of all New-England, are engaging in, and are resolved to devote themselves to, the improvement of their own States; the land of their birth—a course which will unquestionably tend more than any other, to detain them at home; and of course to make their native land literally the Garden of America; interspersed with avenues to market, by which their products may be transported rapidly, cheaply and safely—affording rich and ample rewards for their capital, which, as he observed, consists mainly in their unsurpassed industry and enterprise.

Mr. G. said he could not but advert to the rapid growth of Ohio, whose admission into the Union he well recollected, with a population of less than sixty thousand; but on a visit there within a few years, he found her with more than a million of hardy, industrious inhabitants, who were pushing, with great spirit, their works of internal improvement. Why then should Connecticut, whose history is of two centuries, delay to pursue the same path?

She would not, he was confident, longer delay—and with this spirit of liberal forecast and mutual concession and assistance, she will go forward until every part of the State participates in the benefits of Internal Improvements.

After a short and pertinent address from Col. JUDSON, Member of Congress elect, the President of the Company introduced his Excellency the Governor, and thus addressed him:

I beg leave, Sir, to return you thanks, in behalf of myself and the Directors of this Company, for your presence on this occasion; and permit me to present you with this implement (a pick-axe) with which you are desired to strike the first blow, as a commencement of the work in which we are now engaged, and that we may have an evidence that you are favorably disposed towards it, and also as a token that you will hereafter lend it all the aid in your power.

Gov. Edwards then addressed the company. He said it was the second occasion upon which he had been called upon to perform a similar duty. It was with no small degree of pleasure that he undertook the first, and he felt equal pleasure on the present. On the former occasion he had remarked that it was the first Railroad ever commenced in the State of Connecticut, but he indulged the pleasing expectation of soon seeing them interest every part of the State; from present indications, those expectations will speedily be realized. In taking a retrospect of past times the mind is filled with astonishment. He had re-

cently attended a celebration at Hartford of the first settlement of the country. It is two hundred years since Uncas lived. Where is he now? Where are his kindred? Where are they? They are gone, and almost forgotten, and in a very short time the sun will not shine upon the red man within our State. These effects are the results of the laws of nature.

He then drew a comparison between ancient and modern times, and gave the advantage to the latter, for which they were indebted to the art of printing, and the invention of steamboats and Railroads; which had changed the face of the world, not only morally and politically, but physically. It was almost impossible to define the influence of Railroads, Canals, and steamboats; but the period was not far distant when we should have, if not our Londons, at least our Liverpools, and Bristols, our Manchesters and Birmingham. These were pleasing anticipations, which would soon be realized, astonishing as they were to ourselves and to the whole world.

The Governor concluded by saying that he did not attend there for the purpose of making a long and elaborate harangue; but to break ground. He would now proceed to perform that duty with the utmost cheerfulness, as his whole heart and soul were in the undertaking.

The President of the Company now stepped forward, and expressed his regret that many of the distinguished individuals who had been invited to attend, had been prevented by other avocations from being present. Among these were Governor Marcy and Chancellor Kent, of New York; Mr. Hale, member of Congress from New London; the late Gov. Lincoln, Hon. Daniel Webster, and His Excellency Edw. Everett, Governor-elect of Massachusetts. He read extracts from the letters of these gentlemen, all of whom regretted being unable to attend, and expressed their best wishes for the success of the work.

The Governor then (half past one) stepped forward with the pick-axe, and commenced breaking ground, which was shovelled into wheelbarrows, by the President and Directors, and wheeled away by the Mayors of Norwich and New London, and John Breed, Esq. The Presidents of other Railroads, the corporate authorities of Norwich and New London, and the other invited guests, were then requested to step in being done, the tools and barrows were collected by the Directors, and formally handed over to the Engineers, Messrs. Kirkwood and Laurie, by the President, who, in a few words, reminded them of the importance and responsibility of their duties, and that the Company would look to forward and lend their aid, which have them for the faithful performance of their duties, and the proper construction of the Road.

The procession was then formed again in the same order, and returned to Norwich,

much pleased with the ceremonies, the performance of which were rendered more gratifying in consequence of the splendor of the day, and the perfect harmony which prevailed.

On our return to the Franklin House, we found prepared an excellent dinner, of which we partook, in company with a few Ladies and Gentlemen of Norwich and the neighboring towns, who, in common with ourselves, appeared to take as much pleasure in the products, as in the prospects, of New England; and it was not at all surprising, after a march of four miles, that most of us handled the implements of the table with quite as much earnestness as we had done those in the field.

On leaving the table at half past 3, P. M.—an hour earlier, perhaps, than we should willingly have assented to, but for the necessity of leaving for New York in the boat at 4 o'clock—we parted reluctantly with those from whom we had received, in so short a period, many tokens of respect and kindness.

We left them with feelings of deep interest, not only in the success of the work, in the commencement of which we had participated; but also in the prosperity and happiness of those by whom we had been so cordially received, and so politely treated; and we cannot therefore take leave of the subject without thus publicly expressing our thanks, and at the same time our confident belief that the friends of the *Norwich and Worcester Railroad* will realize their most sanguine anticipations of its utility and value.

The following are the officers of the *Norwich and Worcester Railroad* :—

WM. C. GILMAN, President.

Directors.

WM. P. GANNON, JOHN BROWN,
WM. C. GILMAN, ASA CHILDS,
JOHN A. ROCKWELL, THOMAS ROBINSON,
ARTHUR F. GILMAN, E. J. ANDERSON,
CHAS. W. ROCKWELL, ABRAHAM FARRIS,
DANIEL W. COIT, G. P. PERKINS.
JOSEPH RIPLEY,

Engineers.

JAMES P. KIRKWOOD, JAMES LAURIE.

IMPORTANT TO RAILROAD COMPANIES.—

The following letter is from a gentleman in London, on whose opinion we place much reliance, and especially so in relation to the subject on which he now writes to us.

It cannot, in the nature of things, be otherwise than that *Railroad Iron* must advance in price, as the number of Roads under construction increases; and it therefore follows, that those Companies that intend to use iron next season, will do well to give their orders early; and it would seem to us that, where other business does not require the sending of an agent to Europe, a better agent could not be employed than Mr. Ralston, who writes this letter, or his brother,

Mr. A. Ralston, of Philadelphia, who is connected with him in business.

London, October 9, 1835.

To the Editor of the *Am. Railroad Journal* :

Dear Sir,—I beg your acceptance of the inclosed papers, on the subject of Railways projected in this country. The evidence of several eminent Engineers, given before a Committee of the House of Lords, contains information of the greatest value on the subject of the gradients on a Railway, and I think your readers will be grateful to you for publishing it in your excellent *Railroad Journal*. As your readers are much interested in Railway Iron, I will communicate the most recent information on the subject of common iron, the demand for which, of course, regulates the price of the other. On the 25th August last, the iron masters of Wales had a meeting at Cardiff, and ascertained, from mutual inquiries, that there had been a diminution of the stock of iron, (Welch only,) since the commencement of this year up to that time, of the large quantity of 45,000 tons, notwithstanding the manufacture was going on more extensively than usual. This fact induced them to advance the price of No. 2, bars, from £5 : 10 per ton to £6 per ton. Since then orders have come in on the most extensive scale, and, on the 9th September, ult., they were induced to advance the price to £6 : 10 per ton; and again, on the 30th September, ult., they announced a further rise of 10 shillings per ton, making £7 per ton free on board at Cardiff and Newport. The Staffordshire, Shropshire, and other midland county iron masters, have advanced in an equal proportion. Some of the largest iron masters have recently informed me, that so great is the demand, that all the establishments in Wales have already orders for execution to keep them busy during the remainder of this year; and as orders continue to come in from all quarters, principally from the Mediterranean, Holland, Germany, the United States, and also for exportation to the East Indies and China, whilst the home demand, for Railway and other purposes, is for an extraordinary amount, there is every prospect of another advance of 10 shillings per ton, before the expiration of many weeks. I am told by experienced persons, that the demand now is greater for iron than was ever before known, excepting during the bubble year, 1825, when the demand was altogether of a speculative character; now the demand appears to be, exclusively and *bona fide*, for immediate consumption.

To show you how this affects Railway Iron, I will communicate a few particulars of my own transactions, within a few months. I contracted, on the last of March last, on behalf of a Railway Company, in the State of New-York, for about 1000 tons of iron, and paid £7 : 4 per ton for edge rail, (being No. 8 iron, and when manufactured into rails, ought to be 40 shillings per ton higher than common No. 2 bars.)

Early in May I contracted, in behalf of a New-Jersey Company, for about 1600 tons of edge rails, at £7 : 6 per ton. Last month, September, after iron had advanced 20 shillings per ton, I made a contract for 2000 tons of edge rails, for a Delaware Company, at £8 : 5 per ton; and a few days after, for 1300 tons of edge rails, for a Pennsylvania Company, at £8 per ton, but the pattern is less difficult to roll than that for the Delaware Company. I have also contracted for several thousand tons of chairs, pins, wedges, flat bars, &c., but it is unnecessary to give their prices, because they are regulated also by the price of No 2 common bars.

To enable your readers to judge what would be the price of to-day, if I were now in the market, I should think the March, May, and September contracts could not be done under £8 : 15 per ton; and that for the Delaware Company, (being difficult to manufacture,) not under £9 per ton. From this you will see, that those Companies who sent their orders early, have reason to congratulate themselves, that they have been executed before the great advance in iron was effected. As the great Railway from "London to Liverpool" (220 miles) may want some 20,000 or 25,000 tons of very heavy rails, (60lbs. per yard,) in the spring, and as the "Southampton," (75 miles,) "Western," (120 miles,) and many other minor Railways will want large quantities, during the summer of next year, I should not be surprised if edge rails should be advanced to £11 per ton, by the 1st of May next, and iron will continue high during the whole of next year. I may be mistaken, but having had some experience in this trade, from having bought and exported to the United States (my brother and myself) upwards of 40,000 tons of Railway Iron, within a few years, I think I have some acquaintance with the iron market of this country. If the French Government should imitate the wise example of our American Government, and allow Railway Iron to be imported free of duty, as it is now reported to be their intention, I have no doubt this will give an impetus to the construction of Railroads in that country, which will still further advance the price of iron. All countries throughout the world must get their Railway Iron in England, where it is manufactured with such economy, such rapidity,* and so perfectly, that it is useless to pretend to compete with this branch of industry.

I beg to send you the *London Mechanics' Magazine* for August, and to ask the favor

* I once had 1800 tons of edge rail, of 40lbs. per yard, manufactured and shipped within 4 months from the time the order left America. It was for the State of Pennsylvania; the order left Philadelphia on the 6th May, and all the iron was on ship board, on its way to Philadelphia, before the 1st of September following. This extraordinary despatch was accomplished by one house in Wales, who had their regular business orders to attend to, besides the execution of this contract. The whole of France could not execute this order in 4 months! But I would not promise equal despatch now, for all the iron masters are so busy, and have such an abundance of orders, that much more time than usual must now be allowed to them.

of your obtaining some information respecting the steamboat "Lexington," plying between New-York and Providence. You will observe, in page 384, an account of the performance of this boat from Providence to New-York, 210 miles, in 12 hours, which I cut out of a New-York paper, and sent to the Editor for publication; and in pages 490 and 431, the whole account is treated as a gross exaggeration by "Fanqui," and discredit is thrown upon it by W. Thorold, of Norwich. You will observe the Editor of the Mechanics' Magazine invites the attention of Americans to the letters of Mr. Thorold and Fanqui, for the purpose of controverting their doubts, and to furnish additional information respecting "the fastest boat in the world." I have no means of obtaining this information, or I would not trouble you. But if you will publish Fanqui's letter, and request the proprietors of the "Lexington" to furnish you with authentic information respecting her, which publish, and request the Editor of the London Mechanics' Magazine to transfer to his columns, the character of our countrymen may be vindicated. People in this country think we are rather disposed "to shoot with the long bow," and it is desirable to correct this opinion, so injurious to our national character.

I am, dear Sir,

Very respectfully, yours,
GERARD RALSTON.

In relation to the steamboat Lexington, and the correspondents of the London Mechanics' Magazine, our reader are in possession of the whole subject; and we hope soon to give them, and the readers and doubters of the London work, such evidence of the performances of that extraordinary boat, as will put at rest the controversy about the "fastest ship in the world."

LONG LEVELS, WITH STEEP GRADES, in preference to a more uniform distribution through the whole line of the elevation to be overcome, appears to be the opinion of several of the most eminent Engineers in Great Britain.

We publish to-day several extracts from an examination, before the House of Lords, of Mr. Vignoles, Mr. George, and Mr. Robert Stephenson, Mr. Henry R. Palmer, Mr. H. H. Price, and Dr. Lardner, in relation to the most judicious Grades for a Railroad. There appears to be but one opinion amongst them on the subject, which cannot be better expressed than in the language of Mr. Vignoles, in reply to the question, "Do you prefer the course of concentrating the inclination?" which is as follows, viz. "it is far better to keep the line as flat as possible, for a great length of time, and concentrate your power by having a stationary Engine, or an assistant Engine, to overcome it"—(the inclination.)

We annex some remarks upon the London and Brighton Railway, together with a table of Gradients of Mr. Gibbs and Mr.

Stephenson, which differ materially in the distribution of the Grades.

We are indebted to Mr. G. Ralston, of Philadelphia, now in London, for these and other favors, for which he will please accept our thanks.

Remarks on the two proposed lines of Railway to Brighton.

Two lines of Railway to connect Brighton with London have been proposed separately by Mr. Gibbs and Mr. Stephenson.

Mr. Gibbs' line terminates at one point in London by the Croydon Railway, and at another by means of the Southampton Railway; Mr. Stephenson has subsequently, in his proposal for a Brighton Railway, fixed upon nearly the whole of Mr. Gibbs' line, but has adopted a different principle in planning his gradients.

The grand point of difference in the two lines is, that the gradients of the one, namely, Mr. Stephenson's, have the several rises and falls distributed over their whole length, whereas Mr. Gibbs has concentrated the rises and falls on his line in a few points, in order to obtain throughout the rest of the line either levels, or planes of such slight inclination, that practically speaking, they may be considered level.

The following table of the gradients on the two lines, will show that Mr. Gibbs has almost entirely confined his ascents and descents to three short planes, while Mr. Stephenson has distributed nearly the whole of his over 33 miles, with an inclination of 1 in 330.

Table of Gradients.

MR. GIBBS' LINE.				
Miles.	Chains.	Level.	Feet per Mile.	
11	56			
3	10	1 in 1002	5	3
6	18	1 in 1188	4	4
5	0	1 in 1028	5	2
3	36	1 in 114	46	3
2	31	1 in 107	49	4
5	5	1 in 2138	2	6
2	31	1 in 111	47	8
8	0	1 in 1269	4	9

MR. STEPHENSON'S LINE.

Miles.	Feet per Mile.	
15	1 in 1100	4 9
5½	550	11 7
33	330	16 0

It is well known to all those who have attended to the progress of Railways in this country, that the question as to what description of gradient is best adapted for the transit on Railways, has excited the most anxious interest in the scientific world and amongst Engineers.

Accordingly we find that the Committee of the House of Lords on the Great Western Railway Bill, has received important evidence from various Engineers upon this amongst other topics which engaged their attention.

From the evidence adduced before this Committee, the following extracts are taken.

It is unnecessary to comment upon these extracts, which contain the recorded opinions of some of the most eminent Engineers in this country, and their opinions are of so recent a date, that they must be supposed to express the result of their matured judgment and experience up to the present time.

Mr. George Stephenson in evidence on the Great Western Railway Bill, July 1st, 1835.

Question. With the exception of the

Box Tunnel, you know of no Railroad of such an extent with such advantageous levels?

Answer. I do not.

Question. With reference to the inclination of the Box Tunnel, in your judgment, is it advisable to select a point where, by making a steeper inclination upon a short line, you can regulate the rest of the levels upon the line advantageously?

Answer. It is always the plan I have adopted in all the works I have been concerned in.

Question. Was that the reason you adopted the short plane on the Liverpool of a mile and a half, where you have one in ninety-six on the one side, and one in ninety-eight on the other?

Answer. It is about ninety on the other.

Question. Did you select those inclinations in preference to spreading it over a larger surface of your Railway?

Answer. I did.

State your reasons for doing it.

Answer. To allow the engines to bring the heaviest loads possible to the bottom of the inclined plane, by having an assistant engine to get up the load; but if I had distributed that inclination over a longer length, the engine could not have got up that long incline, and it is too long to have an assistant engine.

Mr. George Stephenson. July 2nd, 1835.

Question. Is not the expense of the repair of the engines very much in proportion to the gradients upon the line?

Answer. It is.

Question. And the difficulties they have to overcome?

Answer. Yes.

Question. And therefore you think it better to have a steeper rise at one place, to be worked by a supplementary engine, or a fixed engine, than to give worse gradients throughout the line?

Answer. That is my opinion.

Mr. Vignoles in evidence on the Great Western Railway Bill. July 13th, 1835.

Question. Is 1 in 107 a very bad plane?

Answer. No; it appears scarcely a rise to the eye of a common observer; it is a plane that requires great additional power, and it is better to concentrate the power in one spot than expend it upon long inclinations over a greater space of ground.

Question. Do you prefer that course of concentrating the inclination?

Answer. Most undoubtedly; it is far better to keep the line as flat as possible for a great length of time, and concentrate your power by having a stationary engine, or an assistant engine to overcome it.

Copy of a Report by Messrs. Stephenson and Palmer.

"To the Directors of the Great Western Railway Company:

"Gentlemen,—In reply to your inquiry relative to our investigation of the proposed line of Railway between London and Bristol, in which you particularly refer to the practical construction of the work, and the working of it by locomotive engines when completed, and whether Mr. Brunel had taken our opinion before he made the selection between the two inclinations at Box; we beg to state that we have examined the whole of the important parts of the proposed line, and consider it judiciously selected, not only as regards the execution, but also the working of the line when executed; and that Mr. Brunel did take our opinions upon the two planes at Box.

"Our advice to him was that he should

select the shorter and steeper, as by concentrating the rise in one point, with a practicable length for working either by stationary or assistant locomotive engines, he reduced all the remaining inclinations upon the line to the present favorable amount. And we beg in addition to this to state, that many lines with planes of similar or greater length have been executed, and are now working efficiently, and that no difficulties in the execution of the work can be anticipated.

"The levels of your proposed line are undoubtedly superior to those of the Southampton, or the Basing and Bath, or of any other extensive line with which we are acquainted, and are therefore better adapted to the working of the locomotive engines, both as regards economy and expedition.

"We are, gentlemen,

"Your obedient servants,

"GEORGE STEPHENSON,

"HENRY R. PALMER.

"London, March 31st, 1835."

Mr. R. Stephenson in evidence on the Great Western Railway Bill. July 8th, 1835.

Question. Is there more than one way of working a Stationary Engine?

Answer. Yes.

Question. Are those different methods attended with difficulty?

Answer. No; I have seen them all act very efficiently.

Question. I do not know whether you remember the alternative suggested, instead of that Box Tunnel, with a rise of 1 in 107 for two miles and a half?

Answer. Yes.

Question. It was 1 in 333 for nine miles?

Answer. About that.

Question. Which do you prefer?

Answer. I prefer the concentration of the inclination.

Question. What do you gain by the concentration of the inclination?

Answer. You apply a fixed Engine to that to which it is more applicable, and it is more economical upon that inclination; and you make the remainder of the distance extremely favorable for the operation of Locomotive Engines.

Question. What do you gain by it in point of power?

Answer. Very great economy of power, and you save a great deal of wear and tear in the Railway.

Question. Where the proportion of that inclination is two miles and a half, and the rest of the line such as you have described it, do you gain in point of speed also?

Answer. Yes; but the principal saving is economy.

Mr. R. Stephenson in evidence on the Great Western Railway Bill. July 10th, 1835.

Question. Have you any knowledge of the Tunnel at Box Hill, except what you have derived from Mr. Brunel?

Answer. As to the cost of making the Tunnel I cannot give an opinion.

Question. Do you know any thing of the country at that spot, so as to judge of the expediency of making a tunnel or not?

Answer. No; I treat it as an abstract question.

Question. Tell me the data upon which you proceed?

Answer. In preference to an inclination of six or eight miles at sixteen feet in a mile, I prefer a Tunnel; but I would not make a Tunnel in other cases to avoid an

inclination; it is made here to enable the common engine to accomplish the journey upon the rest of the line.

Mr. H. H. Price in evidence on the Great Western Railway Bill. July 7th, 1835.

Question. With reference to the Box Tunnel, do you approve of the method we have heard so much of, namely, the concentration of the steepest inclination upon one spot?

Answer. Yes; I stated that opinion to Mr. Brunel when I first met him at Stroud, after the plans were deposited.

Question. That is not an opinion you have taken up lately?

Answer. No.

Question. What is the advantage gained by that concentration?

Answer. That you may apply assistant power to overcome the elevation of the country at one point, instead of spreading it over a greater space of the line.

Question. What is the result if you do not apply assistant power?

Answer. They carry lighter loads, or they go at a smaller speed.

Question. Or—is there not another alternative?

Answer. You may have a fixed engine.

Dr. Lardner in evidence on the Great Western Railway Bill. August 6th, 1835.

The artifice used in forming the Great Western Line (and a very good one it is) consists in concentrating the greatest rise in both directions upon one spot, and by that means obtaining a more uniform level, and so far as that goes it is a great advantage.

Mr. R. Stephenson in evidence on the Southampton Railway Bill. June 25th, 1834.

Question. Is it an object also to get the best levels that can be got?

Answer. Of course it is.

Question. If the level in such a Railroad as this, is such, that there are fifteen miles in going up to the summit of 1 in 300, would you consider that as an inconvenient rise, if you could avoid it?

Answer. If I could avoid it, certainly.

Question. Would you prefer lessening the inclination, and having a short part where the inclination should be so much greater as to require the assistance of an Engine.

Answer. I think I would prefer a short piece.

Question. Upon the Liverpool and Manchester you have two inclinations of one in eighty-six and one in ninety-six?

Answer. Yes.

Question. Was that mode of construction adopted with a view of enabling the engines to act with all their full power up to the rest of the line, and to have the assistance of stationary engines at that point?

Answer. That was the object.

Question. I believe you consider that an inclination of 1 in 240 diminishes half the power?

Answer. Yes, thereabouts: it has been taken at 300, but I think 1 in 240 is more correct.

Question. Should you consider it desirable to construct a line of Railroad with fifteen miles with an inclination of 1 in 300, or should you prefer a shorter length of a steeper inclination?

Answer. I should prefer the short inclination, if the other levels that were obtained by that means were good levels.

Question. If by making a steep inclina-

tion for a short distance of two or three miles, you could lessen the inclinations upon the general line, so as to enable the locomotives to carry a weight nearly to the extent of their power, you would consider that a preferable mode?

Answer. Yes, I would; it is impossible to give a general answer to that question; I should be guided by the circumstances of the case.

Question. Supposing you could form a line in which you might go with an inclination, where instead of diminishing the power of the engines one half, it was not diminished one quarter, but when they arrive at a particular point, they might require the assistance of another engine, because it diminished the power two-thirds, would you prefer the [line] upon which the diminution of the power of two-thirds was only for a short distance, and where the rest of the line gave three-fourths of the power?

Answer. I think I would.

Question. (By a Lord)—Might not there be other circumstances which would render the other line the best?

Answer. I merely speak as an Engineer generally upon the subject. I cannot at all speak as to any local difficulties that may arise; speaking as an Engineer, I would prefer a long line, upon which an engine could operate to its full power with a short inclination when an assistant engine was wanted.

A CANAL ROUND THE FALLS OF NIAGARA is certainly a desirable link in our chain of internal communication on the great lakes.

The highest considerations of expediency connected, not less with the military defence of the Northern frontier, than with the commercial and agricultural interests of this State, and of the whole Mississippi Valley, point to the construction of such a Canal—if found reasonably practicable.

From a Circular published to-day, drawn up by a committee in Oswego, it would seem that a survey of the route has been made, during the past season, under the authority of the general government, which establishes the complete practicability of the work; and, accordingly, memorials are to be addressed to Congress, at the approaching session, asking their aid towards its accomplishment. We hope these memorials will be multiplied, so as to constitute an irresistible call upon the National Legislature to do what is useful in the matter.

The Oswego Circular argues the matter mainly as a local interest. It has, however, higher claims than that; nor need Buffalo even apprehend, if the Canal should be constructed, and a Ship Canal to boot between the Hudson and Oswego, but that it still would flourish abundantly, and grow with the growth of all around it.—[N. Y. American.]

Canal round the Falls of Niagara. CIRCULAR.

Oswego, Nov. 6th, 1835.

SIR,—The undersigned, a committee appointed by the citizens of the county of Oswego, in the State of New York, in relation to the Niagara canal, and especially for the purpose of presenting a Memorial to Congress, and for disseminating information respecting the merits of the project to their fellow citizens in other parts of the Union, would respectfully offer to your consideration the following statements.

Memorials exhibiting the great advantages anticipated from the construction of a Ship Channel, by which the obstruction now interposed by the Falls of Niagara to an uninterrupted navigation from the upper Lakes to Lake Ontario would be removed, have been presented to Congress from several parts of the State of New York, the north western States, and the Michigan Territory. These Memorials met with a very favorable reception,

and would probably have led to some favorable action on the subject, but for the limited term of the last session, and the absorbing questions which occupied its close. The Department of War, however, deeply impressed with the importance of the projected Canal, not only in respect to the commercial relations subsisting between the East and the West, but to the military defence of the Northern frontier, in the month of May last detailed a corps of Topographical Engineers for the purpose of prosecuting the explorations and surveys incident to its construction. These explorations and surveys have been effected during the late season under the direction of Capt. W. G. Williams, a gentleman distinguished by science and the possession of every acquirement requisite for the faithful and able execution of the duty entrusted to him. We are happy to state that Capt. Williams' survey furnishes the most gratifying results in respect to the practicability of the work, and the facilities for its execution. His report will be submitted to Congress early in the ensuing session.

We therefore avail ourselves of the opportunity to inform you that Memorials to Congress, praying for the construction of the Canal as a National work, and for an appropriation therefor, will be presented at the ensuing session, from many parts of the State of New York, and would respectfully submit to you the expediency of sustaining these Memorials by others from your section of the Union.

We are of opinion that no constitutional objection will interpose to prevent an appropriation for this great object. It is a matter of great national interest as a military work, and is in immediate connection with the constitutional power expressly granted to Congress for the regulation of commerce between the States, with foreign nations and the Indians tribes; for to all these would the removal of the barrier of the Falls of Niagara afford immense facilities.

It is our fellow citizens of the West, whose trade is tributary to the Lakes, who are most immediately and extensively interested in the proposed improvement. Its value to them can in some measure be ascertained from the results of the intercourse now subsisting between the Port of Oswego, on Lake Ontario, and the Ports upon the Upper Lakes by means of the Welland Canal. About 25,000 tons of merchandize have been shipped for the West from the city of New York during the present year, and have passed westward through the Ports of Buffalo and Oswego. Of this amount about 20,000 tons have been shipped from Buffalo, and about 5,000 tons from Oswego.

Supposing the whole 25,000 tons had passed through either Port, the rates of transportation charged by the forwarders of Oswego and Buffalo furnish the following results:

Freight of 25,000 tons of merchandize from New York via Buffalo to Cleveland.

Usual freight, 1835, \$1.13 per 100 lbs. for heavy goods; do do \$1.29 do light do.
Average freight \$1.20 per 100 lbs. or \$24 per ton, amounts to \$600,000

Freight of 25,000 tons from New York via Oswego to Cleveland.

Usual freight, 1835, 60 cents per 100 lbs. for heavy goods; do do 75 do light do.
Average freight 67 cents per 100 lbs. or \$13.40 per ton, amounts to \$335,000

Difference in favor of the Oswego route, \$265,000

Freight of 25,000 tons of merchandize from New York via Buffalo to Chicago.

Usual freight, 1835, \$1.50 per 100 lbs. for heavy goods, do do \$1.70 do for light goods,
Average freight \$1.60 per 100 lbs. or \$32 per ton, amounts to \$800,000

Freight of 25,000 tons from New York via Oswego to Chicago.

Average freight charged this year, \$1.05 per 100 lbs. or \$21 per ton, amounts to \$525,000

Difference in favor of the Oswego route, \$275,000

It is found from experience, since the completion of the Erie Canal, that the transportation westward quadruples in the period of five years. In 1840 then, the amount of Western freights will be 100,000 tons.

The charge upon this at present prices, by the Buffalo route, would be to Cleveland, \$2,400,000

By the Oswego route to Cleveland, 1,340,000

Difference in favor of the Oswego route, \$1,060,000

It is reasonable to estimate that the transportation Westward in 1845, will be 250,000 tons. The difference between the Oswego and Buffalo routes will always maintain the same proportions. At the present prices, the difference in favor of the Oswego route to Cleveland on 250,000 tons would be \$2,650,000

On same to Chicago, 2,750,000

The justice of these estimates we refer to yourself, and shall draw no inferences from them. We would merely remark, that whatever the difference is, will be an annual charge upon the enterprise and industry of the West. Neither shall we detain you by any remarks upon the immense influence which an uninterrupted navigation from Lake Ontario to the upper Lakes will necessarily have upon the value and the settlement of the public lands.

The object of this communication is, to request your aid and influence in behalf of the projected canal, and we would respectfully submit to you the expediency of calling meetings of your fellow citizens, of expressing your views to your Representatives, and presenting memorials to Congress, asking the requisite appropriations for the execution of the great national work in contemplation.

With great respect, Sir, we are,
Your most ob't serv'ts,

C. J. BURCKLE,
G. H. MCWHORTER,
M. P. HATCH,
A. P. GRANT,
J. N. BOWSTEEL,
WM. F. ALLEN,

Corresponding
Committee.

ERIE CANAL.—As the enlargement of the Canal is about going into effect, is it not expedient to inquire, whether its route cannot be judiciously rectified in some parts?

Great complaint has always been made against the section between Schenectady and Albany.—The direct route between those cities is but 15 miles, and yet the Canal is 30 miles in length and crosses the Mohawk twice between Schenectady and the Hudson. Cannot that great circuit be avoided? The table land between the Mohawk and the Hudson descends upon an average from 12 to 20 feet on the mile from the former to the latter river, and as it is but little more than 100 feet high at Schenectady, it might be cut through at a small expense, until the level line of the Mohawk was brought to the top of the table land in its descent to Albany. If one of the ravines on the Mohawk side, or the Sandkill valley, should be taken for the route, the expense would be lessened.

The annual saving on the canal navigation would soon pay the expense. There are now between 30 and 40,000 canal boats arriving and clearing at the Hudson annually. The saving to each boat in tolls for 15 miles canal travel would be \$7 and as much for returning, and the wages and expenses for the time saved in 5 hours each would be at least one dollar per boat.

An annual saving therefore of between two and \$300,000 would be made by thus rectifying this part of the eastern section of the canal, besides rendering the canal itself more secure—the route being entirely inland instead of crossing and recrossing the Mohawk by aqueducts. Does not this subject deserve a full investigation?

It may be matter of news to some of our readers, to say, that it is in contemplation to straighten the canal a little east of this city, by cutting through the hill near Gideon Cobb's, and that the survey has already been made and the location staked out.—[Rochester Democrat.]

[From the New-York American.]

OUR HARBOR.—The survey of Sandy Hook Bar, which has been made by Lieut. Thos. R. Gedney, of the United States Navy, and others, by order of F. R. Hassler, Esq., Superintendent of the U. S. Coast Survey, has been completed this season, and was, a day or two since, exhibited to the Chamber of Commerce.

By this survey, a new channel over the Bar has been discovered, having 23 feet water at the lowest tides, and it is hoped measures may be taken by the

merchants, and insurance companies, to have this channel buoyed out, early in the spring.

The manner in which the survey of the coast has been carried on, since the appropriation in 1833, will reflect lasting credit on the country; and the determination of the administration to carry on a proper triangulation of the whole coast, will save millions to the country, while it will enrol the names of its supporters among those to be remembered with gratitude by the commercial community, now, and in time to come.

The proper determination of points along the coast has been long a desideratum, and the impossibility of carrying on a survey of any extent, without a triangulation, is now established. Hence, notwithstanding the sums of money heretofore spent in surveys by Government, there are not, it is said, half a dozen points on our coast, the lat. of which is known with the accuracy that may be attained.

The labor, time, care and skill, requisite to conduct such a survey as that of this harbor alone, can only be judged of, by those who examine, as we have had the opportunity of doing, the result as laid down on a chart; and we repeat the expression of our hope, that the merchants and insurers of this city will cause it to be engraved and published forthwith. The sale of the charts would soon indemnify the cost of publication, to say nothing of the diminution of risk to property and life, which it would certainly effect.

[From the same.]

THE AMERICAN JOURNAL OF SCIENCE AND ARTS, conducted by BENJ. SULLIVAN, M. D. LL. D.—October. New-Haven, H. MALTBY and HERBERT & NOTES. New-York, G. & C. CARVILL & Co.—This number is almost entirely given up to an account of the coal formation of the Ohio and its confluent rivers, by Dr. S. P. HILDRETH, of Marietta, Ohio. The mass of information, of curious results, and magnificent realities, embodied in this paper, makes it of great interest—even to unscientific readers. There are annexed to the account several pages of woodcuts, representing accurately the various fossil remains found in the coal beds, and occasionally portions of the striking scenery amid which these beds are stretched far and wide.

Personally, we read this paper with the more interest from having last Spring passed over a portion of the region described in it, and been struck with the prodigality of nature in her gifts to it. The annexed account will, we are sure, be new, as well as interesting to many of our readers.

THE BITUMINOUS COAL FIELDS OF PENNSYLVANIA.—Nature, in the disposition of her bounties, seems to have bestowed upon Pennsylvania, more than a due proportion of the treasures of the mineral kingdom. Great and valuable as are her anthracite deposits, and rich and abundant as are her mines of iron ore and other minerals, her bituminous coal region is still more extensive and inexhaustible. The great secondary deposit, extending as is generally believed, from the Hudson to the Mississippi, and to the Rocky mountains, is in Pennsylvania limited by the Alleghany mountains, which appear to form the barrier, or dividing line between the anthracite and bituminous coal beds, or between the transition and secondary formations. The union or junction of these formations is plainly and distinctly marked in the end of the mountain, where the west branch of the Susquehanna breaks through it, above Bald Eagle, the latter resting against the former, and forming the basin in which the bituminous coal, in regular and successive strata, is deposited. The coal field is therefore confined to the west side of the Alleghany, and is supposed to extend to the centre of the mountain. In the S. E. corner of Somerset county, and in the western parts of Bedford and Huntingdon counties, it would appear to extend to the S. E. of what is there called the Alleghany, and occurs in great abundance on 'White' creek, Pen-

ships' creek, &c. emptying into the Potomac. The chain of mountains called the Alleghany above Bedford, is very wide; and large mountains diverge from it, and although the mountain ranging through Somerset and dividing the waters of Youghiogania and Conemaugh, from those of the Potomac, may be the largest, it seems most probable that Wells or Evets, or possibly Sideling mountain, there forms the boundary of these deposits, and upon examination will be found to exhibit a continuation of the same characteristic features between the secondary and transition formation."

The bituminous coal beds, vary from one foot to twelve feet in thickness, but rarely exceed six feet. They lie in nearly horizontal strata, with about sufficient dip to free the seams from water—some hills contain three and four beds, with alternate layers of earth and slate, and rest between a firm and smooth slate roof and floor. Faults or troubles are seldom met with, and in this they differ from the anthracite, and go far to confirm the opinion, that all this vast extent of secondary rocks, was once the bottom of the great lake or sea, and that it suffered little if any interruption from the gradual discharge of its waters, through its distant and widely extended boundary. It has evidently been drained by the Mississippi, the St. Lawrence, the Susquehanna and the Hudson; and it is a curious and interesting fact, that near the northern termination of this coal field, in Potter county, the head waters of the Alleghany, the Susquehanna and the Genesee rivers, flowing into the gulf of Mexico, the Chesapeake and the St. Lawrence, take their rise in an area or space of about five miles.

With the exception of the Susquehanna and its tributaries, and Wells' creek, emptying into the Potomac, all the streams rising in the coal field, west of the mountains, flow into the lakes, or into the Ohio river, and consequently the ground falls off or recedes in the same direction, and becomes too low, as is generally supposed, to contain the coal measures. Its northern termination or boundary may be traced from the head waters of the Towanda creek, in Bradford county, thence across the high lands or dividing waters of Tioga, Potter, McKean, Warren, Venango, &c., to the Ohio State line.—The Tioga river and its tributaries penetrate the coal field in the vicinity of Blossburg and Wellsborough in Tioga county. A recent and interesting mineralogical report, upon this region, has been made, by R. C. Taylor, a practical engineer and geologist, for the Blossburg Railroad Company, in which it is satisfactorily shown that the coal runs out as the streams decline to the north.—"There would need," says the report, "a total height of mountains of five thousand, one hundred and twenty feet, at the State line between New York and Pennsylvania, to contain the coal measures, whereas the hills, there, are probably below six hundred feet in altitude. This calculation is entered into with a view of showing the futility of the expectation, not uncommonly expressed, of tracing these coal fields in a northerly direction beyond the limits at which they are at present discoverable."—"This field being bounded on the south by the Alleghany mountain, extending into the State of Virginia, and westward; coal may be said to be present, to a greater or lesser extent, in all the western counties, with the exception of Erie, in which it has not been discovered. The counties of Bradford, Lycoming, Tioga, Potter, McKean, Warren, Crawford, Bedford, Huntingdon and Centre, lie partly in and partly out of the coal field. The counties of Alleghany, Armstrong, Beaver, Butler, Cambria, Clearfield, Fayette, Greene, Indiana, Jefferson, Mercer, Somerset, Venango, Washington and Westmoreland, are wholly within its range, and embrace together an area of twenty-one thousand square miles, or thirteen millions four hundred and forty thousand acres." Coal has been used for fuel and manufacturing purposes, west of the mountains, from the earliest settlement of the country. It is mined, to a greater or less extent, in all the above counties, at the rate of one cent and two cents per bushel, and is thus brought within the means of all, and literally to every man's door—abounding throughout all this vast extent of territory, and fitted and used for almost every purpose requiring heat, it is impossible to form any thing like a correct estimate of the quantity consumed yearly, and sent to market. That its great abundance and cheapness have given birth to the vast and widely extended manufacturing establishments of the west, there can be no doubt. Without coal they could not exist. It constitutes the life spring of Western Pennsylvania, and the

pedestal of our great manufacturing emporium.—Pittsburgh and its environs contain ninety steam engines for the various manufactures of iron, steel, glass, cotton, salt, brass, white lead, flour, oil, leather, &c. These engines consume two millions sixty-five thousand three hundred and six bushels a year. The city of Pittsburgh and its suburbs, Alleghany town Birmingham, &c., contain a population of thirty thousand souls. "The coal consumed for every purpose, in and about Pittsburgh, is estimated at seven millions six hundred and sixty-five thousand bushels, or two hundred fifty-five thousand and five hundred tons—at four cents per bushel, the price now paid in Pittsburgh, it would amount to three hundred and six thousand five hundred and twelve dollars." "The coal consumed in the manufacture of salt, in the western counties is very great. There are on the Alleghany, Kiskiminitas, Conemaugh, Crooked creek, Mahoning, Saw mill run, Brush creek, Sewickly, Youghiogania and Monongahela, about ninety salt manufacturing establishments and many others about going into operation. These establishments produce yearly about one million bushels of salt and consume five millions of bushels of coal."—"The coaking process is now understood, and our bituminous coal is quite as susceptible of this operation, and produces as good coal, as that of Great Britain. It is now used to a considerable extent by our iron manufacturers in Centre county and elsewhere."

These facts, elucidating the immense mineral wealth of the "valley of the Ohio," open to the imagination a long vista of power and greatness, which the utmost stretch of the imagination is hardly able to equal.

The Cannel Coal has as yet only been found in the vicinity of Cambridge, Guernsey Co., Ohio, though it is supposed also to exist about the head waters of the Muskingum, considerable masses of it having been picked up on the banks of that river, brought down by the current. We were not before aware that this most brilliant and combustible of coals had been found at all in the United States.

There is a vast amount of information in this paper, to which we would desire to advert, but know not what to select, and therefore confine our extract—having begun with coal—to the subjoined speculation upon

COAL DEPOSITS.—The immense beds of bituminous coal found in the valley of the Ohio, fill the mind with wonder and surprise, as it reflects on the vast forests of arborescent plants required in their formation. Age after age, successive growths of plants, springing up in the same region, were entombed beneath thick strata of shale and sandstone, until the whole series had accumulated to a depth of more than a thousand feet: while beneath the whole, lay the bed of an ancient ocean floored with fossil salt. Indications of coal are found at intervals, across the great valley, from the Alleghany to the Rocky Mountains. It is found near the surface in Kentucky, Ohio, Indiana, Illinois and Missouri, and without doubt, may be found beneath the extensive territory deposits, which form the substratum of the great prairies in the central and northern parts of the western States. As low down as New Madrid on the Mississippi, coal was thrown up from beneath the bed of the river, by the great earthquakes of 1812—a sufficient proof of its continuation in the most depressed part of the great valley.

That coal is of vegetable origin, no one who has read much on the subject, or personally examined the coal beds, will now deny. Time was, when it was considered a peculiar mineral product, formed in the earth in the same manner and at the same time with the rocks that surround it. The product of its chemical analysis, being altogether vegetable, and the artificial formations of coal from wood by Sir James Hall, have silenced all doubts on the subject. The only mystery now is, how such vast quantities of vegetable matter could be accumulated and grow on the spot where they were buried. That they grew in general, on the surface now occupied by the coal, appears certain from the perfect state in which the most delicate leaves and stems are preserved. Had they been transported by currents of water, and especially from any distance, it is hardly possible that they should not have received more damage. The climate, at that period, must have been both more warm and more

humid than at present, as many of the plants are of those families which now grow only in tropical climates; and as the laws of nature never change, this may be deemed a correct inference. A similar climate seems to have prevailed in the latitudes north of 30°, both in Europe and in America, many of the same plants being common to the coal strata of both countries, as will be evident by comparing the drawings of several of the species found in the valley of the Ohio, with those exhibited by M. Brongniart, in his work on "Des vegetaux Fossiles," of the European coal beds. South of lat. 30°, but few coal deposits are found, the climate requiring but little fuel for the comfort of the inhabitants; but north of that parallel, many districts could be but very thinly inhabited, or perhaps not at all, were it not for the wonderful provision of coal laid up in the bowels of the earth for the use of its inhabitants, after the forests were destroyed to make room for cultivation.

The coal deposits of Britain, by nourishing her manufactures, which have raised her to her present proud attitude among the nations, are the principal source of her present greatness.

In the valley of the Ohio, some of the coal beds, were covered with marine deposit; in others the deposit was made in fresh water, as is demonstrated from the character of the fossil shells found in the rocks, both over and under the coal. In what manner these changes were brought about, remains for future geologists to determine, after the science has become mature.

Where not removed by degradation, or buried under other strata, there seems to have been three distinct deposits of coal throughout the main coal region, embraced on the map, which accompanies these observations. After the vegetable materials which form the coal beds, were deposited or buried under the superincumbent strata, it would seem that a strong degree of heat had been applied, in addition to the pressure, before they could assume their present bituminized appearance. As we approach the coal beds, in the transition and primitive rocks, the evidences of heat are still more apparent; removing from the anthracite beds, all, or nearly all their bituminous contents; and in the primitive, changing anthracite into graphite, or plumbago, which is almost pure carbon. It would appear, that we cannot reasonably doubt the action of heat on these coals, for the plumbago is evidently a coal, changed by heat into its present semi-metallic appearance, and is often produced in the furnaces of the arts, by the action of heat upon carbon. A less degree of heat has been applied to the bituminous beds of "the Valley of the Ohio," for they are far removed from any crystalline or transition rocks, on which the marks of heat are so apparent, and therefore could not receive a sufficiency to deprive them of their bituminous principles and change them to carbonaceous coal beds. The suggestion advanced by many geologists, and recently applied by Prof. Hitchcock, in his geology of Massachusetts, that graphite, anthracite and bituminous coals are all of vegetable origin, and changed by heat and pressure to what they now are, is a simple and beautiful illustration of a heretofore obscure and difficult subject.

INTERNAL IMPROVEMENT CONVENTION AT UTICA.—A public meeting was held at Brooklyn on Friday evening, at which ten delegates were appointed, on behalf of Brooklyn and Long Island at large, to attend the Convention at Utica. The following gentlemen were named, with power to supply any vacancies:—Gen. Jeremiah Johnson, Joseph G. Swift, John Lawrence, Alden Spooner, Henry F. Pierpont, Benj. D. Silliman, Geo. Hall, Edward Copland, Amasa Wright, Clarence D. Sackett.

"We know that a very active and extensive business is carried on in this city, in the article of oysters, destined for the consumption of the people west of the Alleghanies, but we were not aware, until we saw the fact mentioned in a western paper, that it had become so large as to justify the establishment of a regular line of wagons to Pittsburgh, for the transportation of oysters exclusively."

The above paragraph, from the *Baltimore American*, relates an extraordinary fact, but one of which there is, we apprehend, no doubt. We were tempted, last April—being casually in Cincinnati—by the novelty of the thing, at such a distance from the seaboard, to eat some oysters from the shell; they were not injured by the long transportation over mountain and valley, and were sold at not more than double the price paid in this city.

[From the Journal of the Franklin Institute.]

Replies to a Circular in relation to the Occurrence of an unusual Meteoric Display on the 13th of November, 1834, addressed by the Secretary of War to the Military Posts of the United States, with other facts relating to the same question. By A. D. BACHE, Prof. of Nat. Philos. and Chem., Univ. Penn. (Communicated by the Author.)

Having found that the inference drawn from my observations on the morning of the 13th of November, 1834,* at Philadelphia, was directly opposite to that to which Professor Olmsted had been led, from his observations at New-Haven, I felt naturally desirous to determine what might have been the extent of country over which the unusual display of meteors seen at New-Haven had taken place, this extent having a direct bearing upon the question of the nature of the phenomenon. At my request, communicated through the kindness of the Chief Engineer, the Secretary of War, Gov. Cass, issued a circular to the commandants of the different military posts of the United States, requesting to be informed whether any unusual meteoric display had been witnessed at their respective posts, on the morning of the 13th of November, 1834.

The results of this inquiry, I propose now to put upon record, in as brief a manner as possible. The arrangement adopted in the record, is to begin with the most northern post on our north-eastern frontier, to pass southward along the Atlantic board; then beginning with the most southerly post of the western chain, to pass northward along that chain, then eastward on the northern frontier, towards the original point of departure. Along this line, the display of November 13th, 1833, attracted universal attention.

From Hancock Barracks, Holton Plantation, Maine, Maj. Clarke reports that no recurrence of the meteoric phenomenon of 1833, was observed on the 13th of November, 1834.

A similar report is made by Maj. McClinton, in relation to Fort Preble, Portland, Maine, and its vicinity.

No unusual meteoric phenomenon was observed at Fort Constitution, Portsmouth, New-Hampshire, as stated by Maj. Anst; nor at Fort Trumbull, New-London, Connecticut, as stated by Maj. Saunders; nor at Fort Hamilton, New-York Harbor, according to the report of Maj. Pierce; nor at Fort Severn, Annapolis, Maryland, according to Maj. Walbach; nor at Fort Washington, Potomac river, below Washington city, according to Maj. Mason.

Maj. Churchill states that at Fort Johnston, Smithville, North Carolina, no unusual meteoric appearances were noted on the evening referred to in the circular, but that no one was particularly engaged in watching for a recurrence of the meteors of 1833.

Maj. Gale reports from Fort Moultrie, Charleston Harbor, that he can find no one in the garrison, or its vicinity, who

has seen any unusual meteoric display since November, 1833; and the report of Lt. Williamson, from Castle Pinckney, in the same harbor, is to the same effect.

Capt. Marchant makes a similar report from Fort Oglethorpe, Savannah, Georgia.

From Fort Marion, St. Augustine, East Florida, Capt. Drane reports that no recurrence of the meteors had been observed, and that no remarkable meteorological occurrence was recorded about the period designated, in November.

No recurrence of the meteors was observed at Fort Jackson, on the river Mississippi, below New-Orleans, commanded by Capt. G. M. Gardiner.

General Atkinson states from Jefferson Barracks, near St. Louis, Missouri, that no occurrence of the sort alluded to in the circular, was observed in the autumn of 1834, by "any one at the post, nor was there such a recurrence any where in the west, as far as [his] inquiries, had extended."

Lieut. Col. Vose reports from Fort Towson, on the Red river, below the mouth of the Kiameche, that no recurrence of the meteors had been observed, as far as he could learn, in the section of the country in which the post is situated.

Col. Dodge, commanding the regiment of dragoons, reports from Fort Leavenworth, on the Missouri river, at the junction of the Little Platt, that no remarkable meteoric phenomenon had occurred since his arrival at the post, on the 27th of September; he adds, that "a recurrence of an event so remarkable as the one mentioned, could not have escaped the notice of the sentinel on post."

From Fort Snelling, Falls of St. Anthony, Upper Mississippi river, Maj. Bliss reports that, from an examination of the sentinels who had been on post during the night of the 12th and 13th of November, he could not learn that any recurrence of the meteoric phenomenon of 1833 had been observed. He gives a particular account of a very bright meteor seen at 5 o'clock, A. M. on the morning of the 9th of January, 1835.

Lieut. Col. Davenport, commanding at Fort Armstrong, Rock Island, Upper Mississippi river, Illinois, states, as the result of information which is satisfactory to him, that no meteoric phenomenon was observed on the 13th of November, 1834, at his post. He gives the temperature at 7 o'clock, A. M. on the 13th of November, as 42° Fah., the wind N. E., and the weather fair.

The reports from Fort Dearborn, Chicago, Illinois, commanded by Maj. Green, and from Fort Winnebago, portage between the Fox and Ouisconsin rivers, N. W. Territory, commanded by Lieut. Col. Cutler, state that no unusual meteoric display was noticed there on the night referred to.

The return from Fort Howard, Menomonieville, Michigan Territory, is of the same purport, General Brooke adding, that there were several apparent shocks of an earthquake in November, 1834, as

evidenced "by a severe rocking of the flag-staff in the night, although it was perfectly calm at the time."

From Fort Mackinac, Straits of Michilimackinac, Michigan Territory, Capt. Clitz reports that he has "made inquiry of the sentinels who were on post on the night of the 13th of November last, and one only, an intelligent young man, who was posted at the north angle of the fort, saw a shower of meteors in the north, between 12 and 1 o'clock, the duration of which, as near as he can recollect, was about one hour."

Maj. Hoffman reports from Fort Gratiot, on the St. Clair river, that no recurrence of the meteoric phenomenon of 1833 was observed at his post.

The returns just given are from eleven posts in the Atlantic States, from Maine to East Florida; from six posts in the Western States, or frontier, and from five on the northern frontier; they agree in stating, with one exception, that no unusual meteoric display was noticed on the night of the 12th, 13th of November, 1834.

It is almost needless to observe, that the military stations are places where observation of any striking meteoric phenomenon may be expected, at least one sentinel being on post, the reliefs being posted by a non-commissioned officer, and the sentinels visited at least once during the night by a commissioned officer. Vigilance is particularly to be expected in our out-posts, from which the reports are quite minute. A local "shower" of meteors was observed by a sentinel at Fort Mackinac, about midnight, and lasting about one hour. Many of the reports do not confine themselves to a statement that no meteoric display was witnessed at the posts, but include inquiries made in the vicinity.

These reports may, I think, be considered conclusive against the occurrence of any extensive and remarkable display of meteors, so far as ordinary observation could have detected such a display.

In reply to letters addressed to friends in different quarters, with a view to ascertain if special observation had been made on the morning of the 13th of November, I received the following information.

At New-York, as I learned from Prof. Renwick, a gentleman well known for his scientific attainments, assisted by a friend, watched the during whole night, but saw no remarkable occurrence of meteors. Doctor Gibbons, of Wilmington, Delaware, observed the heavens, in connexion with his observations on the aurora, until about half-past 12 o'clock on the morning of the 13th of November. He informs me that he has been in the habit of inspecting the heavens, frequently, every clear evening since November, 1833, and has observed, often, an unusual number of meteors, for several evenings in succession, and sometimes the reverse of this. The night of the 12th, 13th of November, 1834, was clear.

No unusual occurrence of meteors was noticed at Baltimore by the city watch, or

* See Am. Jour. Sc. & Arts, by Prof. Stillman, for January, 1835, p. 335.

others, to whom inquiry was directed by Prof. Ducatell; nor at the University of Virginia; nor at the University of North Carolina; at which places, as I learn from Prof. Patterson, and Prof. E. Mitchell, no special observations were made. At Cincinnati, Ohio, the night was cloudy, with showers.

President Lindsley, of Nashville University, informs me that one of the gentlemen of the University was on the lookout on the night of the 12th, 13th, but saw nothing remarkable.

The direct observations made at New-York, Philadelphia, and Nashville, show that no unusual meteoric display occurred at either of these places; and the general experience at Baltimore, and Wilmington, Delaware, the University of Virginia, and the University of North Carolina, was to the same purport. As far as public testimony through the journals can reach this point, it confirms these conclusions.

I infer that the meteors seen at New-Haven, from one o'clock until daylight, by Prof. Olmsted, and the gentlemen who assisted him; at West Point, after 2, A. M. by Mr. Twining; at Mackinac, between twelve and one o'clock, by the sentinel, were not parts of one meteoric display, visible over an extensive region of country, like the phenomenon of November, 1833, but were local.

It is to be seen from the foregoing statements, that the weather was not the same over the extent of country which they embrace, while on the 13th of November, 1833, there was a most remarkable uniformity over a much greater surface.

Philadelphia, May 28, 1835.

[From the Repertory of Patent Inventions.]

Specification of the Patent granted to HENRY BOOTH, of Liverpool, for Compositions or Combinations of Materials applicable for the Greasing of the Axle-Bearings of Carriages, and the Axle-Spindles and Bearing-parts of Machinery in general, denominated Patent Axle-Grease and Lubricating-Fluid.

Mr. Booth says, my patent axle-grease and lubricating-fluid are chemical compounds of oil, tallow, or other grease, and water, effected by means of the admixture of soda or other alkaline substance, in such proportions that the compounds shall not be of a caustic or corrosive nature when applied to iron or steel, but of an unctuous greasy quality, easily fusible with heat, and suitable for greasing the axle-bearings of carriage-wheels, or the axles, spindles, and bearings of machinery in general. And the proportions of the ingredients for the said compounds, and the method of compounding them, which I recommend as suitable for the above purposes, are as follow:—

For the axle-grease suitable for carriage-axles, and particularly for the axles of every description of railway carriages, a solution of soda in water, (the common washing soda of the shops,) in the proportion of half a pound weight of soda to a gallon of pure water; to one

gallon of this solution add three pounds of good clean tallow and six pounds of palm-oil; or, instead of the mixture of tallow and palm-oil, add ten pounds of palm-oil, or eight pounds of tallow, (the tallow being of a stiffer nature than palm-oil.) The said tallow and palm-oil, or either of them, and the solution, as described, must be heated together, in some convenient vessel, to about 200° or 210° of Fahrenheit, and then the whole mass must be well mixed and stirred up together, and be agitated without ceasing till the composition be cooled down to 60° or 70° of Fahrenheit, and have obtained its consistency, which will be that of grease or butter, in which state it will be ready for use, and may be applied in the way in which grease is usually applied to machinery.

For the lubricating-fluid, which, also, is applicable to the rubbing parts of machinery, (and particularly to the spindles of pulleys on inclined planes moving on wooden bearings,) I recommend to be taken of the aforesaid solution of soda in water, one gallon; of rape-oil, one gallon; and of tallow or palm-oil, one quarter of a pound weight: heat them together to 200° or 210° of Fahrenheit, and then let the fluid composition be well stirred about and agitated without intermission till cooled down to 60° or 70°, when it will be of the consistency of cream: or if a thicker consistency be desired, a small addition to the tallow or palm-oil may be admitted; and in all cases it is advantageous to shake or stir up the mixture immediately before using it.

Now, though I have given the foregoing proportions of ingredients, as suitable, under ordinary circumstances, I do not mean to limit the invention to these precise mixtures; as according to the temperature of the weather, or the particular purpose to which it may be applied, a little more tallow or other grease or oil, and less of the solution may be desirable; or slight alterations in the quantity of soda for the solution, or in the relative proportions of tallow and palm-oil or other grease, may be found advantageous—a larger proportion of soda in the solution, and a larger quantity of tallow in proportion to the solution, rendering the compound stiffer, and less easily fusible in hot weather; all which modifications of my patent compounds will be easily adjusted by the superintendents of the machinery to which they may be applied. In witness whereof, &c.

Enrolled June 4, 1835.

[From the same.]

Specification of the Patent granted to JOSEPH FERGUSON, of the City of Carlisle, in the County of Cumberland, Manufacturer, for a certain Combination of Processes whereby a new kind of Dress or Finish is given to certain Goods. Sealed December 23, 1834.

To all to whom these presents shall come, &c. &c. Now know ye, That in compliance with the said proviso, I, the said Joseph Ferguson, do hereby declare the nature of my said invention to consist

in giving a new kind of dress to twilled, plain, or figured cotton goods, which have been beetled by submitting them to certain known processes, not heretofore applied, after beetling, to produce that effect. And in further compliance with the said proviso, I, the said Joseph Ferguson, do hereby describe the said processes and the order in which the same are to be applied, by the following statement thereof, (that is to say):

I take plain, twilled, or figured cotton cloths beetled in the usual way by a beetling-machine for fifty or sixty hours, in order to bring them to a very high gloss, and put them over a damping-machine so as to be completely saturated with water. I then put them through a drying-machine with copper cylinders and heated with steam in the usual way, taking care to put them through, when twilled, as tight as the cloth will bear without tearing, so as to open out the twill as much as possible during the drying process; when the cloths are plain, or figured, only, and not twilled, then the usual degree of tension applied to goods in drying-machines will be sufficient, and in all cases it is preferable that the heat and speed of the drying-machine be such as to dry the cloth completely by the time it gets once through, provided the color, (if dyed goods,) be such as to admit of it, if not, it should be dried at two or more operations.

The stiffening of the goods should in all cases also be particularly attended to, inasmuch as the more firmly they are stiffened, whether before or after beetling, the more defined and perfect will be the dress.

Now whereas I claim as my invention the combination of the damping or saturating and subsequent drying processes with the process heretofore in use to produce beetled goods, as hereinbefore described, and applied to the purpose of giving a new kind of dress or finish to such goods as aforesaid. And such my invention being, to the best of my knowledge and belief, entirely new and never before used within that part of His said Majesty's United Kingdom of Great Britain and Ireland called England, His said dominion of Wales, or town of Berwick-upon-Tweed, I do hereby declare this to be my specification of the same, and that I do verily believe that this my said specification doth comply, in all respects, fully and without reserve or disguise, with the proviso in the said hereinbefore in part recited letters patent contained; whereof I do hereby claim to maintain exclusive right and privilege to my said invention. In witness whereof, &c. Enrolled June 23, 1835.

BUFFALO, Nov. 5th.—NINE STEAMBOATS, and a large number of schooners, left this port on Tuesday, for the West, heavily laden. The tide of emigration, and flood of merchandise to the West, is unprecedented, and scarcely shows a diminution from the thousands, which passed through our city at the opening of navigation, last spring.

A SHEET IRON STEAMBOAT has been placed on the Erie Canal, and has succeeded admirably, so far as the experiment has been tried. She is propelled at the rate of six miles an hour without causing any injury to the Canal. [Courier and Enq.]

AGRICULTURE, &c.

Extract of a Letter from our Correspondent, A. W., dated,

Lansingburgh, 27th August.

Business calling me to New-York, about the middle of June last, and not having completed it on the first of July, and finding, from appearances, that little could be done, till after the celebration of the Fourth of July, I took the opportunity to make an excursion of two or three days to Philadelphia.

Stepping on board the morning six o'clock boat, I was enabled, by a rapid, but pleasing and changeful travel, by land and water, to reach Philadelphia in time for dinner at the United States Hotel. Some people live to eat, and others eat to live; and as I belong to the latter class, I did not possess my eye on the preparations for dinner in the spirit of a gourmand. I merely noticed the profusion of viands on the table, but I could not help, being a stranger, observing the superiority in good, wholesome, well-baked bread, fresh vegetables, and choice butter.

When dinner was over, I took a walk to the Navy Yard. The first impulse was, of course, to find something new, and worthy of inspection. With very little search, I found an object which answered the purpose. This was the new national ship, *Pennsylvania*, of 140 guns, now on the stocks. It was my good fortune to meet with a gentleman who was probably an officer of some grade, at any rate, I think he was worthy to be one, at least as far as politeness is concerned. He showed me, with an apparent feeling of national pride, every thing connected with it, and answered all my questions, not only with a thorough knowledge of the subject, but with seemingly as much pleasure as I could possibly take in asking them. I took minutes from some of his answers, and among the principal ones I find the extreme length of the ship is 217 feet, its greatest breadth 59 feet, and its depth, amidships, 51 feet. But as naval architecture is not my object, though I took several other notes, I will not tax the printer nor the reader with them. As I had another use for the remaining part of the afternoon, I took a rather painful leave of my interesting guide, reflecting, at the same time, with what wonderful accuracy the sweet and bitter of life are balanced; for the extreme pleasure I took with this momentary acquaintance, was exactly balanced by the pain of parting.

I now steered my course to Washington Square, a fine specimen of taste and liberality. It is situated in the southeasterly part of the city, and I was told that it contains about eight acres. It is beautifully laid out, and planted with ornamental trees, selected from various parts of the world, but, as they should be, mostly natives of our own continent; for certainly, while the Eastern Continent can boast of its ancient ruins, its broken columns, and relics of the

arts of other days, now trodden under foot, and crumbling into dust, the proper field, in which to search for the beauties of nature, and to explore her inmost recesses, will be found in the forests of America. The sun was now descending far in the west, and its light striking in bold relief on the trees and flowers, and reflected from different shades of green, presented a scene beautiful beyond description.

The city contains several other spacious and beautiful squares, but I had not time to visit them. Why is it that our other cities and villages are destitute of these delightful appendages? No reason can be given, but that they were laid out, as we know was the case in the early settlement in our own State, without any plan at all, or the ground has been seized on, and sold in speculation, to gratify the sordid views of forestallers.

When thirst of gold enslaves the mind,
And selfish views alone bear away;

every nobler feeling—every spark of laudable national pride vanishes, as colors vanish when light is withdrawn.

The dusk of evening was closing around me, and I returned to my lodgings. The day's exercise had given me an appetite for a wholesome supper, and a night of quiet repose, both of which were duly enjoyed.

At daylight next morning, I took a stroll through the market, and was soon convinced that its celebrity was justly merited. The building and accommodations were in themselves highly worthy of notice. Stretched nearly a mile in length, through the middle of a wide avenue, which is a great thoroughfare through the centre of the city, from one river to the other; and forming, on each side of it, a street of convenient width. Its plan, for beauty and convenience, could scarcely be improved. But to give an idea of the contents of this market, all I can say, from so short an inspection is, it contains samples of every thing which ever was, or can be exhibited for sale in a public market. The meats in general were fine, but the mutton, in particular, surpassed any display of that article I have ever seen. The butter was exhibited in a style of neatness and taste, which would draw tears of pleasure in the eyes of an Epicure. But it was not these more prominent articles only which attracted attention; every thing the eye could recognize, animal, vegetable, mineral, or fossil—natural or artificial, was there, and all so tastefully arranged, that the smallest article seemed to say, examine me too; while the choice fruits, flowers, and fresh vegetables, whispered, with more conscious dignity, here you may see the effect of liberal premiums from the Pennsylvania Horticultural Society.

After breakfast, taking all the rest of the day before me, I set out to view the gardens, water-works, &c.; and, taking a hackney coach, my first course was steered to Bartram's Garden and Nursery. These are situated on the west bank of the Schuyl-

kill, about three miles from the city, and are now owned, and judiciously managed, by Mr. Robert Carr, the son-in-law of Mr. Bartram, who is well known as a botanist and naturalist; and his very superior collection of North American trees and plants, show him in the very pleasing light of being truly national.

On a stone over one entrance to the house, I noticed the date of 1781, rather roughly but plainly cut. On inquiring, I found that this front of the mansion was built at that period; and another inscription, purporting to have been cut 39 years afterwards, reads and spells thus:

"It is god alone almyty lord
The holy one by me adored.

"JOHN BARTRAM, 1770."

The garden, it is said, was commenced about four years before the date of the first inscription, and is now about 114 years old. I was informed that Mr. Bartram and his son must have been about 100 years in collecting this valuable legacy they have left to the Flora of North America. A small strip of land, containing less than seven acres, was said to contain rising 2,000 species, natives of our own country. But I found also a no less rich treat in examining the exotics, which were very numerous and valuable. The collection of Camillas and tropical plants, surpassed any thing of the kind I had ever seen; among the latter were some fine specimens of *Zamia*, *Ficus*, *Euphorbia*, *Heterophylla*, &c. The grounds were tastefully laid out, and besides the amazing variety of smaller trees and shrubs, arranged, apparently, to the best possible advantage, the effect is still heightened by the grandeur of several trees, majestically towering above, and overspreading the rest: among which are a Norway Spruce, at least 80 feet high; a Cypress, (*Cupressus disticha*), 25 feet 6 inches in circumference, and 114 feet high; native *Magnolias*, Flowering *Acacias*, &c. And beneath this lofty display of variegated foliage, on proper fixtures, I noticed a magnificent Sago Palm, the circumference of its foliage 24 feet, and the stem 3½ feet. But it is vain to attempt enumeration, when the bare catalogue would four times exceed my limits.

Between this beautiful and magnificent grove and the Schuylkill, are several fishponds, with gold and silver fish and aquatic plants; and still farther on, towards the river, is an ancient sider-mill, cut, with great labor, out of the solid rock, near which was a small plot of Gama grass. From the numerous accounts of the productiveness of this grass at the south, particularly in North and South Carolina, it must be found a good substitute for clover, herds grass, &c. &c., and its introduction of great importance to that section of our republic. But from an examination with some of it, raised in my garden, and also the opinion of Mr. Carr, who has had it on his grounds a dozen years, I am led to con-

clude it will be of no great value to our northern farmers. The vines and fruit nurseries were extensive, and appeared in perfect keeping with the rest of this splendid establishment.

Nor was this display of nature more pleasing than the polite attention of its worthy proprietor, who not only answered, with apparent pleasure, all my questions, which, to say the least, extended to the utmost bounds of civility, but showed me many deeply interesting curiosities, and, among other things, his extensive and valuable library, principally on Agriculture, Horticulture, and Botany, which seemed to say,

"Come, let me make a sunny realm around thee,
Of thought and beauty! Here are books and flowers."

Leaving this place with reluctance, I steered my course to Lemon Hill, which is the name very appropriately given to the pleasure grounds of Mr. Henry Pratt. It is situated in the immediate vicinity of the grand Water-works, and is said to contain over twenty acres. Nature seems to have displayed her utmost power in modelling this charming situation, leaving but little for art to accomplish, to render it one of the most delightful spots on earth; and art, with such a bold and lovely model, appears to have availed herself of every advantage, to beautify and complete what Nature had so happily begun.

The mansion is placed on an eminence, commanding a delightful view of the Schuylkill, just at that point where every thing is in pleasant motion. The busy neighborhood of Fairmount, the interesting views of this fine landscape, are fully kept before the eye, by gently winding paths, through a rich and well kept grass plot; every turn producing some new and pleasing effect. The foot does not tread in the same path which the eye has gone over before. The groups of lofty trees, so advantageously placed on the hill, near the house, with their deep green foliage, form a beautiful contrast with those of more light and stunted growth, situated in front of the ground bordering on the water; thereby adding much to the effect, by seeming to remove the perspective to the farthest extremity of the picture. The numerous well stocked fish-ponds, with their islands and aquatic productions, summer-houses, gardens, porters' and laborers' lodges, all well placed for picturesque effect; and the beautiful little grotto, thrown so chastely over the mineral spring, all conspire to complete the beauty and variety, without, in the least, marring the productions of nature, so very interesting in the immediate vicinity. The spacious green hot houses, with their numerous and lovely tenants, spread far and wide in every direction, making the whole garden a repository of flowers and fragrances, certainly stand prominent in their kind; and as we migrate along the well kept gravel walks, so richly adorned by tree, shrub, and plant, of every shade and shape, and from every

climate, intermixed with the inmates of the green house, the shaddock, orange, citron, lime, the fig tree, laden with inviting fruit; the sugar cane, pepper tree, banana, guava, and plantain; the cheremalla, mango, and splendid cactus; a reflecting mind must be lost in admiration, not knowing which most to admire, the amazing variety produced by nature, or the wealth, liberality, and taste, which have planted and sustain them there.

As I cast a valedictory glance at this enchanting scenery, the power of association brought forcibly to my mind the slighted and neglected talents of my worthy friend Perrine, whose whole soul is compounded of botanical science and horticultural taste. Had the magnanimity of our wise National Legislature been sufficient to have granted his petition, for a few acres of wild, and, probably for a long time to come, worthless land, on the peninsula of Florida, and the little pecuniary aid, to which every sensible man in the nation would have been proud of contributing, to enable him to establish a national repository, for the introduction and acclimation of exotic plants, he would ere now have exhibited all the beauties and rich treasures of the vegetable world, flourishing in high exuberance, without the expensive aid of artificial heat. One half of the amount, which the patriotic and noble spirited proprietor of this establishment has expended, from his own purse, would have accomplished his object in a manner highly creditable to the nation, and profitable to the present and future generations. But public bodies, like corporate bodies, have no souls.

But I found the plan of my pleasing excursion, as I now find that of my letter, extended beyond the bounds to which circumstances limit its accomplishment; and I had then, as I have now, to quit the subject almost at the beginning. You know my attachment to the subject of horticulture, and you know there is nothing else so pleasing to me, except the cultivation of the human mind. But here I had both the subjects before me; one, in the situation I have so faintly described, and the other, in the more than pleasing urbanity and politeness of its proprietor, either of which, to say the least, I never saw excelled. I have ever been of the opinion, that a spirit to relish, and taste to direct horticultural improvements, is commensurately an evidence of an amiable and philanthropic disposition; and, if proof were wanting, I found it amply displayed, in the kind attention, which, as a stranger, I received, not only from Mr. Pratt, but from his principal gardener.

The day was now far spent, and I had only time to take a slight glance at the water-works. As I am not familiar with the subject of mechanics, and if I were, I had now no time for

Examining with care each wondrous matter
That brought up water."

I can only say, of the whole, it is a stupendous establishment. But there was a peculiar charm to me in the reservoir on the hill, consisting of three beautiful sheets of water, and a fourth in operation.

The time I had allotted for my stay was nearly exhausted, and I had examined but two of the gardens, of which I had procured a long list. I had promised myself the pleasure of visiting Mr. Parker's Botanic Garden, Mr. McArran's Botanic Garden and Nursery, Mr. Hibbert's Nursery, Messrs. Landreth's Nursery, and others of equal celebrity; but the imperious call of business compelled me to forego the pleasure, and it being now Saturday night, I returned to my lodgings.

On Sunday morning I attended Church. But in the afternoon, as an exercise not altogether unappropriate for the day, I visited Rolinsan Rural Cemetery. This is a place which, though no person of common sense could leisurely enter with feelings of levity, yet no reflecting mind could spend a few moments' contemplation in it, without experiencing emotions of exquisitely pleasing satisfaction, though still partaking of a sober seriousness nearly bordering on melancholy.

This place contains 2½ acres. It was commenced in 1827, and now contains between 4 and 5000 interments, and about 100 vaults. When it was first commenced a lot about 10 by 8 feet sold for \$40, but will now command from \$90 to \$100. An adult stranger can be buried for \$8, and a child for \$4, including opening and closing the grave.

The place is inclosed on three sides with a handsome stone wall, and the front side with an iron railing. On the right hand of the entrance is a dwelling for the attendants to the concern, where they are at all times to be found. On the left is a green house, with rooms over it for meetings of the lot-holders and managers.

The plants in the green house are for the purpose of ornamenting graves, at proper seasons; and hardy flowers in great variety are growing, tastefully and liberally scattered over the ground.

Among the various and numerous monuments, some were of peculiar elegance. I noticed one, on which the inscription stated that it was executed in Italy. It was of exquisite material and workmanship, and I could not help admiring the skill in the fine arts peculiar to that country; but looking a little farther, I was most agreeably astonished to find one executed in Philadelphia, quite surpassing it; I could not but indulge some feelings of pride in reflecting on the amazing improvement since 30 years ago, when similar monuments were ornamented with an awful staring death's head and marrow bones.

Among the interments I noticed that of a Chinese, aged 37, buried in 1830. Part of

the inscription was in the Chinese character.

I could not view this interesting spot without painful reflections, on what appears to me the unpardonable want of similar institutions in the great and opulent State in which I live. Can it be from a want of social affection in the people in this state, or can it be from feelings of parsimony, that we grudge the expense, that we suffer our friends to be put under the turf to-day, and the place of their rest broken up and perhaps appropriated to some other use to-morrow? The Corporation of your city are selected for their supposed fitness, and are duly authorised and empowered to manage and direct all affairs of public interest; and is it not a duty they owe to protect the public feelings, from what must be daily suffered by persons who cherish with tender affection the memory of their deceased friend, when they see the place of their remains turned into a common highway, or perhaps dug up, and their bones scattered and trodden into dust?

This is naturally a public concern; but if it does not soon receive the attention the importance of the case demands, it will pass into the hands of private speculation, from which it would be difficult to return it to its proper channel, and which would place it in a state truly to be deplored by every person whose heart is warmed by a spark of philanthropy or patriotism. But to return.

On Monday morning I left Philadelphia, and I can truly say, I never spent three days in more pleasing gratification. Getting on board the steambomb, I lost much of the beauty of the scenery on the way to Trenton, by accidentally taking up part of a number which I had not seen before, of a new and beautiful little periodical entitled the *Zodiac*: it so completely engrossed my attention, that I saw nothing else till I had finished perusing it, just as we arrived at Trenton.

As natural history is in some measure my hobby, of course my attention was particularly occupied by the *Naturalist's* book, in which I was confident I recognized the pen of my esteemed friend Doct. —, and I determined to patronize the *Zodiac* at my return. A. W.

To our Agriculturalists. By W. P. [For the New-York Farmer, and American Gardener's Magazine.]

Foreigners, the least conversant with the grades of society in Europe, are much surprised at the low social estimation of the agriculturalists of this country. In every part of the civilized world, excepting this, they are ranked among the foremost in public opinion; here, every petty shop-keeper is considered their superior. There are many exceptions to this rule, but as a class it will be admitted to be correct.

There must be something radically wrong in the self-estimation of our farmers, or such an inverted state of their esteemed

condition could not exist. To endeavor to induce them to make a fair estimate of themselves, is the object of this essay. I will attempt to show them why, as a class, they ought to rank at least as high as any other, and then point out to them why they now rank so much lower in public opinion than those of the same class in other countries. I have no wish to increase their pride, for man has nothing to be proud of; besides, pride, as the term is generally understood, is a mean, groveling quality, exactly adverse to a fair appreciation of ourselves in our social capacity.

The fact, that the cultivators of the soil are the primary producers of the whole wealth of a country, is of itself sufficient proof of their superiority as a class. This fact will no doubt be denied by many of our dealers and shopmen, who are incapable of tracing effects to causes, and who, wrapt in self-conceit, have assumed a station that does not belong to them. The fact, however, can be easily demonstrated, which I shall endeavor to do in as succinct and plain a manner as possible.

We have about two millions of families, including farm laborers, employed in agricultural and horticultural pursuits. This estimate may be considered excessive, for there may be less than two thirds of our whole population engaged in cultivating the soil; but however much beyond the reality, it alters the conclusion to be drawn from the premises only in diminishing the amount put in circulation annually, not in its inductive facts. We will suppose that the land under cultivation affords no surplus beyond the support, in the first necessities of life, to those employed in cultivating it. It is evident, in this case, that the farmers having nothing to sell, would be unable to purchase any thing; that every individual of our population would be compelled to cultivate the soil to obtain an existence, for there would be neither sellers nor purchasers. We will further suppose that the average surplus of each family, beyond their own existence, to be fifty dollars per annum, and that the whole of this were wanting to supply agricultural instruments. The amount to be expended would now be one hundred millions of dollars per annum, which would put into operation a given number of workmen in wood and iron, as well as a small number of dealers to facilitate the receiving and executing of orders. Trade has now commenced, but never could have started but for the farmers' surplus. If the average surplus of each agricultural family should be one thousand dollars, an estimate probably very near the truth, and the greater portion of this surplus be expended in the usual variety of objects which go to promote the comfort and luxury of families, it is evident, that in addition to the workers in wood and iron, there would be put in operation builders, cabinet makers, clothiers, and a thousand other sources of industry.

If, when these agents have accumulated capital, and by this means extended their operations so as to meet the increasing demand of the agriculturalists, shall pride themselves on a factitious superiority, forgetting in toto the source of their wealth,

ought they not to be pitied rather than admired by the intelligent part of community?

The amount put in circulation by our farmers, on the last estimate, would be two thousand millions of dollars per annum, and the number of workmen and agents employed to execute orders would be vastly increased. The whole capital accumulated by the country is exactly the amount saved out of this surplus, by the farmers, and the agents and workmen employed by them.

That our farmers should have a surplus of two thousand millions of dollars per annum, over and above feeding their families, would appear, at first sight, to be much overrated; but after deducting four hundred millions for the wages of workmen, and three hundred for buying and planting new farms, building houses and barns, buying new instruments of agriculture and repairing old ones, we shall find that it leaves but about eighty-five dollars per head for our whole population for clothing, furnishing, and other necessities and comforts sought by those who can afford to purchase them. It should also be recollected that five millions of our population derive all their necessities, comforts, and luxuries, from this surplus, and that the annual accumulation of capital is a product of that excess.

So long as there is land in a country of first and second rate qualities, for the creation of new farms, so long can this primary source of wealth be extended. There is also ample room in this country for a great extension from the land now under cultivation, as at least one third more product could be raised from it than is now produced; but as this consummation cannot possibly take place until interest of money and wages are lower, or new labor saving machines shall be invented, we must hope rather than expect to see it realized in our day.

Manufacturers, dealers, and shopmen, and, in fact, all who are not laboring on farms, derive their whole support from this agricultural surplus. The capital, accumulated by those agents who buy and sell, whether merchants, shopkeepers, or dealers in any commodity, being savings from the varied circulation of said product, the farmers ought surely to be entitled to their highest consideration.

This surplus is by no means stationary, and the prosperity of some years, as well as the depression of others, are the results, in the greater number of instances, of the greater or smaller surpluses. If the surplus one year should be twelve hundred millions of dollars, another seventeen hundred millions, and another twenty-two hundred, it would be easy to account for the elevations and depressions in the business community of the country. In fact, the variations which annually take place in these surpluses is the only true barometer of a country's prosperity.

When merchants, manufacturers, and dealers in a country are operating with large masses of capital, the accumulation of many years, concentrated in cities and towns, they lose sight altogether of the original source of wealth. And where the right of primogeniture does not exist, as in this country, to enable agriculturalists to

concentrate their property in the heads of families, the other classes will, apparently, be much richer, and claim a superiority. Their riches, however, is only *apparent*; for the far greater portion of wealth in every country must ever remain with the owners of the soil. Much of the capital wielded by dealers is altogether fictitious, being predicated on credit, and a considerable share of their more solid capital is borrowed from the savings of property owners.

Let me ask our farmers why it is, with so many solid claims to superiority, that as a class they tacitly acknowledge themselves inferior to those who are their dependents? I need bring forward but one circumstance to prove the fact. When our farmers have a son they consider more than usually talented, do they not bestow a better education on him, with a view to settle him with some merchant or dealer in our cities or towns, and this with the fearful odds against them of his being ruined in pocket, mind, and body, as is the fatal issue with three fourths of the whole number? This is plainly acknowledging that it requires more talent and a better education to make a dealer and shopman than it does to make a farmer, and this depreciated view of their own condition is the main cause of their being undervalued by the community in general.

There is no business or profession, in the whole circle of human pursuits, that requires more solid talent to execute well than that of cultivating the soil, and there is no class of our citizens whose education is so generally neglected. It is too generally considered that to learn to plough, harrow, sow, drill, and plant; to harvest well when crops are ripe, and sell when ready for market, are all the qualities necessary for a farmer, with the addition of a little cyphering and writing. These, it is true, are necessary qualifications for every man who has the management of a farm; but they are by no means all that are requisite to make the pursuit yield its greatest degree of profit, and sufficiently interesting to attach the most enterprising and talented of its sons to the calling. If the owners of the soil are desirous of acquiring wealth, and at the same time that degree of respectability which will make them respect themselves as a class, they must acquire far more knowledge than the mere drudgery of a farm. They should know practically how to perform every branch of labor, in order to understand when their workmen do them justice; but the pursuit must indeed be miserably unproductive and uninviting if the owner of the estate cannot make more by systematizing his business, and superintending the carrying out of the system, than by personal labor. They should understand mensuration sufficiently to be able to calculate the quantity of land after the chain has been run; the advantages of draining, with the most effective and most economical way of operating; the properties of different soils, including a knowledge of what seeds and plants are most productive in each, with a critical judgment of the manures or composts best adapted to different qualities of soil; sufficient of botany to enable them to judge of

seeds, plants, and fruit trees, with the best mode of producing them in the greatest abundance and in the highest degree of perfection.

It will not be denied that to acquire such knowledge would be highly advantageous to our agriculturalists, and not only to them as a class, but to the general community, for the average of the farming surplus would become so much larger as to materially benefit the whole mass. But, say they, how is this knowledge to be acquired? neither our common schools, academies, nor colleges, give any such instruction, therefore we have not the means of acquiring it. This objection is too true, and is a truth highly disgraceful to the enlightened age in which we live. The means of acquiring an agricultural education ought immediately to be put within the reach of this our most valuable class of citizens. In every college there are professorships for physic, law, and divinity, but none for that class on which our prosperity and very existence depends. Agricultural schools, academies, and colleges, with experimental farms attached to each, and with such professors as are requisite for the scientific departments, cannot be too soon established. The expense of such establishments would be repaid a hundred fold during the existence of the rising generation. A farmer should learn arithmetic, mensuration, agricultural chemistry, mineralogy, geology, and the physiology of seeds, plants, trees, and animals. A certain portion of his time should be appropriated to acquiring scientific knowledge, the remainder to practical operations of scientific principles. The expense of such an education should be as moderate as possible, particularly in the commencement so low, as to induce those who have but little to spare for education, to send their sons to such establishments, in preference to any others, on the score of expense alone.

With such an education, our farmers, instead of looking to other pursuits for their most talented sons, would feel it a degradation to place them any where but on the soil. Their sons, too, finding agriculture the most exalted of human employments, would be proud of their calling. That time of the year in which they are most unemployed, in place of hanging heavy on their hands, would be appropriated to improving their minds. They would as a class stand boldly prominent in the front ranks of society, and instead of any feeling of inferiority, as is now too much the case, would be able justly to consider themselves on a perfect equality with the best of any class; and that ignorant flippancy they now so much admire in others, would be found hollow and disgustingly nauseous. Politically they would become truly independent, and in place of being the tools of designing political knaves, they would have intelligence to enable them to think justly on every political subject, and manhood to back their opinion. But the most exalted of all considerations would be the effect on their moral condition individually. They would not only be able to appreciate themselves and their pursuit fairly, as a class of the human family, but in the investigation of the wonderful arrangement in the order

of nature, they would feel that man was a being of exceedingly limited powers, that his utmost scope was as nothing in the presence of Him whose infinite mind had arranged, and whose infinite power had executed the wonderful works of creation. In possession of a physiological knowledge of the construction of seeds, plants, and trees, with the adaptation of soils to their growth and maturity, their contemplations would open to them a nearer approximation to the Divine Mind, and whether in the field or their chambers, they would enjoy this greatest and most durable of all sources of human happiness, that they were never "less alone than when alone." W. P.

W. P. will not leave the subject, we trust, which he seems so well to understand, with a single communication. Our columns will always be open to such communications.—[PROF. N. Y. F.]

To the Honorable Louis McLane, Secretary of State of the U. S. A., Washington City.

CONSULATE U. S. A., CAMPECHE, }
February 1st, 1834. }

Sir,—The subscriber now presents a brief recapitulation of some facts and arguments, in favor of the *immediate* domestication of Tropical Plants, in the United States. He wishes thus to show, not merely that the cultivation of tropical staples is *practicable* in our Territory,—but also, that it is absolutely *necessary* for home consumption,—is positively *profitable* for the foreign market, and is highly *desirable*, in other respects, to promote the peace and prosperity of the Union.

The *practicability* of cultivating tropical productions in general, he has manifested with the facts, that the peculiar climate of the tropics extends beyond the astronomical boundary, several degrees north, into our peninsular territory; and that the best plants of the tropics are actually flourishing in the southern portion of that Peninsula, at Cape Florida. He has not only shown that, below 28°, Southern Florida enjoys the dry warm winter—the wet refreshing summer—the breeze by day from the sea, and by night from the land,—and the trade winds from the east, which are *common* to tropical countries in general; but he has also proved, by its narrow level surface stretching southwardly,—by the hot ocean river running northwardly, along its eastern shores,—and by the greater steadiness of the westwardly wind in those latitudes, that Tropical Florida is even *superior* to the elevated Islands of the West Indies, and to the broad Peninsula of Yucatan, in that *uniformity of temperature*, which is most favorable for vegetable growths, animal health, and physical enjoyment. He has moreover not merely shown that in this superior climate of the tropics, are already growing various common vegetables of the tropics, but he has further announced the flourishing condition of the tenderest, and yet most productive plants of the torrid zone,—the Banana plant, and the Cocoa palm, which are universally pronounced to be the greatest blessings of Providence to man; and

northern Atlantic States cannot well compensate themselves, for the superior productiveness of the western States in corn and wheat, by cultivating the vine and the mulberry; and that hence many are forced to become manufacturers and mariners; but it is very certain that the planters of the warm southern Atlantic States can more than compensate themselves, for the superior productiveness of the southwestern States in rice, tobacco and cotton, by cultivating the cassave jatropha, the cochineal cactus, and the henequen agave; and that the sugar palm on the poorest soils of Georgia, will be more profitable than the sugar cane on the richest loams of Louisiana. As we possess all the soils and climate, with the best people and institutions of the world, we have neither the necessity, nor the desire, nor the power of European agriculturalists to force the production of similar plants, in inferior climates and on inferior soils. On the contrary, an American cultivator must select the naturally most productive soil and climate for a given plant, or the naturally most productive plant for a given climate and soil. Hitherto our agriculturalists have preferred changing the place of location to varying the object of cultivation; and hence the fertile valley of the Ohio and Mississippi furnishes the cheapest and most abundant supply of our present staples, both for the domestic and foreign market. Although the only formidable rivals of our western and southwestern cultivators, *are themselves*, they have already reached the extreme of over production for foreign consumption. Our southern planters, on their inferior soils, cannot hence any longer continue the profitable production of similar staples: and by augmenting the number and capital of southwestern planters, they only injure the latter without benefiting themselves. They must, therefore, seek *new staples* of cultivation in the *naturally most productive plants for their reputed barren soils*. Rich and poor, fertile and sterile, are only *relative epithets* in their application to agriculture; and hence the poorest soils for rice and cotton, may be the richest soils for cassave and henequen, and the most sterile soils for the tobacco plant and the sugar cane, may be the most fertile soils for the cochineal cactus and the sugar palm. "Palm sugar, not cane sugar, supplies the great consumption of the people of the East Indies, in the poorer and more mountainous countries." "As the palms are the produce of poor soils, and the labor is so small and the quantity of saccharine matter from them so great, that palm sugar is produced at about *half the cost* of cane sugar, of the same degree of purity,—that is, for something less than one penny per pound."

Our present tropical staples require a costly, troublesome cultivation; demand a thick vegetable mould; and impoverish the richest soils in which they are planted.

But the future tropical staples of the south will need only a cheap, simple cultivation; will content themselves with bare sandy earth; and will actually enrich the poorest surfaces on which they spontaneously grow. And as our tropical

rice, tobacco, and cotton, on equal soils, are absolutely more productive than in their native climates, we may confidently anticipate that our southern States will enjoy an equal superiority in the culture of tropical cassave, cochineal, and henequen.

Reciprocal prosperity being thus restored, our southern brethren will cease to calculate the value of the Union.

The possibility of employing the voluntary labor of our white citizens in tropical agriculture, becomes especially important, from the consideration, that the United States embrace the only portion of the world in which the best laborers and the best institutions can be combined, in the cultivation of tropical productions.

The neighboring mis-called Republics contain four times as many Indian as white citizens; the latter are the least productive variety of the white race, and their governments are mere military anachies. The neighboring distracted Colonies contain a majority of negroes, who, when freed, will expel the whites; and thenceforward, like their Haytian predecessors, they will be productive alone in the propagation of their species. Tropical Asia and Africa cannot endure white laborers, nor free institutions; and Europe has not any tropical climate into which her white laborers can extend.—But our Southern States contain already a respectable number of white laborers; and in Florida they will probably outnumber the negro laborers. The slave States, in their own time and manner, will eventually emancipate and transport all their colored laborers; and we shall then present to the world, the only possible example of tropical staples created by the most productive species of mankind, under the most favorable form of government on earth.

The additional considerations derived from the climate and position of South Florida, embrace the retention within our borders of those fellow citizens who annually leave it to locate themselves or to perish in foreign countries. Texas and Cuba are constantly attracting our agriculturalists, who soon sorrow for the happy institutions of their Fatherland, and who will return when the existence of a superior tropical climate in Southern Florida shall become generally known.

The south of France and of Italy have hitherto invited our invalids to perish in the great vicissitudes of their changeable climates, but hereafter they will seek for health in the unrivaled uniformity of temperature, and advantages of position, presented by the tropical extremity of our Peninsula.

Our moral obligations to improve the condition of our country are based on the unparalleled combination of advantages with which it has been favored by Providence. With the most favorable form of government, and the most productive varieties of the best species of the human race, we have all the soils and climates of the earth; and the consequent ability to cultivate most profitably all the most valuable varieties of the best species of the vegetable race. It hence becomes our

duty to combine within our territory the creation of the greatest possible amount and variety of cultivated vegetable products for the physical enjoyment, not merely of our own citizens, but also of the inhabitants of all extra-tropical countries, and probably even of the natives of the torrid zone itself. It has been demonstrated, that with a natural equality of soil in even our extra-tropical climates, our slave labor can create cultivated tropical products much more abundantly and cheaply than either the free or slave labor of the colored natives of inter-tropical countries; that many articles of tropical, culture instead of deteriorating, become more productive beyond their native zone; that we may ultimately apply the still more productive free labor of our white citizens to the cultivation of tropical staples; and that such laborers, under such institutions, cannot be devoted to tropical agriculture in any other part of the world. The great equatorial current of the ocean, after cutting off New-Holland from Asia, wearing its way round southern Africa, and being reflected by tropical America, brings to our shores, under the name of the Gulf Stream, the accumulated heat of the torrid zone to encourage our cultivation of the valuable vegetables of that unproducing belt of the globe. The white population on its borders will soon be forced to embark on its bosom for the United States. Once entirely abandoned by the skill and capital of the white species, the colored species will not furnish an adequate quantity of even *uncultivated* products for extra-tropical consumption. Even logwood, mahogany, and other wild materials for the arts, are diminishing every day. The Peruvian bark, sarsaparilla, and other spontaneous medicines, are also vanishing, and noxious substitutes are exported to kill, instead of cure, our fellow citizens. If, therefore, we do not *speedily* naturalize *all* useful tropical plants in tropical Florida, they will soon disappear from the surface of the world.

I have the honor to be, Sir,
Your obedient servant,
HENRY PERRINE.

To the Honorable Louis McLane, Secretary of State of the U. S. A., Washington City.

CONSULATE U. S. A., CAMPECHE,
February 30th, 1833.

Sir,—As an appendix to his communication of the 1st inst., the subscriber avails himself of the only statistical data in his power to *demonstrate* the greatly superior productiveness of slave labor in the United States over slave labor in the West Indies.

British West India Colonies, 692,700 slaves, 427,392,000 sugar, and 19,769,500 coffee exported.

Spanish Island of Cuba, 286,942 slaves, 162,703,425 sugar, and 42,971,625 coffee exported.

Louisiana, 109,631 slaves, 70,000,000 sugar, and 72,000,000 cotton exported.

Now, admitting for a moment that the culture of cotton is merely equal to the culture of sugar and coffee, as 109,631 slaves produce 142 millions of sugar and cotton in Louisiana, in the same proportion, 692,700 should produce

of sugar and coffee in the British West India Islands: and in the same manner, 286,942 slaves should produce 371 millions of sugar and coffee in Cuba.

But the former do produce only 447 millions, and the latter only 205 millions, together 692 millions, instead of the 1268 millions which they should produce in proportion to Louisiana. But the truth is, that the relative value of labor of the production of cotton is at least fifty per cent. more than the value or labor of the production either of sugar or coffee; and hence the combined 979,642 slaves of British W. I. Islands and of Cuba, should yield 1590 millions! instead of 672 millions of sugar and coffee, every year, for exportation; or in other words, with an equal number of slaves, Louisiana would supply the consumption of the world!!

To obtain the details of the relative productiveness of a single negro, the following estimates are presented of a sugar plantation in Louisiana, and of a sugar plantation in Cuba, each assumed to yield annually 400,000 pounds of sugar.

The first are contained in the report of the Agricultural Committee of Baton Rouge to the Secretary of the Treasury, against the reduction of duties on imported sugar, and must hence be presumed to present the most unfavorable aspect of the cultivation of sugar in Louisiana. The second is taken from pages 108-9 of the Statistical History of Cuba, by Dr. Ramon de la Sagra, who presents the most favorable aspect of the cultivation in general of the staples of that Island. The first diminishes the average product of an acre in Louisiana, to 1000 pounds of sugar. The second exaggerates the average product of an acre in Cuba, to 2038 pounds of sugar,—although he had previously admitted that Humboldt was correct in limiting it to 1116 pounds the acre, or 1500 arrobas the caballeria.

The Louisiana plantation is stated 1200 acres= \$50,000; improvements= \$50,000; negroes 80, at \$600 each,= \$48,000; total 148,000 dollars.

The Cuba plantation is allowed only 30 caballerias, or 981 acres,= \$54,000; improvements= \$65,490; negroes, 90, at \$400 each,= \$36,000; total 155,490 dollars.

Of the Louisiana plantation, one third, or 400 acres, is cultivated—giving to each negro 5 acres, and 5000 pounds product in sugar.

Of the Cuba plantation, one sixth, or 196½ acres, is cultivated, giving to each negro 2½ acres, and 444½ pounds product in sugar, i. e. 555½ pounds less.

The proportion of the annual expenses of the whole plantation is, for the negro in Louisiana, only 105 dollars,—while for the negro in Cuba, it ascends to 151½ dollars; i. e. 46½ dollars more.

Hence, although the slave in Cuba may cost 50 per cent. less, and the ground he works may produce upwards of 100 per cent. more, the slave in Louisiana, both positively in sugar and negatively in money, may gain for his master upwards of 100 per cent. more!!

Without reference to the price of the sugar, or of the coffee, or of the cotton, it may, in the same way, be shown, that

on inferior soils even our slave labor will create much greater quantities at much less expense!! But when we admit the soil and climate to be equally productive, how infinitely superior are the products of American skill, capital and economy, combined; and when we still further contemplate the greater productiveness of most articles of tropical culture, acclimated within our territory, we may safely anticipate that within twenty years, the southernmost sections of our Union will yield every tropical staple for the consumption of even the torrid zone itself.

I have the honor to be, very respectfully,
sir, your humble and ob't serv't,

HENRY PERRINE.

RAILROAD IRON.

Sealed Proposals will be received at the Office of the Engineer of the Georgia Railroad, until the 30th of November next, for delivering, at the city of Savannah or Charleston, as soon thereafter as practicable, 1500 tons of Railroad Iron, in bars 2½ inches wide by 3/4ths of an inch thick, and from 14 to 15 feet long—with the ends scarfed at an angle of 45 deg. The bars must be pierced with holes 5-16ths of an inch in diameter, counter sunk, and 15 or 16 inches apart from centre to centre.

J. EDGAR THOMSON,
Civil Engineer.

Engineer's Office, Augusta, Geo. }
October 26th, 1835. } 46-32.

JAMES RIVER AND KANAWHA CANAL, VIRGINIA.

NOTICE TO CONTRACTORS.

THE Board of Directors of the James River and Kanawha Company, having resolved to place under contract seventy-three miles of the line of their improvement, viz: All that part extending from the water works dam at Lynchburg, to the end of section No. 118, in the village of Scottsville, and the thirteen miles between the Seven-Island Falls, and the village of Columbia—

Sealed proposals will be received by the Secretary of the Company, at their office in the city of Richmond, from November 18th, to December 7th, inclusive, for all the excavation, embankment and walling in that distance.

The portion of the line which it is intended to let, comprises many difficult points, and a considerable amount of river walling and blasting.

The line will be prepared for examination by the 18th of November; after which date, up to the time of letting, all useful information will be given, and the maps and profiles exhibited to contractors, on application being made to either of the Principal Assistant Engineers, Simon W. Wright, in the village of Cartersville, Daniel Livermore, a Scottsville, and Charles Elliot, Jr., in the town of Lynchburg.

It is expected that the proposals of contractors who are not personally known to either of the Assistant Engineers, will be accompanied by proper testimonials of character and experience, from the Engineers of other works on which they have been engaged.

The seals of the proposals will be broken on the 10th of December, and the acceptance of the propositions by the Board, made known as soon after, as will be practicable. By order of the President and Directors

W. B. CHITTENDEN, Secretary.

Note—This advertisement is not intended to embrace the Locks, Dams, Culverts, or any other of the works of art—Prior to the letting of which, as well as of the residue of the excavation and embankment between Scottsville and Maiden Adventure, due notice will be given. 44-7D

ENGINEER DEPARTMENT, BALTIMORE AND SUSQUEHANNA RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received between the 20th and 25th of November next, for the Graduation and Masonry on 30 miles of this Road.

ISAAC TRIMBLE,
Engineer B. & S. R. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.

ENGINEER DEPARTMENT, WRIGHTSVILLE AND YORK RAILROAD COMPANY.

October 19, 1835.

To Contractors.—Proposals will be received in York, Penn., between the 20th and 25th of November next, for the Graduation and Masonry, of the whole line of Road.

ISAAC TRIMBLE,
Engineer W. & Y. R. R. Co.
WILLIAM GIBBS McNEILL,
Consulting Engineer.
Oct 21-32.

TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York, 23-4f

NEW-ORLEANS AND NASHVILLE RAILROAD.

NOTICE TO CONTRACTORS.

The New-Orleans and Nashville Railroad Company having decided to place under contract the first fifty miles of the Road, on the 15th day of December next, Proposals will be received at their Office, in the City of New-Orleans, from the 15th of November to the 15th day of the month next, for the Graduation and Bridging of the same.

The Superintending Engineer, R. S. Smith, will be upon the ground to give every explanation relative to the manner of making Proposals, and such other information as may be required.

Of persons not personally known to the Engineer, there will be required certificates of character and qualifications.

This part of the road, extending along the shore of Lake Pontchartrain, is perfectly healthy throughout, and being the commencement of the most extensive work in the world, it cannot fail to be of great importance to Contractors to identify themselves with the work at its commencement, as those who are known to the Company as responsible and efficient will certainly be preferred to strangers during the future progress of the road.

The country through which the line passes is generally high pine ridge, and perfectly healthy.

H. J. RANNEY,

Chief Engineer N. O. & N. Railroad.

Engineer Office, N. O. & N. Railroad, }
Aug. 25, 1835. } 37

TO TUNNEL CONTRACTORS.

Proposals will be received by mail, or otherwise, for excavating a Tunnel on the summit of the Sandy and Beaver Canal. The Tunnel is 900 yards long, the material to be removed is a soft sand-stone rock, the highest part of the ridge through which it passes is about 90 feet above the top of the Tunnel. As the deep cuts at the termination are not excavated, most of the material will have to be removed through shafts. Proposals must be accompanied with good recommendations, as to skill and competency.

E. H. GILL,
Engineer.
35-61

New-Lisbon, Ohio, Sept. 17. 1835.

RAILROAD IRON WORK,

Of all kinds, made to order by GODWIN, CLARK & CO., Paterson, New-Jersey.

CAR WHEELS, BOXES, AXLES, and CAR SPRINGS, made and fitted complete, at short notice, and fair prices. Orders addressed to them at Paterson, N. J., or 94 Broad street, N. Y., will meet with immediate attention. 34-1y

AMES' CELEBRATED SHOVELS, SPADES, &c.

500 dozens Ames' back-strap and plain Shovels,
75 do do round-pointed do
150 do do cast steel Shovels and Spades,
100 do do Bucket Shovels and Spades,
150 do do steel plated Spades,
Together with Pick Axes, Churn Drills, and Crow Bars, steel pointed, made from Salisbury refined iron. For sale by his Agents,

WITHERELL, AMES & CO.
2 Liberty street, New-York.
BACKUS, AMES & CO.
8 State street, Albany.

34-yif

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-ly feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J 25 1f

RAILROAD IRON.

300 tons of Railroad Iron of the T pattern, just imported and for sale by HOWLAND & ASPINWALL, 236 1st 35 South street.

RAILWAY IRON.

185 tons of 1 inch by 3/4 inch, Flat Bars in lengths of 200 do. 1½ do. do. 14 to 15 feet, counter sunk 40 do. 1½ do. do. holes, end cut at an angle 800 do. 2 do. do. of 45 degrees, with slanting plates and nails to suit. 600 do. 3/4 do. do. soon expected.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Pins of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 24, 24, 24, 3, 34, 34, and 34 inches diameter for Railway Cars and Locomotives of patent iron.

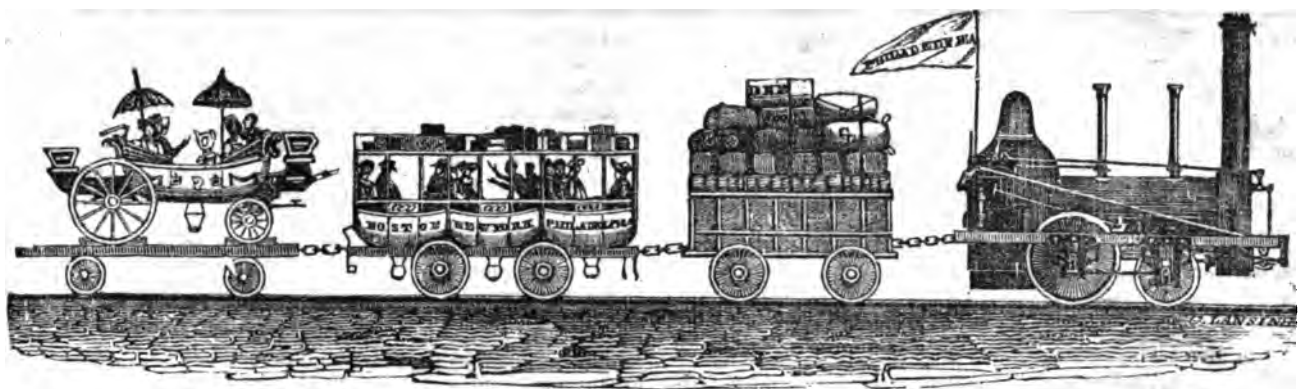
The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment.

A. & G. RALSTON.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d11meowr

PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-4f



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, NOVEMBER 28, 1836.

[VOLUME IV.—No. 47.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, NOVEMBER 28, 1836.

EXPLICIT DIRECTION.—We are amused at times at the thoughtlessness of persons in giving directions to others, for the performance of their wishes. It is not uncommon for us to receive a request to *change* the direction of the Journal, and we are always ready to do so, when we know how to do it properly; but, in order to do so correctly, it is necessary that we first know where to *stop*, and then where to *direct*, it. But we have an instance now before us, which puzzles us as much as *Patrick's* inquiry at the Post-Office, for a letter, did the P. M. Says Pat, "and have you a letter for me?" "What is your name?" says the worthy P. M. "My name is it you ask," says he, "and isn't it on the letter sure?" So with the person who desires us, on the margin of a paper, to send his R. R. Journal to *Mobile*, he might say, "Is not my name on your books?" Very likely; but which of the 800 names there, we are entirely unable to imagine, and therefore shall be obliged to wait for his further directions; which, we hope, will be accompanied by a five dollar U. S. note, for the *ensuing* year, together with all arrearages, if there be any due for the Journal; if so, he may rely upon early attention to his wishes, and our best thanks for his improved mode of giving directions.

TO BRIDGE BUILDERS AND RAILROAD CONTRACTORS.—We ask the attention of our readers to the following notice from R. S. VAN RENSSLAER, Esq., the Engineer of the *Vicksburg and Jackson, Mississippi*, Railroad. It offers a good opportunity for a winter's campaign, and will doubtless afford a handsome profit to enterprising men.

VICKSBURG AND JACKSON RAILROAD.

NOTICE TO CONTRACTORS.—Sealed Proposals will be received by the subscriber, at Vicksburg, from the 1st to the 10th of January next, for the grading, bridging and masonry on the eastern division of this Road, from Big Black River to the town of Jackson, a distance of 34 miles.

Three Bridges of considerable magnitude, one to be constructed over Big Black River, 200 feet between the abutments, and two over Baker's Creek, about 60 feet between the abutments, are jobs well deserving the attention of experienced contractors.

Proposals will also be received, at the same time, for putting down the superstructure on the western division, extending from the Mississippi, at Vicksburg, to Big Black River, a distance of 12 miles.

Individuals disposed to contract for the execution of the whole, or any part of this work, will be required to furnish certificates of qualifications and character, unless personally known to the subscriber.

Plans and profiles of the line, and drawings of the different constructions on it, may be seen, and all necessary information obtained, by applying at the Engineer's Office, in Vicksburg, between the 20th December and the time for letting.

R. S. VAN RENSSLAER, Civil Engineer.

Vicksburg, November 2nd, 1835.

BALTIMORE AND OHIO RAILROAD REPORT.—We acknowledge the favor, by the President of the Company, of a copy of the *ninth* annual Report of the Baltimore and Ohio Railroad Co.; and cannot refrain from here expressing our own, and we believe we do not say too much when we say the, thanks of the whole Railroad community, as well in *Europe* as in *AMERICA*, for the candid, business-like and liberal manner in which they annually lay before the world the result of their experience.

It will not be saying too much, we are sure, to denominate them the *Railroad University* of the United States. They have

labored long, at great cost, and with a diligence which is worthy of all praise, in the cause; and what is equally to their credit, they have published annually the result of their experiments, and distributed their reports with a liberal hand that the world might be cautioned by their errors and instructed by their discoveries. Their reports have in truth gone forth as a text book, and their road and workshops have been as a lecture room to thousands who are now practising, and improving upon their experience. This country owes to the enterprise, public spirit, and perseverance, of the citizens of Baltimore, a debt of gratitude of no ordinary magnitude; as will be seen by the following extract from the President's Report, in relation to their improvements upon, and performances with, their locomotive engines, when compared with the performances of the most powerful engines in use, or rather in *imagination*, in 1829, only six years ago.

If such are the results and improvements of one Company in the short space of *six* years, when so few comparatively have participated in the subject of Railroads, what, we would ask, will they not be within the next *ten* years, when Railroads shall become, as they are now certainly becoming, the most extensive, and the most important branch of business of the country? Who dare predict, or hazard a conjecture, as to the improvements upon those now in use? We need not say that he who should hazard any thing like the following, viz. that before the 4th of July 1845, it will be considered *no great performance to leave New-York at sunrise, transact business in Albany, return again to New-York before the setting of the sun; or that the mail will be transported from this city to Lake Erie in twenty-four hours, delivering and receiving mails at every principal village on the route—or that the distance from this city to Boston, and to Washington City, will be only a nine, or at the extent, ten hours*

journey; and that *eight* days to New Orleans will be *laughed at!!!* would be recommended as a suitable subject for the asylum, at Manhattanville. Yet such, asylum, or no asylum, we predict will be the case, and also that the improvements in other parts of the country will keep pace with these great thoroughfares.

That our readers may perceive the rapid strides of improvement in locomotive engines, we give the following extract from the offer of the Liverpool and Manchester Railroad Company, dated April 23, 1829:

"Stipulations on which the Directors offer a premium of 500*l.* for the *most improved Locomotive Engine.*"

"The said engine, if it weighs six tons, must be capable of drawing after it, day by day, on a well constructed Railway on a plane, a train of carriages of the gross weight of *twenty tons, including the tender and water tank, at the rate of ten miles per hour.*"

Here we have the very best evidence of the extent of the views of intelligent men, in 1829; men whose reputation and interest were at stake, and who would, therefore, have been like to require all that they could anticipate, viz. 20 tons on a level road at ten miles per hour, and they truly required wonders; but such has been the influence brought to bear upon the subject, that in 1834 the Baltimore and Ohio Company constructed an engine which took 112 tons on a level at the rate of 12 miles per hour, and up an inclination 17 feet per mile on a curve with a radius of only 1000 feet, at the rate of 6½ miles an hour; and which also passed a plane of two thirds of a mile in length, and 234 feet per mile ascent, with eleven tons, exclusive of the engine of 7½ tons;—and in 1835 another engine belonging to the same company took a load of 113 tons 30¼ miles at the average speed of 12 miles per hour, overcoming grades of twenty feet per mile for six consecutive miles with ease, which is at least equal to 213 tons at 10 miles an hour on a level road; or more than ten times the requirements of the Liverpool and Manchester Road, in 1829. The following extract is from the ninth annual Report of the Baltimore and Ohio Company, and will sustain us in our assertion that this community owe them a debt of gratitude not to be estimated; which will be paid, however, by using the information thus obtained to construct other Roads to compete with them for the business, and to draw the trade and travel to the northern and southern cities. Much more might be said by way of illustration of the benefits conferred upon mankind by the operations of this Company; but we shall give the main part of this valuable document in the Journal hereafter—for the present we ask our readers to compare the state of improvements in 1829 and 1835, and then to imagine, if possible, the extent of the improve-

ments which will be effected within the next ten years.

In the last annual report, the power of the "Arabian" locomotive engine, was mentioned; and it was stated that it had drawn upwards of 112 tons on a level at the rate of near twelve miles an hour, and the same weight up an ascent of 17 feet per mile, occurring on a curve of 1000 feet radius, at the rate of 6½ miles an hour. Afterwards, in December, 1834, the same engine passed over the planes at Parr's Ridge, ascending two-thirds of a mile at the average rate of 264 feet per mile, with two cars full of passengers, making with the tender 11 tons, exclusive of its own weight of 7½ tons. This experiment with the "Arabian," led the Board to consider the propriety of relocating the Road at the planes, as already mentioned, so as to dispense with the use of stationary or horse power there.

The "Arabian" was the first engine built after the adoption of the present plan. It is now in daily use, travelling 80 miles without slackening its fires, or letting its steam get down, and is in perfect order. There are five other engines like it, on the road, and three more will, in a short time, be completed, and ready for use.

On the 26th of September last, a load amounting to 113 tons, was attached to the "Washington," a new engine on the plan of the Arabian, weighing eight tons, with a view of making an experiment of the effective power of the Company's engines on the Branch Road. With this great weight, the engine travelled to the city of Washington at a rate, not less, at any place, than ten miles an hour, preserving this, the least speed, up ascents, of five and six miles in length, of twenty feet to the mile. The train was several times purposely stopped on the ascending grades, and when the steam was again applied, the engine would steadily regain its previous velocity, and maintain it with apparent ease. The same load was brought from Washington to Baltimore at the same rate. The average speed was much greater, and upon the level parts of the road, seemed entirely at the discretion of the engineer. The same engine, on a level, exerting the same power, would have drawn 213 tons at the rate of ten miles an hour. During the whole time there was a superabundance of steam. Performances like this, are, it is believed, unequalled in the history of Railroads.

JOHN RANDEL, JR. vs. THE CHESAPEAKE AND DELAWARE CANAL COMPANY.—By the following notice we perceive that the long contested suit of Mr. Randel against this Company is at length decided, and that Mr. Randel is, to all intents and purposes, entitled to the entire income of the Canal, until his judgment is satisfied.

In this controversy, Mr. R. has contended against great odds, but, with justice, equity, and law, all on his side, he has at length succeeded, and will eventually be remunerated for his losses of money, but not for his loss of time, nor the perplexity necessarily attendant upon a ten years' litigation.

John Randel, jr.,
vs.
Garnishers of the
Chesapeake & Delaware
Canal Company.

In the High Court of
Errors and Appeals
of the State of Dela-
ware, attachment
fieri facias, on judg-
ment upon Case stated.

A judgment has been rendered in the above cause in favor of the Plaintiff, and he hereby gives notice to all whom it may concern, that he intends, from this day, to enforce payment of his judgment rendered in New-Castle County, at December Term, 1833, against the Chesapeake and Delaware Canal Company, for two hundred and twenty-six thousand, eight hundred and eighty-five dollars and eighty-four cents, (\$226,885 84,) with interest and costs, by process of attachment according to the laws of the State of Delaware.

The decision above referred to, establishes the important question, that the Chesapeake and Delaware Canal Company, in demanding and receiving the tolls attached, acted in contravention of the law. Whether it will be the pleasure of this Corporation, further to set at defiance the declared law of the land, by extorting the payment of tolls which may be hereafter attached, time will unfold.

The undersigned regrets exceedingly, that, by the refusal of the Chesapeake and Delaware Canal Company to satisfy his just claims, after a tedious, expensive, and protracted litigation of nearly ten years, he should be compelled to resort to measures which, in their execution, may be convenient to those who may navigate the Canal, but this measure has been forced upon him by the conduct of the Canal Company. It is his intention, however, to give as little trouble to those who may become indebted for tolls to the Canal Company, as may be consistent with the enforcement of his just rights.

JOHN RANDEL, JR.

New-Castle, Del., October 31st, 1835.

RAILROAD INTELLIGENCE.

We commence in this number, what we hope to be able to continue, regularly hereafter, a summary of the movements, in different parts of the country, in relation to Railroads and Canals. Heretofore other avocations have rendered it impracticable.

We shall probably be able, also, to give some interesting information in relation to the various Railroads in use, and in course of construction in Europe.

We commence to-day by giving from the *London Railway Magazine*, (a small work of 28 pages monthly, at 6s. sterling a year) an interesting communication from Mr. Vignoles.

It will be seen that Mr. Vignoles puts down the Railroads in use in Great Britain at nearly 250 miles; and those in course of construction at 400 miles, whilst we have in this country at least 800 miles of road in use, and near 2000 miles more commenced, and in rapid course of construction; and what is of still more interest, there will be 1000 miles in addition to the above commenced before next Spring.

It is indeed true, as Mr. Vignoles observes, "that it is in the United States where the great impulse is given to Railroads," and it is equally true, as he further remarks, that "Railways create their own resources of nequams."

We ask the attention of our readers to the following:

Extract from a paper drawn up on the Dublin and Valentia Railroad, by C. VIGNOLES, Esq., Civil Engineer.

"The advantages afforded by Railways have now become sufficiently appreciated. They comprise the civilization and employment of the laboring part of the community; the distribution throughout the whole country of useful expenditure, which the localization of manufacture and capital has before secured in monopoly to particular districts; the equalization of the value of property, and more especially rapidity and economy of communication, thereby affording the means of obtaining an intimate knowledge of all the wants and interests of the remoter provinces.

"Consequent on the appreciation of these objects has been the progress of the Railway system throughout Europe and the United States.

"In Great Britain, the successful experiment between Liverpool and Manchester gave birth to numerous projects, of which some have been already accomplished; and there are now in profitable operation nearly 250 miles of Railway* in various parts of that country.

"Within three years the Railway from London to Liverpool will be completed, besides various other great connecting lines, altogether 400 miles of Railway, are at this time in progress of construction in England alone. Applications for 200 miles, including the Bristol line, are before Parliament; and companies are now forming for upwards of 500 miles, among which is the connexion between Glasgow and Edinburgh, and between York and London; in all, nearly 1400 miles.

"In Belgium, the first portion of the chain of Railways between Antwerp and the Rhine has, within these few days, been opened to the public. Hamburg, justly alarmed, is negotiating with Hanover on one bank of the Elbe, and with Prussia on the other, to secure a Railway through one of these kingdoms into Saxony, Bavaria, and Bohemia, which will not merely advantage her present trade, but bids fair to divert to Hamburg the commerce of Trieste, for the supply of central Germany with colonial produce and manufactures.

"France has tried the experiment successfully near Lyons; and the government have publicly declared they will become partners in the lines now in progress from Paris to the coast. Even in Austria there are two very extensive lines of Railroad at work.

"It is, however, in the United States where the greatest impulse has been given

to Railways. Many hundred miles are already executed, and vastly more are in contemplation.

"In the small State of South Carolina, a Railway of 150 miles, in one continued line, is in actual operation. The whole population of that state is scarcely 300,000 souls; wages are 5s. a day, and capital at 7 per cent. interest; yet private enterprise chiefly has executed this great line, which is now, by its success, proving practically the truth of the principle long established in the minds of persons competent to judge, that Railways create their own sources of revenue.

"It seems incredible, that in Ireland, with a population of 8,000,000, multitudes of them in beggary, and too often in starvation from want of work, with wages at from four pence to one shilling a day, and money at four per cent., one short Railroad alone has yet been executed.

"However philanthropists and politicians may differ about many of the causes of the sufferings of the Irish poor, however various the proposed remedies, all unite in declaring that want of employment for the laboring classes is the leading evil, requiring the application of an immediate remedy; and all experience shows that an expenditure of money on public works has invariably introduced comfort and peace to the destitute and disturbed districts, and has increased the public revenues of the country in direct proportion to the amount of money expended. Public works, the effects of which have the great value of improving and increasing internal intercourse, trade, and manufactures, must be the most desirable of any, and more so, when their ultimate tendency will be to combine facilities for foreign communication, and particularly those of a commercial nature.

"Such public works are Railways, the new means of communication on land by steam; a power which on water has already been so highly beneficial to Ireland.

"Carrying the line to an ultimate terminus at Valentia Harbour, on the very verge of the Atlantic Ocean, the undertaking ceases to be considered in a local point of view, and becomes a great national work, in which Great Britain, Europe, and the Americas would be as much interested as Ireland. We should, in fact, have arrived at a port which nautical men, statesmen, and many acute inquirers, have at various times, and under different circumstances, and without communication or connexion with, and even without knowledge of each other, recommended as the most eligible harbour for the foreign arrivals and departures of the United Kingdom.

"The attention of the Government has often been called to the eligible situation of Valentia Harbour, and the highest naval authorities have given evidence to Parliament of the peculiar combination of advantages which it possesses as a packet station. Captain Beaufort, R. N.; and hydrographer to the Admiralty, states, that 'the first object of all vessels, bound either to America, to the south of Europe, or India, is to get far enough out of the Channel to be able to adopt either tack without fear of the land; the next object is, to fetch to the westward of Cape Finisterre.' By sailing from the harbour of Valentia, the most westerly port in Europe, both these objects are secured. Captain Beaufort further states, that 'whenever possible, a packet harbour should have two ways of exit, like Spithead, for instance.' Valentia Harbour possesses this advantage, having too easy practicable inlets to an excellent receptacle for shipping, capacious, safe, land-locked.

"The intervening transit between Valentia (the nearest point of land in Europe to America) and the harbour of New-York is unobstructed by islands, rocks or shoals; and the distance being less than 2700 miles, may be traversed by steam packets, such as those now running between Kingstown Harbour and Liverpool, in ten or twelve days. London will thus be brought within a fortnight's distance of the Canadas and the United States. Liverpool may be reached, on the completion of the English Railway, in ten hours from London; the average passage (looking forward to no increased speed in steamboats) from Liverpool to Kingstown in fourteen hours; and by this proposed Railway of 200 miles from Kingstown Harbour to Valentia Harbour, the run across Ireland would be made in ten hours. In all 34, or at most 36, hours from London to the shores of the Atlantic; and on great emergencies, and with a favorable water passage, it may be reduced to 26 hours. The fact is almost incredible, but it is undeniable.

"If, as stated by Captain Beaufort, 'the establishment of a post office packet station at Valentia would insure a saving of four or five days in the voyages of sailing vessels,' can it be doubted, that with such a ready connexion with London, Valentia Harbour will not be the great outport of the United Kingdom, and (passing rapidly over the chain of intermediate reasoning) of France and all northern Europe. In short, Ireland would become the great highway of nations from the Old to the New World."

VALUE OF RAILROADS.—The question is well put, by the editor of the Boston Daily Advertiser, "whether Railroads, independent of their income to stockholders, are to be regarded as a public improvement?" The truth will, ere long, be more generally admitted, that, in most cases, however profitable the road may be to the stockholders, it is still more profitable to the community; especially to that portion who travel; have goods or produce to transport, or own property in its vicinity. The stockholders, in that capacity alone, are the least benefitted of any portion of the community, however large may be their dividends.

THE LOWELL RAILROAD.—We copy the following statement from the Lowell Courier. The reader may judge from it whether the Railroad, independently of its income to the proprietors, is to be regarded as a public improvement. The number of passengers who travel on this Railroad, will probably average 500 daily. The actual speed is something less than the rate here stated, but the average length of a passage is but a little over an hour. The average time which was required, before the opening of the Railroad, for making the passage, was not far from five hours. To say nothing of the saving of money to those who travel on this route, is it no public advantage to make a saving in time of four hours to 500 persons daily? Is it not easy to imagine that business is expedited, and the public good promoted, as well as the ease and convenience of individuals, by this saving of time?

"Railroad.—The train, we understand, came up from Boston, Tuesday forenoon; in fifty-five minutes, including the stop at the half-way place. Allowing for that stop 3 minutes, it travelled at the rate of thirty miles an hour, for the whole distance! The engine was a new one, made in Lowell."

* Stockton and Darlington and Branches	40 Miles.
Liverpool and Manchester	32 "
Railways near Glasgow, and Branches	25 "
Lodds and Selby	25 "
Dundee and Newtyle, N. B.	12 "
Hotten Railway, &c.	10 "
St. Helens and Runcorn and Branches	12 "
Wigan and Newton and Warrington	14 "
Clarence Railway	30 "
Palinburgh and Dalkeith	10 "
Canterbury and Whitstable	8 "
Seaham Railway	7 "
Bolton, Leigh and Kenyon	10 "
And several others.	
† London and Birmingham	112 Miles.
Grand Junction	80 "
London and Southampton	80 "
Newcastle and Carlisle	60 "
Preston and Wyre	18 "
Bolton, Bury, and Manchester and several others	15 "
‡ London and Bristol 125 miles, and four or five others.	
§ London & York, Cambridge & Norwich 230 Miles.	
London, Ipswich and Yarmouth	120 "
Edinburgh and Glasgow	50 "
London, Brighton and several others	50 "
London and Greenwich	34 "

CANAL INTELLIGENCE.

It will hereafter be our aim to give a short summary of all the various Canals, as notice may be taken of them by the newspapers in their immediate vicinity, by which means our readers will have some idea of their progress and prospects; and from which, we trust, good will result to the cause of Internal Improvements throughout the country.

The same course will be pursued in relation to Railroads.

In the Cumberland Advocate, says the National Intelligencer, we find the following notice of the result which the location of the Chesapeake and Ohio Canal through that town, will produce there:

"The Canal Basin is to be formed about one hundred yards below the Chain Bridge, a little to the left of the mouth of Will's Creek, at the Western end of Hoblitzel's and Hey's Island. It takes a narrow strip off the lots now owned and occupied by Messrs. H. Wineow, M. Fisher, J. Shriver, S. Charles, A. Russell, M. Rizer, jr., G. G. Wineow, and D. Shriver, who have given the right of way.

"The dam to be constructed at Beall's Island, about one mile below the town, will back the water, it is said, as far up Will's Creek as the old market house, which is near the centre of the town, forming all the way a canal or basin sufficient to transact any amount of business required. It is also to back the water in the Potomac to a point near two miles above, or southwest of the town; which will join Will's Creek at its mouth (as the river now does) and join the basin by a *guard lock*.

"The whole, when completed, will form a splendid Basin of about *four miles* long, and between a half and a quarter mile wide. It will present more the appearance of a Lake than a Basin, and will be competent to hold more than *ONE THOUSAND* Canal Boats at the same time—and as one of our townsmen remarked a short time since, 'it will afford pleasure boats with sail—steamboats, coal boats and trade boats; and will be a place of general resort for fishes and water fowl of every description.'

"It may be said of Cumberland that she is rising. Nothing can now prevent it. Her situation is healthy and romantic. She has, or soon will have, one of the most splendid Canals in the United States, leading from her centre eastward to the Metropolis of the Nation—thence to any port in the world. And leading from her centre westward, there is an unrivalled Macadamized Road, which is destined to convey to her depot a large portion of the Western Trade."

There is no work of the kind now under consideration more deserving of attention, than the NIAGARA SHIP CANAL. The following article, in relation to this contemplated work, is from the CHICAGO AMERICAN. We wish it could be read by every true son of this Union, and that he could at the same time justly appreciate the importance of the work.

To us, who have for years devoted so much time to the consideration and importance of a more extended scale of Internal Improvements, argument to establish its necessity seems superfluous; yet we are aware that others have their doubts as to the policy of pushing such works,

especially if the State is to furnish the whole, for a part, of the means, to the extent desired by us. In this we doubt not their honesty—yet it does appear that, so long as the expenditure tends to increase the value of every man's property, and a sufficient revenue at the same time is derived from the works, not only to pay the interest, and repairs, but also eventually to liquidate the original outlay, there must be a great want of foresight and liberality, or intelligence, in those who cannot be convinced.

NIAGARA SHIP CANAL.—No improvement of a national character so eminently deserves the attention of the people of the Western States, as the proposed Ship Canal around the Falls of Niagara. Those States that border upon the great Western Lakes, or that are, or may be connected with them by natural and artificial navigable communications, have a deep interest in the prosecution of this work. It will remove the barrier that is now only in part surmounted by the Welland Canal, and open a safe, cheap and convenient communication between the upper and lower Lakes, within the Territory of the United States, and enable the West to conduct her commercial operations independent of our British neighbors. It will also enable us to approach *one hundred and sixty-one miles* nearer to the city of New-York with vessels of the largest class navigating the Lakes, insure certainty, increase the speed, and reduce the cost of transportation.

The people of this State will derive immense benefits from this improvement, as the staple productions of the soil must and will seek the New-York market. When the Illinois and Michigan Canal shall be completed, and the Erie and Hudson Canal of New-York enlarged, so as to admit the passage of vessels of one hundred and twenty tons burthen, from Oswego on Lake Ontario to the Hudson River, as now contemplated, this route to the seaboard will combine more advantages than any other that can be obtained; for certainty, safety, and economy of transportation, so essential to all commercial transactions, will be secured, and the most advantageous market in the United States for the products of the West attained. Even now, without the proposed improvements around the Fall, and the enlargement of the New-York Canals, with only the imperfect facilities afforded by the Welland Canal, the rate of transportation on goods from New-York city to Chicago and other ports on Lake Michigan, by the way of Oswego, is considerably less than by the way of Buffalo; and our merchants here are able to save, by preferring the former to the latter route, from *twenty-five to seventy cents* per barrel bulk. This saving is owing to the superior economy of Lake over Canal transportation, and will be materially increased by the proposed Ship Canal.

No improvement of the same extent can be found that will benefit so large a portion of the United States at so little cost, or that will give so general and extensive facilities to internal commerce, as the one under consideration. As a means of national defence, this work demands the serious attention of Congress,—it will facilitate the transportation of troops and munitions of war, and hasten the rapid concentration of naval and military forces at important points along the great extent of our northern and western frontier.

The United States Engineers have just completed the survey of the several routes for this Canal. They consider the project perfectly practicable, and of much less expense than it has generally been estimated at, and far less than the great importance of the work would justify.

We may well consider, in connexion with this, the ILLINOIS and MICHIGAN CANAL. The people of Chicago, in their exertions to aid in pushing their great work around Niagara Falls, forget not—as they certainly should not—their immediate affairs.

We find in the American, of November 7th, a reference to, and an account of, the proceedings of a meeting held there on the 2d, from which we extract one or two resolutions showing the spirit of the people, and from such a spirit good must result. We need not say how much we desire to have that improvement, either as a Canal, or Railroad, commenced.

CANAL MEETING.—In another column will be found the resolutions passed at the Canal Meeting held in Chicago on Monday evening last. They are full and comprehensive, and must meet the approbation and response of every well informed citizen. They exhibit enlarged views of the subject of Internal Improvement, and call for immediate and efficient action in relation to the Illinois and Michigan Canal. We believe they spoke the sentiments of the great body of the people of this State.

Resolved, That the construction of the Illinois and Michigan Canal is an enterprise eminently calculated to raise the character of the State to a high standing abroad, to open to her citizens a navigable inland communication from the Gulf of Mexico to the Bay of New-York and the Gulf of St. Lawrence, embracing in its influence a large portion of the Union, bringing to their doors an extensive and ready market; opening an easy and direct communication between the Lakes and the fertile and extensive valley of the Mississippi, the most productive region of America, and calculated to contain a dense population, whose products and consumptions must at all times keep up a lucrative and active trade, "exciting the powers of productive industry, furnishing aliment and giving energy to external commerce—the riches it will create, the energies it will call into action, and the blessings it will produce, are so plain and obvious as to be beyond all question."

Resolved, That a meeting of the citizens of this town, be held at this place on the 11th day of November, instant, to consider what measures are proper to be adopted to co-operate with the citizens of other States in an application to Congress to open a Ship Canal between Lakes Erie and Ontario, round the Falls of Niagara.

The meeting then adjourned.

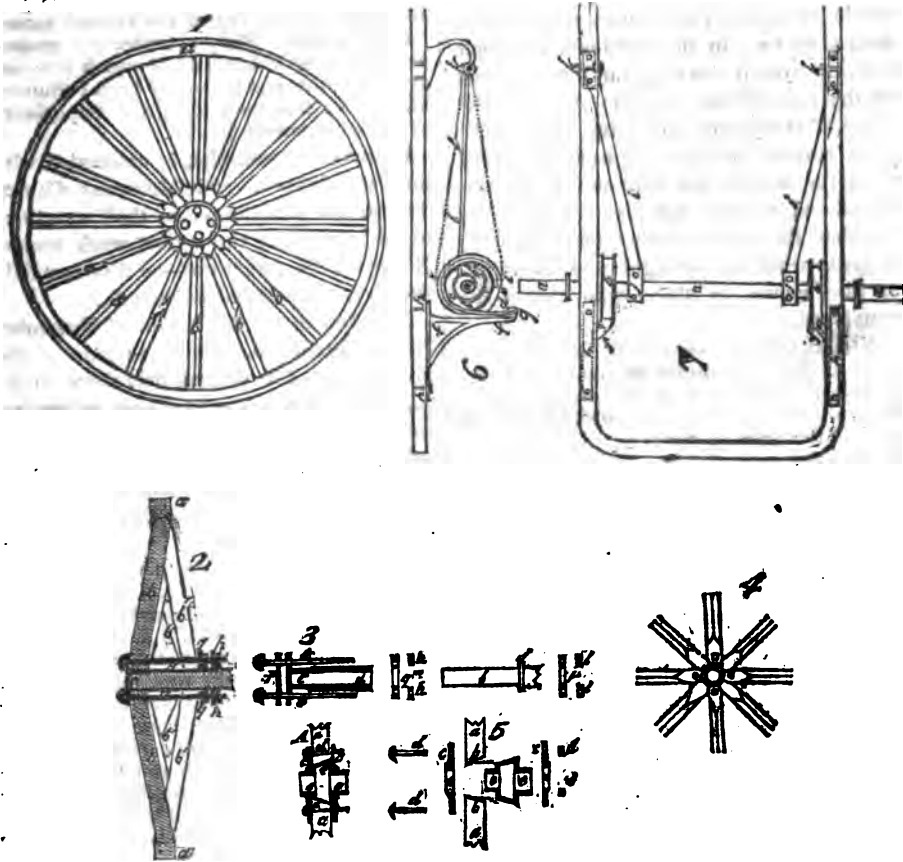
E. PROX, President.

B. S. MORRIS, } Secretaries.
P. T. TEMPLE, }

LAUNCH.—The new steamboat *New Jersey*, will be launched the latter end of this week, from the corner of Hudson and Essex streets. She is intended for the Jersey City ferry, and is the largest and finest ferry boat in the country, and will of course increase the accommodations on this ferry, already fully equal, if not superior, to those of any other in the United States.

The facilities of access to New York, by means of the Paterston and Newark railroads, have increased the travelling to such a degree as to render an additional boat necessary.—[Jersey City Gaz.

GIBBS' IMPROVEMENT IN CARRIAGES AND CARRIAGE WHEELS.



[From the London Repertory of Patent Inventions.]
Specification of the Patent granted to JOSEPH GIBBS, of Kennington, in the County of Surrey, Engineer, for certain Improvements in Carriages and in Wheels for Carriages.—Sealed November 4, 1834.

WITH AN ENGRAVING.

My invention of certain improvements in wheels for carriages consists in a peculiar arrangement of the spokes and naves of wheels, whereby wheels may be constructed with greater facility as will be hereafter fully described.

Description of the Drawing.

Fig. 1, represents a wheel constructed according to my improvements, which I prefer first to describe.

Fig. 2, is an edge view in section.

Fig. 3, shows the nave in section, which is of metal. This nave also constitutes the axletree box.

Fig. 4, shows part of a wheel in section in order to shew the arrangement of the spokes. In each of these figures, (1, 2, 3, and 4,) the same letters indicate similar parts, *a, a*, being the felloes of the wheel, there being mortices cut in them to receive the ends of the spokes, as is clearly indicated in the drawing at fig. 2. *b, b*, are the spokes which it will be seen stand at an angle to each other, and each two (proceeding from opposite ends of the nave) appear when the wheel is viewed edgewise to form the two sides of an isosceles triangle, of which the nave represents the base; but it will be seen that the spokes are inserted at equal distances from each other in the felloes, and they are alternately placed at the

two ends of the nave, as is very clearly shown in fig. 2, and the ends of the spokes are slightly hollowed out in order to abut against the axletree box which constitutes the nave of the wheel. *c*, is a plate formed on the outer end of the axletree box, *d*. The spokes may be so formed at the ends which come against the axletree box, *d*, that they just fill in and wedge one another, as shown in fig. 4, or there may be longitudinal grooves cut or cast on the outer surface of the nave or axletree box. *e, e*, are screw bolts which retain the parts of the wheel together, and also hold the axletree within the axletree box, as will be hereafter fully described. *f*, is a washer which lies against the plate, *c*. It will be seen that the spokes, *b*, which project outward from the felloes come against the plate, *c*, and the spokes, *b'*, which project inwards are retained in their position by the plate, *g*, and this plate is held to its proper position by the screw bolts, *e, e*, by means of the nuts, *h*. The axletree, *i*, has a collar, *j*, formed thereon, and by means of the plate, *k*, the screw nuts, *l*, and the screw bolts, *e, e*; the axletree is held within the axletree box, *d*, as will be evident on inspecting the various figures in the drawing.

Having thus described the various parts of the wheel, when constructed according to my invention, it is necessary to point out more particularly the peculiar novelty of the construction which constitutes the invention secured by the above recited letters patent. It will be evident, that as any two succeeding spokes, *b, b'*, may be said to form the two sides of an

isosceles triangle, the axletree box or nave, *d*, forming the base of such triangle, if the plate, *g*, be made to approach the plate, *c*, the spokes, *b'*, will approach the spokes, *b*, that is to say, they will approach more nearly to the perpendicular, which will tend to expand the circumference of the felloes, and make the whole wheel most rigidly secure, and thus in case of the spokes becoming loose, the wheel may be made firm by merely screwing up the plate, *g*; and it may be remarked, that a wheel constructed according to these improvements, may be repaired in much less time, and at less expense, than when wheels formed in the ordinary manner, for it will only be necessary to remove the plate, *g*, sufficiently to take out any faulty spokes and replace the same with others and then to screw up that plate, *g*, and the wheel will be again complete.

Fig. 5, represents a different arrangement for expanding the spokes and felloes. The spokes which are shown edgewise and in part at *a, a*, are all placed in the same plane, and held in their places by the plates, *c, c*, and bolts and nuts, *d, d, d, d*. If the spokes were arranged so as to form a smaller cone at their interior end than that at the exterior of the box, *e, e*, it is evident that by screwing up the nuts on the bolts, *d, d*, the cone, *e, e*, would be forced through the conical hole formed by the spokes, and thereby push the whole of them outwards towards the felloe, and so produce an expanding action outwards. The box and spokes when screwed up would appear as at *a*, fig. 5.

Having thus described the nature of my invention of certain improvements in wheels for carriages, and the manner of carrying the same into effect, I would have it understood that I lay no claim to the various parts of a wheel, which are well known; but I do hereby confine my claim of invention to the arranging of the spokes so that they are capable of expanding out the felloes, and thereby offering great facilities in constructing as well as in repairing wheels so formed.

And further, as relates to my improvements in carriages, the same are ascertained and described by reference to the drawings.

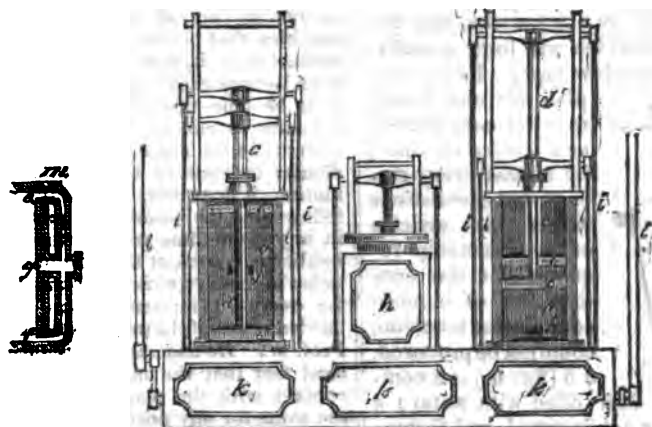
Figs. 6 and 7, which represent such parts of a carriage as are necessary to explain my invention, the same letters of reference are applicable to both these figures. *a*, is the axletree of the carriage. *b, b*, is a box or barrel (shown at fig. 6, with one of its ends removed to exhibit the interior,) which contains a spiral spring, *c, c*, one end of which is attached to the axis, *a*, and the other to the box, *b, b*. The action and construction of this spring, therefore, is similar to the main spring of a watch. Round the periphery of the barrel, *b, b*, is wound the leather strap, *d, d, d*, attached to the barrel at the point, *e*, and to the supporting rod, *f, f*, at *g*, which supporting rod is bolted to the shafts (or any convenient part of the carriage) at *h, h*. It is evident, therefore, that if weight be

added to the carriage, such weight will tend to depress the body of the carriage by pulling round the strap, *d, d*, and causing the box or barrel, *b, b*, to turn on the axis, *a*, and thus partially wind up the spiral spring, *c, c*. In the application of this invention I make use of two such boxes and springs as shown at fig. 7, and, thus arranged, the motion of the carriage will nearly correspond with that of a carriage with common springs. It will be evident, however, that in this arrangement some apparatus is necessary to prevent the axis from turning round, and also to prevent the carriage from rising and falling in an improper direction. This arrangement is shown at figs. 6 and 7, and may be thus described. Two flat bars of steel, *i, i*, are bolted at one of their ends to the flaps of the axis at *j, j*, and at the other (by bolts) to the knuckle joints, *k, k*. By this apparatus, when the carriage vibrates upon its

springs it will describe a curve represented by the red line, *l, l*, fig. 6, being a segment of a circle of which the bars, *i, i*, are the radii, and the knuckles, *k, k*, the centre. The motion of the carriage, therefore, is nearly vertical, and sufficiently so for practical purposes.

Having now described the nature of my invention of improvements in carriages, I hereby declare that I claim as my invention as far as relates to my improvements in carriages, the application of a spiral spring and barrel, as a substitute for the ordinary springs of carriages, and the mode by which the axis is connected to the body of the carriage, viz., by the radius bars, *i, i*; and though the parts individually may have before been used in machinery, yet I claim the whole as a new combination, forming an improved substitute for the ordinary springs of carriages. In witness whereof, &c. Enrolled May 4, 1835.

NOBLE'S IMPROVEMENT IN THE APPLICATION OF STEAM.



[From the Repository of Patent Inventions.]

Specification of the Patent granted to WILLIAM ALFRED NOBLE, of Cross Street, Cherry Garden Street, Bermondsey, in the County of Surry, Engineer, for certain Improvements in applying Steam to the common and other Engines. Sealed December 4, 1834.

WITH AN ENGRAVING.

My improved steam engine consists in having two pistons in one cylinder, by which means the engine is enabled to make double the number of strokes it would do if it had but one piston, consequently double the velocity (or power) is obtained without the aid of multiplying wheels.

Description of the Drawing.

The annexed drawing is a representation of a perpendicular section of the cylinders for a pair of thirty-horse marine engines. *a*, the cylinder. *b, b*, the pistons. *c*, the hollow piston rod, with a stuffing box at the end, which admits of the piston rod to the lower piston passing through. *d*, the solid piston rod to lower piston. *e*, the steam port which admits the steam to act on the upper side of the upper piston, *b*. *f*, the steam port which

admits the steam to act on the underside of the under piston. *g*, the steam port which admits the steam in the centre of the cylinder to enable it to act on the two pistons. *h*, the cistern which contains the air pump and the condenser. *i, i, i, i*, the connecting rods to the crank, *k*, by which the power of the two engines are united. *k*, the four throw crank, shown by the dotted lines running under the base of the cylinders and condensers. *m*, represents the steam ports above specified, as seen from the other side of the cylinders, and the steam is let on and off in the usual way. *l, l*, the connecting rods from the crank of the engine to the crank of the paddle wheels. The steam being admitted through the steam ports, *e*, and *f*, forces the pistons, *b, b*, together, the steam is then turned off into the condenser in the usual way, which is unnecessary to describe, at the same time the steam is admitted by the steam port, *g*, between the pistons, the one is then forced up and the other down: the above action is then repeated, which being connected to the cranks by means of the connecting rods, *i, i, i, i*, the machine or paddle wheel is set in motion.

I would further observe, that I do not

confine myself to the operation of two pistons in one cylinder, as more might be employed; but two appear to be sufficient. The same principle of two or more pistons in one cylinder is applicable to engines of high pressure principle. In witness whereof, &c.

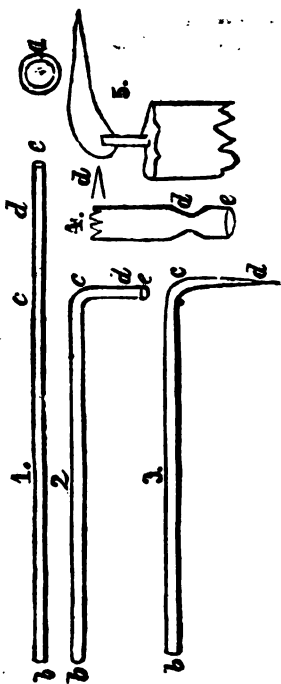
Enrolled June 4, 1835.

[From the London Mechanics' Magazine.]

ON THE PRACTICE OF THE BLOW PIPE.

—The introduction of the use of the blow pipe in practical chemistry, may be regarded almost in the same light as the application of the power of steam to the purposes of commerce. If the latter has increased our national resources, and forwarded the interests of mechanical science, by economising the labor and expenditure which were formerly bestowed, the former has, in like manner, advanced the cause of chemistry, and its dependent sciences, by reducing the expense of fuel, time, and material, which were originally required in qualitative analysis. If the mechanic can now produce, with comparative ease and expenditure, an article which, before the introduction of the steam engine, would have required the labor of many weary days, and the consumption of much valuable material,—the modern chemist can, with equal facility, detect the constituent principles of a body, which, before the invention of the blow pipe, would have called in requisition the unremitting exertions of many tedious nights, and the profuse employment of many rare, and, perhaps, valuable substances. In fact, by the introduction of this simple, yet invaluable instrument, the modern chemist can, by his parlour fireside, and with a common candle, perform those operations, to accomplish which, the ancient and less gifted philosopher would have been compelled to resort to the unhealthy atmosphere of a laboratory, and the continued pouring over an intensely active fire. The blow pipe, according to Bergman, had been long employed in the arts by jewellers and others, for the purpose of soldering, before it was applied to the purposes of analytical chemistry and mineralogy, by a Swedish metallurgist, of the name of Sual, about the year 1733. This individual, however, appears to have left no written account of the method which he adopted in the application of this instrument. The researches of Cronstedt, Bergman, and Galin, and, more recently, those of Berzelius and Faraday, have concurred in raising this instrument to the eminent station of utility which it at present enjoys. In the work of Berzelius on this subject, will be found ample instructions for the pursuit of mineralogical and analytical chemistry; and in the "Chemical Manipulations" of Dr. Faraday, the student will meet with copious directions for applying this instrument in the bending and blowing of glass, in practical chemistry. For the former purpose, the mouth blow pipe possesses undeniable advantages; but for the more fatiguing operations of the latter, the table, or electrostatic, blow pipe will be found more

nient. The advantages possessed by the mouth blow pipe over all those instruments whose blast is produced by artificial means, consists in its portability, economy, and the facility of immediately suspending or modifying the blast. "The chemist does not possess," says Dr. Faraday, "a more ready, powerful, and generally useful instrument, than the mouth blow pipe, and every student should early accustom himself to its effectual use and application."



The supply of a continued stream of air, is the chief difficulty which a beginner experiences in learning the use of this instrument, and this difficulty is, I apprehend, not unfrequently increased by the employment of a blow pipe with too large an orifice, in the first instance. The following method of constructing, will, I have reason to believe, be found more efficacious than any other hitherto published, since I have, by its means, succeeded, in less than half an hour, in communicating the art of blowing to a class of several persons. Let the pupil procure a tube of glass, *b c*, about thirteen inches long, and of the size and thickness of *a*. Let him now thoroughly heat the tube at *c*, about two inches from the end, by slowly turning it round in the flame of a candle, or, what is better, a spirit lamp. When he finds that it will yield, let him bend it gradually till it has acquired the position represented by fig. 2. The part *d* is now to be heated in the same manner; till it is found soft enough to draw out, when the part *e* must be gradually withdrawn, as represented in fig. 4, till it terminates in a point; this point should be held for a minute or two in the point of the flame, in order to thicken it, and when cold it is to be ground away with a file, until the smallest possible orifice is

visible. The pupil will now be possessed of a blow pipe (fig. 3,) with an exceedingly minute jet; and if he puff out his cheeks to the utmost, and place the end *b* within his lips, while the other extremity is held within a short distance of a candle, (fig. 5,) he will, after a few trials, find no difficulty in keeping the flame continually, and without intermission, horizontal and clear. The operation which he will be required to perform, in order to keep his cheeks constantly distended, notwithstanding the escape from the jet, cannot easily be described, but will naturally offer itself when the expenditure of air is very small. When the pupil has succeeded in keeping up a constant blast for several minutes, by this means, he may enlarge the aperture by degrees, practising between each enlargement, till he finds he can manage a blow pipe with a large bore, when he should purchase one of brass, with an ivory or tinned mouth piece, for general use.

Among the numerous hydrostatic blow pipes which have already appeared in your Magazine, the pupil who wishes to manufacture his own apparatus, may assuredly find one which will form a substitute for the table blow pipe. I subjoin a

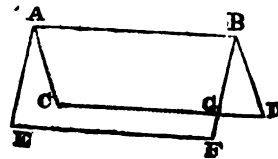


plan for one, which may be constructed, at a trifling expense, by almost every student, and in situations where the articles of workmanship requisite for the construction of a more complicated machine, could not be procured. *a b* (fig. 6,) is a common pipe, about half filled with water; *c* is a large flower pot, inserted, and fastened in by any convenient method; *d* is a mouth blow pipe, (glass would do on an emergency,) fastened in air tight, with a cork and lute, to the hole at the bottom of the flower pot; *e* is a bent tube of glass, or metal, terminating under the mouth of the flower pot. When air is blown in from the mouth at *e*, it rises into the body of the internal vessel, and displaces the water, which, in endeavoring to regain its level, forces out the air from the jet of the blow pipe, with a force proportioned to the height of the column of water displaced.

On the Resistance of Fluids; by GEO. W. KEELY, Professor of Natural Philosophy, in Waterville College.

SIR,—I perceive in No. 55 of the Journal, that Professor Wallace has announced a new measure of the resistance of a fluid in a direction perpendicular to a plain surface moving in it, viz: That it is as the sine of the inclination of the plane. Permit me to state my reasons for adhering to the old doctrine, that the perpendicular resistance is as the square of the sine of inclination. It is well known that the latter measure has been deduced from the alleged facts that the number and the force of the resisting particles vary as the sine of the inclination. If it be true that the resistance to a plane

surface moving in a fluid is as the number of particles it strikes in its course, and that the number of particles in any indefinitely thin fluid lamina is as the area of that



lamina, (neither of which we think Professor W. will deny,) it follows that, if *BD* be a section of a plane inclined to the direction *BA* of its motion, and *BF* an equal section of an equal plane perpendicular to the same direction, the number of particles *BD* will strike is to the number that *BF* will strike in the same time, as the parallelogram *ABCD* is to the parallelogram *AEFB*; and the resistances are therefore, on this account, as *BG* is to *BD*, or as the sines of the inclinations of the sections; the resistances to the planes are of course in the same ratio.

Now this familiar demonstration would seem to settle the question; but Professor Wallace argues, "that the number of particles striking the plane does not depend on the breadth of the fluid column *BG BF*, but on the surface of the plane, because the particles that act on the plane are those in contact with it, and therefore their number is as its superficial area." Now, admitting it to be true that the number of material particles in contact with the plane, at any instant, is the same, whether it be perpendicular or inclined to the direction of the motion, it does not, we think, necessarily follow that the number of particles struck in any given time will be the same. But neither is it evident that the number of particles in contact with the plane is the same for every inclination of the plane. The burden of proof, however, seems to lie with Prof. W. He has assumed the general physical fact that the number of particles in contact with the plane, at any instant, is the same for any position of the plane, and he has deduced an inference, not formally expressed, indeed, but surely implied, otherwise the argument is worth nothing, that the number of particles struck in any given time is as the number in contact with the plane at any instant. Now we think the fact and conclusion may very safely be denied, and it becomes Prof. W. to show that they are consistent with some hypothesis respecting the form and relative position of the ultimate particles of a fluid body. In any hypothesis, we believe the following positions will be found to hold:

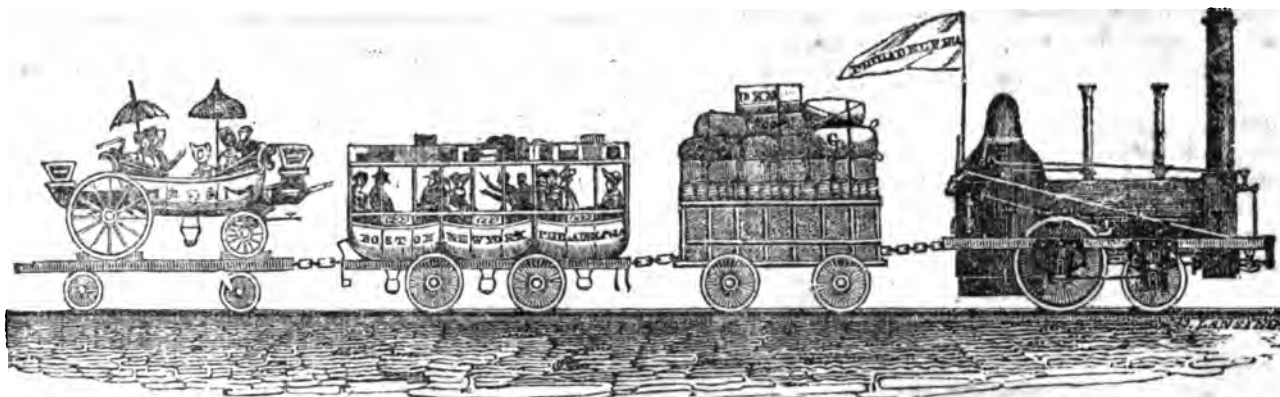
First. Whether the number of particles, at any instant, in contact with the plane, in different positions, is the same, depends wholly on the hypothesis.

Second. If the number is the same in different positions, it will be found that the number of fluid strata struck in any given time, is as the sine of the inclination.

Third. If the number is not the same, then it varies as the sine of the inclination, and the number of strata struck will, in any given time, be the same.

If Prof. W. can devise any hypothesis with which these positions do not agree, we will allow he can disturb our belief in the truth of the law of the square of the sines.

The wide difference between the results of observation and those of the old theory, would tend rather to dissuade us from admitting the truth of the new, when we consider what important physical circumstances are and must be omitted in the conditions.—[Silliman's Journal.]



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.]

SATURDAY, DECEMBER 5, 1835.

[VOLUME IV.—No. 48.]

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, DECEMBER 5, 1835.

THE RAILROAD JOURNAL, is now near the close of its 4th volume, and it may not be amiss to ask its readers, whether it has, thus far, been of any use to them individually, or to the cause it advocates! Has it been the medium of communication to you, at any time, of valuable information, by means of which, the works under your care, or in which you may be interested, have been improved, facilitated, or the expenditure reduced? Has it tended to disseminate, amongst the people generally, information which will promote, and extend, the construction of works of Internal Improvement throughout the country?

If you have been *at all* aided, or benefited by it—or if it has exerted the *least* favorable influence upon community, then has my labor *not been in vain*; but if *neither* of these have resulted from its publication, then I have indeed labored for naught, inasmuch as it has not only not accomplished the main object of its publication—the *aid of the cause of Internal Improvement*—nor yielded me a dollar, over and above its expenses, during the whole period of its publication; but, on the contrary, it has drawn heavily upon other resources, to sustain it thus far—which now induces me to adopt new measures, and to make *one more* effort to sustain it, which will, if acquiesced in by its patrons—and thus far there has not been

a dissenting voice, amongst those with whom I have been able to consult, but all have cheerfully recommended the measure—not only enable me to increase its usefulness and value, by devoting my whole time to its columns—and at the same time derive, *as I must hereafter*, if I continue to publish it, some pecuniary advantage from it. I stated, in number 26, that after the close of the *present volume, the work would be reduced from 16 to 8 pages per number*; but the rapid increase, and astonishing progress, of Railroads in this country, together with the advice of many of its earliest patrons, has induced me to continue to publish it in its present form, of *sixteen pages each number*—publish a greater amount of information, in relation to Railroads, Canals, &c. &c.—and hereafter to charge *five dollars* a year for the work.

This increase of price is resorted to only with a view of sustaining the work, and enabling me to devote my *whole attention* to it; and that I may do so, I have relinquished other, and the heaviest part of the, business in which I have been for many years engaged. I trust, therefore, that its readers and patrons, who, *if any*, have been benefited by its publication, will not desert it, but continue it *one year more*, on *my*, if not on their own, account. *Try it one year at five dollars*—then—as many more as it may deserve.

D. K. MINOR.

New-York, Dec. 5, 1835.

SNOW ON RAILROADS.—It has often been urged against Railroads, that they would be obstructed by snow, in the northern States; but with what force and truth, these objections have been made, may be seen by the following statement, in relation to the performance of the engines on the Boston and Providence Railroad.

The recent snow fell to the depth of about *nine inches*, on the Boston and Providence Railroad. On the following day, two locomotive engines, attached, being provided with ploughs, so constructed as to turn the

snow off on either side, were started from Boston, and reached Providence in *five* hours, having met the train from that city, twelve or fifteen miles on its way towards Boston, enabling the latter to go through in *four* hours, and accomplishing both passages in *nine* hours, or at the rate of more than *nine miles per hour*. This experiment gives assurance, that no ordinary depth of snow can obstruct the travel on this road, more than a few hours.

COMFORT TO TRAVELLERS.—The Boston and Providence Railroad Company, have furnished several of their cars with small cast iron stoves, in which anthracite coal fires have been kept, during the recent cold weather, affording a degree of comfort to travellers, which goes far to remove the objections to journeying at this inclement season of the year. We are informed that all the cars, on this Road, that are sufficiently large to admit of this improvement, will be fitted up in the same manner, with as little delay as possible.

SOUTH CAROLINA AND OHIO RAILROAD.—We have had on our table, for some time past, a pamphlet with the following title page, viz: "RAILROAD FROM THE BANKS OF THE OHIO TO THE TIDE WATERS OF THE CAROLINAS AND GEORGIA," but a press of other matter, previously in hand, and numerous calls upon our time, have prevented us from giving to it that attention which the importance of the subject deserved; and we are now only able to give it a passing notice, by way of apology, for the apparent want of attention with which it has been treated—and for the purpose of calling attention to the very interesting report which was made by a committee, composed of Dr. Daniel Drake, T. W. Bakewell, and John S. Williams, Esquires, to a meeting of the citizens of Cincinnati, on the 15th of August last, and which we shall endeavor to publish in our next number, together with much other interesting matter, in *gold*.

tion to the works of internal improvement now in course of construction in this country.

We cannot, however, leave this subject, without giving our readers a short extract from the report, and then, by adding a few remarks, in relation to the probable results which will naturally flow from the completion of this **GRAND** scheme—of competing with the north for the trade of the *Garden of the World*—the region of the Ohio and Mississippi.

The distance between Cincinnati and Charleston, on a straight line, is about 500, which would probably require a Road of 700 miles. South Carolina, however, has already made a Railway, 135 miles in length, to Hamburg, on the Savannah River, opposite Augusta, nearly in the direction of Cincinnati; and the contemplated Railroad to Paris, in Bourbon county, Kentucky, exactly in the course of Charleston, (for the construction of which there are, in the opinion of your committee, a great many weighty reasons of a local nature,) would have a length of about 90 miles, thus leaving but 475 miles to complete this new and most important communication, between the interior and the sea-board of the south.

The middle of this main trunk would be intersected by the projected Railroad from Richmond, Virginia, *via* Lynchburg, to Knoxville, in East Tennessee, by which the Old Dominion would acquire a new channel of intercourse with her daughter, Kentucky; and also with several of the States formed out of the North-Western Territory, which was once her property,—travelling from the West to southern Virginia, being thus restored to the route which it took in the infancy of our settlements.

By an extension west, to Nashville, of the Richmond, Lynchburg, and Knoxville Road, the whole of central and northern Tennessee would be enabled, with great facility, to communicate with the Carolinas and Georgia, by means of the southern extremity, with the State of Ohio, by means of the northern extremity of the great highway under consideration.

From the maritime terminations, and the lateral branches of this extended trunk, let us turn our attention to the northern or continental connections which it would establish.

These would extend, both east and west, from Cincinnati, for several hundred miles, and through every intervening northern point. First, the Ohio River would connect it with western Virginia and western Pennsylvania—embracing the valleys of the Great Kenhawa, Monongahela, and Alleghany rivers: Second, the Ohio and Erie Canal, from Portsmouth to Cleveland, already finished; the Miami and Maumee Canal, in progress from Cincinnati to Lake Erie, uniting at Fort Wayne, with the Erie and Wabash Canal of Indiana; and the Mad River and Sandusky Railroad, from Dayton to the Lake, the execution of which has commenced, would connect it with the entire chain of northern lakes, from the Falls of Niagara to the Straights of Mackinac, and even Green Bay, on the western shore of Lake Michigan, including the eastern border of Wisconsin Territory, north or maritime Illinois and Indiana, the whole of Michigan Territory, a part of Upper Canada, and the centre and northern declivity of Ohio: Third, the Wabash and Erie Canal, just mentioned, and the Railroad from Lawrenceburg, at the mouth of the Green River, to Indianapolis, already begun,

would carry its advantages into the depths of Indiana: Fourth, the Ohio River from Cincinnati to the Mississippi would connect it, beneficially, with south and west Illinois, Missouri, and the immense extent of unsettled territory watered by the upper Mississippi and Missouri Rivers. Thus the proposed main trunk, from Cincinnati to Charleston, would resemble an immense horizontal tree, extending its roots through, or into, ten States, and a vast expanse of uninhabited territory, in the northern interior of the Union, while its branches would wind through half as many populous States on the southern sea-board.

Thus it will be seen, that, by the construction of less than 600 miles of Railroad, Charleston would become more easy of access to the Valley of Ohio, than either New-York or Philadelphia; and, at the same time, she would have a direct connexion with all the numerous Roads, and Canals, and Rivers, west of the Alleghanies—an event which, if realized, and we doubt not, will place her, and the State, of which she is the commercial emporium, amongst the most flourishing in the Union. But South Carolina will not be the only Atlantic State benefitted by its construction. Its branches will reach Savannah, in Georgia, Wilmington, in North Carolina, Norfolk, in Virginia, from Abingdon, down the Valley of Roanoke, to connect with the Portsmouth and Roanoke Railroad, now rapidly progressing; and also, if the citizens of Richmond are awake to their own interest, another branch will find its way up the Valley of James River, to connect with and intercept the northernmost branch, which will eventually terminate in the most enterprising, or Monarchical City of Baltimore.

However visionary the project of a Railroad, from Cincinnati to Charleston, S. C., may appear to the thousands who do not take time to estimate the coming greatness of this country, and the importance of such avenues to accommodate the business of the most enterprising people in the world, we not only believe it *feasible* and *probable*, but also deem it *necessary*, and as *sure* of ultimate accomplishment, together with all the appendages, at its southern extremity, herein enumerated, as we do that the population of the Valleys of the Ohio and Mississippi will increase, or that the people of South Carolina will continue to raise cotton.

It is indeed now, or will soon be, a matter of necessity to open a great thoroughfare between those valleys and the Southern Atlantic States, for their mutual accommodation—as the intercourse between them will necessarily greatly increase, and become too great to submit to its present circuitous routes; and it is, therefore, in our opinion, a fortunate move, and a happy omen for its success, that Cincinnati, the Queen of the West, and destined to exercise a powerful influence upon the project, has spoken upon the subject, in a manner which insures her future devotion and support.

THE NORTH RIVER is closed to Coosackie—and the steamboats proceed no farther than Hudson.

Ninth Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad Company.

The time has again arrived, when it becomes the duty of the President and Directors to lay before the stockholders, the proceedings of another official year. During this period, the main stem of the road has been completed to a point opposite the town of Harper's Ferry, and the branch to Washington has been opened for general travel. Various improvements have been made in the machinery and motive power; and additional views have been suggested by the changing circumstances and increasing ramifications of the system of internal improvements now prosecuting in all directions throughout the country. The purpose of the present report will be to present these various matters in order and in detail.

At the date of the last annual report, the graduation of the main stem, between the Point of Rocks and Harper's Ferry, was drawing to a close; and soon after, the difficult passes of the Potomac, undertaken by the Chesapeake and Ohio Canal Company, and the intermediate portions, let out by the Board of Directors, were simultaneously completed. All possible expedition was used in laying down the rails, and by the 1st of December, 1834, the entire line, from Baltimore to the eastern abutment of Wagner's Bridge, opposite the town of Harper's Ferry, was opened, with appropriate formality, for general use. The machinery, necessary to facilitate the transit of flour and other produce from the Canal to the Railroad, was at once erected, and the increase in the business of the Company, which immediately followed, even exceeded the anticipations that had been previously formed, and called for every exertion to furnish the requisite means of transportation. Notwithstanding the difficulties, which at all times attend the diversion of trade into new channels—the temporary and most inconvenient location of the place of transit, the great height between the Railroad and Canal, the want of proper shelter, the contracted space allowed for labor and handling, where the Canal, the Railroad and the Turnpike are all crowded into a width of less than one hundred feet, and the unavoidable delays in forwarding to Baltimore, which occasionally took place,—notwithstanding all this, the business done from Harper's Ferry continued steadily to increase; and although the total amount was necessarily divided with the magnificent Canal along side, yet the Board of Directors had every reason to be satisfied with the portion that was given to the Railroad. This state of things has continued up to the present time, during the business seasons, and there is no reason to anticipate that it will not be permanent. The Board must here acknowledge how much is due to the liberal policy of those of the merchants of Baltimore to whom the new trade has been directed, and who are entitled alike to the thanks of the Company and the community, for the efforts which they have made to render this market popular and attractive, in those sections of country, where, hitherto, it has been but little known.

Various circumstances prevented the Board, for some time, from taking measures to connect the main stem with the Railroad of the Winchester and Potomac Company. They finally determined, however, to construct a substantial viaduct across the Potomac, on the prolonged trace of the Winchester road, and capable of permitting the passage of locomotive engines,

with their usual trains, to which the present bridge is wholly incompetent. Contracts for this purpose have already been entered into, and it is expected that the viaduct will be completed early in the ensuing summer. The piers, six in number, with the abutments, will be of undressed masonry, and the superstructure of wood. Its entire length, including the portion crossing the Chesapeake and Ohio Canal, will be 830 feet. When a permanent connection is formed between the main stem and the Winchester and Potomac Railroad, the Board will, after the experience of a few weeks, be enabled to determine, better than at present, upon the arrangements to be made to accommodate, to the greatest advantage, both the trade which, descending the Canal, may be bound for Baltimore, and that which may be intended for the same market from the valley of Virginia.

The Winchester and Potomac Railroad Company are now engaged in erecting the southern abutment of the river viaduct, and in the graduation of their road through the town of Harper's Ferry. It is expected that the entire line, from Winchester to the river, will be in readiness for use during the present year; so that, in a short time, there will be an uninterrupted Railroad communication between Winchester and Baltimore, a distance of 112 miles, or the most direct route to the cotton growing districts of Tennessee and the South West—pointing towards the great Nashville and New-Orleans Railroad, and aiming at very near the centre of the James River and Kenhawa improvements. The extension of the Railroad from Winchester to Staunton is all that is necessary to secure to Baltimore a large portion of the trade of the great valley and the vast region that lies beyond its western boundary.

The views heretofore expressed by the Board of Directors, in regard to the business that would be created by the Road along its course, have been fully realized; and there is daily evidence that its advantages are not confined to its *termini* alone, as was once supposed would be the case, but that these advantages will extend to the country on either side. The increase of the receipts of the transportation department is the best criterion by which to judge of the value of the work, as well to the public as to the stockholders; and by referring to the report of the proper officer it will be found that the receipts of the present year, exceed those of the last year by the sum of \$57,931.62, while the expenses have only increased \$23,341.93 during the same period. The gross revenue of the year ending October 1st, 1835, is 263,363.10; the expenses for the same period are \$156,904.39, leaving a nett revenue of \$107,163.71.

Of the expenses of transportation, a very large portion is rendered necessary by the four inclined planes at Parr's Ridge. When the main stem was originally located, it was designed to pursue the only plan then known, and to effect the passage of the ridge by means of stationary engines; and, in the mean time, horse power was used as the most economical within certain limits. Since then, however, the performances of the locomotive engines, built by the Company, have proved that it is perfectly practicable to construct a Railroad across Parr's Ridge, upon which locomotive engines with their usual trains, may pass in either direction, without the assistance of stationary power, being aided, when necessary, by extra locomotives, kept on the section for the purpose. The great saving, both in time and expense, which will result from

the change thus suggested by the recent improvements of the machinery of Railroads, has made the relocation of the Road at the Ridge a prominent subject of consideration with the Board, and it will be one of the objects claiming their early attention.

Among the items of expenditure, that of repairs upon the main stem has been a heavy one, and will continue to be so. It must be understood, however, that these repairs relate to the rail track alone, the masonry, upon recent inspection, having required but a trifling renewal of the pointing here and there, to make it as perfect as the day it was completed, and the graduation generally requiring but little attention to keep it in good order. In the outset of the undertaking, the costliness of the English rail prevented its being adopted; so that, without any thing to guide them, the Board of Directors had to experiment upon such materials as were at hand. The wooden string piece and slipper, with a plate rail of 2½ by 5-8 inches, were first laid down; then stone blocks were substituted in place of the wooden sleeper; then the log rail was used; and then the continuous stone string piece was devised and considered as the perfection of the system. Experience proved that of these four modes, the first was decidedly the best, and the last, decidedly the worst, of all. Under such circumstances, and when it is considered too, that in the haste of construction, indifferent timber had often to be used, and, sometimes, even laid down green from the adjacent woods, it is not to be wondered that the item of repairs should be considerable. Great care, however, is now taken to employ none but the best materials in renewing the undrained portions of the Railway, so as to reduce, before long, this item to its minimum.

Another item of expenditure, which the Board hope will be but temporary, grows out of the necessity of either dispensing with the use of steam from the Point of Rocks to Harper's Ferry, or building a board fence along a portion of the distance, between the Railroad and Canal, so as to hide the Locomotive Engine from the horses tracking boats on the towing path. The act of the Legislature of Maryland, upon which the agreement with the Canal Company for the construction of the Railroad to Harper's Ferry was based, contained a clause to the above effect, inserted at the instance of the Canal Company, under the apprehension that the noise and unwonted sight of the engines, would alarm the horses and occasion accidents. The erection of the board fence, which would make the Railroad a great ditch for the snow and wash from the hills, being out of the question, the Board having been obliged to dispense with the use of steam, and keep up a stock of horses for the distance in question. It is hoped, however, that the Canal Company will consent to remove the restriction here alluded to, inasmuch as the experience of the transportation on the Baltimore and Ohio Railroad, where steam and horses have been long used at the same time, and are constantly meeting on adjacent tracks, shows the objection to be unfounded, and the danger to be imaginary. While on this subject, the Board cannot suffer the opportunity to pass, without stating that the kindest feeling prevails between the two companies, and acknowledging the liberal facilities afforded by the Canal Company in the construction of that part of the viaduct at Harper's Ferry which crosses the Canal.

Soon after the publication of the last annual report, the Board of Directors caused that portion of the Washington branch, within the District of Columbia, to be put under contract as far as the city boundary; and upon the meeting of Congress, they made application to that body to remove the restriction confining them to the lines of the streets as laid down in the city plat. This was not granted until the close of the session; and the negotiation with the corporate authorities of Washington, in order to fix the precise route, although facilitated by them in the most liberal and friendly manner, having created a still further delay, it was not until late in the spring that the contractors could commence operations within the city. Notwithstanding, however, the entire line from the main stem to the Pennsylvania Avenue, was formally, and with suitable ceremonies, opened for travel on the 25th of August, a portion of it, as far as Bladensburg, having been in use from the 20th July previous.

In the agreement entered into with the corporation of Washington, it is stipulated that the road shall be extended across the Pennsylvania Avenue, and passing into Missouri-street, reach the Chesapeake and Ohio Canal at the Basin on Sixth-street. This would have been done at the same time with the rest of the work, but for the want of authority to pass over a public reservation lying in the route. As soon as this difficulty is removed, the stipulation above mentioned will be complied with.

The natural obstacles to the construction of the Washington branch, have been unusually great, owing to its course lying at right angles with the direction of the streams; occasioning heavy cuts and embankments alternately throughout nearly the whole distance. In all cases, viaducts of plain yet solid masonry have been built; and, in the adoption of a form of rails, the experience acquired on the main stem has been referred to, with a view of making it as perfect as practicable. It is highly gratifying to the Board, therefore, to be able to state, that the cost for graduation, masonry, and construction of the branch, allowing for the expense of laying down a second track of rails, will fall short of the original estimate upon which it was undertaken about \$60,000. The great viaduct across the Patapsco falls also within the estimate, including all attendant expenses. The obelisk, erected at its northern extremity, is a memorial, placed there at his own expense, by the able and enterprising contractor, John McCarney, of his connection with a work which is, as yet, the most extensive of its kind in this country.

Nineteen miles from Baltimore, the Savage Railroad diverges from the Washington branch, and leads to the Savage Factory, and to most valuable quarries of granite in the neighborhood. The Company, by which it was made, was incorporated at the last session of the Legislature, and they have prosecuted their work with commendable zeal and efficiency. It is now nearly finished as far as the factory, and will soon add, not inconsiderably, to the business of the branch.

Since the opening of the Washington road, the travelling between the two cities has greatly exceeded that which the stages and other modes of conveyance formerly accommodated at the same season. The average, at this time, is about two hundred persons per diem; and it is found that numbers, to the south of Washington, who formerly came to Baltimore by the Bay route, now ascend the Potomac and make

use of the Railroad. The Board have every reason to believe, that the results of the Washington branch will fully justify the policy of taking the greater part of the stock on account of the Company.

The distance between the two cities is now performed by the Locomotive Engines, in about two hours and ten minutes, which is at the rate of near twenty miles an hour. When the portion of the main stem common to the Washington branch, between the first intersection with the Turnpike Road and the Deep Cut, shall be made less curved than at present, which is contemplated, and can be easily effected, there is little doubt that the time of making the journey will be brought within the limit of two hours, as originally proposed.

As yet, with the exception of the deep cuts, there is but a single track of rails on the Branch Road. It is the intention of the Board, however, to take steps to lay down the second track in time to accommodate the now daily increasing travel and transportation.

The increased and rapidly increasing operations of the Company have rendered it necessary to add largely to its real estate, both in Baltimore and in Washington. The Mount Clare depot, containing ten acres, and presented to the Company by the late James Carroll, Esquire, having been found insufficient for the purposes connected with the business of the Road, to which it is appropriated, the Board have recently purchased about 11 acres of the ground lying south of, and binding on Pratt-street, and immediately east of, and adjoining to this property, by which the entire quantity owned by the Company there, is increased to about 21 acres of land. Squares No. 718 and 682, and the half of square No. 574, have also been purchased in Washington, for the purpose of establishing a depot and other necessary accommodations in that city, as has also been a lot on the Pennsylvania Avenue, at the angle where the Railroad intersects it. On the latter property there is erected a convenient three story brick house, now occupied as a ticket office, and also a commodious car-house. The wants of the Company have rendered it necessary to enlarge the foundry at the Mount Clare depot, and to appropriate for a boiler shop the car-house first built there. An engine house, with accommodations for nine engines, has been erected upon an improved and satisfactory plan—a large car-house, of wood, containing three tracks and one hundred and fifty feet in length, has also been built, and another, of brick, two hundred and eight feet long, is now in progress, as is also a new smithery and repairing shop. When the number and value of the passenger cars, belonging to the Company, are considered, these arrangements for their safety and preservation, will not be thought superfluous.

An arrangement has been made with the Water Company, for an ample supply of water at the Mount Clare depot, where the well water was found to produce a deposit injurious to the boilers of the engines. Arrangements have also been made for water stations along the line of the Washington branch, and on the main stem, and permanent and convenient fixtures are now being erected at the proper points, to secure, at all times, a prompt and ample supply.

With the machinery and motive power employed by the Company, there is every reason to be satisfied; and the results of

experience confirm the Board of Directors in the belief, that the engines used by them, differing as they do essentially from the English engine, are not only better adapted to the curves of the main stem, but are more powerful, with equal velocity, on the comparatively straight and level branch road to Washington. The principle of these engines has been fully explained in former reports. Numerous improvements in the details of construction, have been made during the past year, aiming at simplicity and durability; and there is little doubt that results, which are now daily furnished on the Washington branch, will, before long, give the constructors of the Company's engines the same advantages, which the experience of the Liverpool and Manchester Road has afforded in the workshops of England. The anthracite coal continues to be the only fuel employed, and is found to be far preferable to any other. The heat is intense—the fire requires replenishing but seldom—no smoke is emitted, and no sparks are produced, to the peril of the clothes of passengers, baggage or merchandize. Neither is it observed that the fire bars are less durable, or require renewing oftener, than in engines where either wood or coke is used.

[Here follow three paragraphs, which were inserted in our last number.]

When thus adverting to what has been accomplished in the improvement of the locomotive engines of the Company, it would ill become the Board to omit paying a tribute of merited respect to the memory of Phineas Davis, the lamented individual who so largely contributed to the results here indicated. On the 27th of September last, he, having completed a new engine, availed himself of the occasion of trying it, to take his numerous workmen on a visit to Washington. On his return, the engine striking the end of a rail, which the breaking of the iron chair had permitted to get out of alignment, it was thrown off the track, and being at the time on the tender, he was dashed forward against the engine, and instantaneously killed. No other person was injured.

Phineas Davis was the first, who constructed an engine, capable of being used on the Road, in which anthracite fuel was successfully employed. With untiring patience, he bore disappointment after disappointment; and the eminent and splendid results, which ultimately rewarded his efforts, are ample testimonials of his genius, and will identify his name, most honorably, with that great system of internal improvement, which is yet to work so many and such important changes in the relations of society. Of a quick and clear conception, in matters relating to his profession, he possessed a calm discriminating judgment. The warmth and energy of inventive talent were tempered by a prudent foresight and great practical skill. He seldom, therefore, took a step, which was not a secure one; and the success of his suggestions, when put into practice, gave them, from the first, almost the same weight as if they had been the dicta of experience. His private worth and unassuming manners, were not less remarkable, than his rare abilities. The Board deeply regret his loss, and hold his memory in sincere and respectful consideration.

The eight wheeled passenger cars, mentioned in the last annual report, have been fully tested, both on the Washington branch and on the main stem; and are found to combine safety, convenience, ease of motion, and economy. They are considered

far preferable to the common four wheeled cars in all these particulars, and have been permanently adopted by the Board. The same plan has been applied to the burden cars, with equally favorable results.

The machinery, generally, of the Company, has been much improved during the past year. The casting of the wheels has been brought to a perfection which removes all fear of accident from their breaking, even at the highest velocities. The revolving platforms, invented by John Elgar, and used at the Mount Clare depot engine house, are superior to any heretofore constructed. The present brakes for passenger cars, suggested by Evan Thomas, have proved most efficient and durable. A new form of blowing apparatus, combined with a contrivance for heating the water before it is pumped into the boilers, has been invented by Ross Winans, and has produced increased efficiency. In fine, the Board have every reason to be satisfied of the policy of having their machinery manufactured in the shops of the Company, where suggestions, growing out of the experience afforded on the road, can at once be made available.

The number of locomotive engines now in use is seven, of passenger cars forty-four, of which twenty-five are on eight wheels, and of burthen cars one thousand and seventy-eight, of which forty-eight are on eight wheels.

The necessity of providing for the punctual payment of the interest on the loan made to construct the Washington branch, together with a determination to pay off the arrears of interest on loans made to anticipate instalments, during the construction of the main stem, have obliged the Board to postpone, heretofore, the payment of dividends. The completion of the Washington branch, however, now enables the Board to commence, and to continue, without interruption, the payment of semi-annual dividends. And after carrying \$75,000 to the debit of profit and loss, to make good deterioration of the Railway and machinery, they have declared a dividend of one and a half per cent. for the last six months.

It now remains for the Board of Directors to advert to their relations with other works of internal improvements, and to present such views with respect to the further progress of the Baltimore and Ohio Railroad, as have been suggested during the past year. Plans which, not long since, would have been considered as fanciful chimeras, are hourly assuming the shape of effective undertakings; and rapid as have been the strides taken in the improvement of Railroads and their machinery, the possibility of much greater perfection is now even more fully admitted than it was in the earliest periods of the system. A Railroad which is constructed in an old community, and that passes through a densely peopled region, may have its fortunes foretold to it in the outset: but one whose course lies through a new land, teeming with all the elements of agricultural and commercial greatness, which connects immense rivers flowing in opposite directions, whose rich valleys have been, but recently, in comparison, laid open to the full tide of emigration, such a Railroad is found, at each step of its progress, involved in new relations, and it becomes difficult to predict results which future circumstances can alone determine.

Soon after the publication of the last an-

nual report, application was made to the Board, on behalf of a large and highly respectable meeting of the citizens of Chambersburg, requesting that an engineer might be deputed to examine the country between that city and the main stem of the Baltimore and Ohio Railroad, at a point not far below Harper's Ferry. The Board accordingly directed B. H. Latrobe, Esq., then assistant engineer in the Company's employment, to perform the required service; and he made a reconnaissance of the proposed route, with a survey of part of it, passing through Hagerstown, leaving Boonsborough to the north, and descending the valley of Israel's Creek to the Potomac. The entire distance was about 45 miles, the greater portion of which was found to be extremely favorable, and the average cost per mile for a single track was estimated at \$10,000. One inclined plane was found to be necessary to overcome the rapid rise from the margin of the Potomac towards the summit level. No steps have yet been taken in the prosecution of this road: but it is not improbable that, before long, a communication between Baltimore and Chambersburg, by the proposed route, will be effected.

Within the last year, the Baltimore and Port Deposit Railroad Company, whose work unites with the main stem of the Baltimore and Ohio Railroad, at the eastern part of the city of Baltimore, have commenced active operations, and the graduation, as far as the Gunpowder River, is understood to be nearly completed. It is supposed that this Road will be finished to Havre-de-Grace during the ensuing year. By the same time, the Railroad now being constructed from Wilmington to the Susquehanna, will also be ready for use; as also the Oxford and Cecil Railroad, which unites with the Baltimore and Port Deposit Road at the village of Port Deposit, after passing through Lancaster county, Pennsylvania. Should the Railroad from Washington to Philadelphia, and that now in progress across New-Jersey, be completed, which there is every reason to believe will soon be the case, there will then be an uninterrupted line of Railroad communication between New-York and Washington City. From Washington to Potomac Creek, steamboats will continue, in all probability, to furnish the means of conveyance for some time: but from Potomac Creek, the Railroad to Fredericksburg, and from thence to Richmond, thence to Petersburg, and thence to the Roanoke, will prolong the system southwardly, parallel to the seaboard. Of this route it will at once be seen that the branch Road to Washington forms one of the most important links. To the westward, the main stem of the Road is already at the point of divergence of the great natural highways to the West and Southwest, where the Potomac and Shenandoah unite their waters. The extension of the Chesapeake and Ohio Canal to Cumberland, will afford an early and efficient means of approach towards the West; while the Winchester and Potomac Railroad, now nearly completed, and the Winchester and Staunton Railroad, which there is much reason to believe will be undertaken before long, will carry the system from Baltimore into the heart of Virginia, and to within sixty miles of Pattonsburg, on the line of the James River and Kenawha Railroad: so that on the completion of the latter, and the Winchester and Staunton Railroad, both of which events may be considered as not remote, there will be but sixty miles of Railroad, in addition, to make, over a favorable

country, to complete a Railroad communication with the western waters.

Looking still further forward in this direction, and warranted by circumstances that give probability to what would, not long since, have been considered as morally, if not physically, impossible, it will be found that the route above indicated affords a very direct and feasible means of forming a connection with the New-Orleans and Nashville Railroad, and thus perfecting a great chain of internal improvements from one extremity of the Union to the other. From Pattonsburg, on the James River, to Salem, passing near Lexington and Finncastle, the great valley presents a good location for a Railroad; and the passage of the Alleghany chain, to the waters of New River, near Christiansburg, it is understood, offers no difficulties which may not be easily overcome without the use of stationary power. Ascending first the valley of New River, and then the ravine of one of its tributaries in a southwest direction, there is but a short distance, and a low summit, intervening between the sources of the Holston, on which is situated Knoxville, East Tennessee, at the head of steamboat navigation, not far above the point where the Holston and Clinch Rivers uniting form the Tennessee River. The prolongation of the Road down the Tennessee valley to Decatur, would unite it with the Tusculum Railroad now in operation, and complete a line which must certainly be intersected by the Railroad from New-Orleans to Nashville. It is not at all improbable that before long a Railroad will be made up the Tennessee valley, towards Knoxville, on the route here indicated. To those who doubt the completion of the communication thus pointed out, no better answer can be given than to refer to the New-Orleans and Nashville Railroad; which, from being, a brief space since, a mere speculation, is now under contract, with every prospect of early completion. If, in place of the route here indicated, the lower route, from the Roanoke, through the alluvial country, to New-Orleans, should be adopted for the Railroad connection of the North and South, the Washington branch, instead of the main stem, will receive the travel and transportation, so that the Company will, in any case, derive a full share of the benefits of the undertaking.

In their last annual report, the Board expressed their opinion that the true interest of Baltimore, and of the State of Maryland, lay in the completion of the Chesapeake and Ohio Canal to Cumberland, and the continuation, beyond that point, of the Baltimore and Ohio Railroad to Pittsburgh and Wheeling, so as to effect that communication with the West, by means of the two works, which had been so long and so anxiously aimed at. During the subsequent session of the Legislature, an appropriation of two millions of dollars was made, on behalf of the State, sufficient to accomplish the first part of this design; and it now only remains to provide the means to construct the Railroad across the mountains to complete the whole. It is hardly to be supposed that Maryland, which, in creating the Baltimore and Ohio Railroad Company, gave the first impetus to the present system of extended Railroad intercommunication, will not go forward as nobly as she has begun, and contribute as largely to the Railroad across the mountains, as she has done to the Canal which reaches only to their base. It is the completion of the entire scheme which can only justify her having embarked in a portion of it; and

when that completion depends upon herself, when an increased investment will not only be profitable in itself, but make previous investments yet more productive, it can scarcely be doubted but that the state, true to her own best interests, will furnish the necessary means.

During the last summer, Jonathan Knight, Esq., Chief Engineer of the Company, was directed, at the instance of the citizens of Wheeling, to make a reconnaissance between Cumberland and the western waters; and, inasmuch as the Charter of the Company from Pennsylvania required that the Road, if it entered that State, should be constructed to Pittsburgh, the reconnaissance was extended to the two cities. The report of the Chief Engineer will be found in the appendix. It is full and satisfactory. It proves the all-important fact, that the mountains between Cumberland and the western waters CAN BE PASSED WITHOUT THE USE OF STATIONARY POWER, BY LOCOMOTIVE ENGINES AND THEIR TRAINS: It shows that the Roads to both Pittsburgh and Wheeling are perfectly practicable; and that it is to the interest not less of those two places than of Baltimore, that both should be made. Each presents its peculiar advantages, pointing to opposite parts of a wide region, and being either in connection or juxtaposition with different systems of internal improvement still further to the west. Indeed, the completion of both is alike necessary to the perfection of the plan of western intercourse, as originally contemplated in the organization of this Company, and which the Board cannot help believing is now speedily approaching its accomplishment; and both should if, practicable, be simultaneously carried forward.

Entertaining the convictions here expressed, the Board have regarded with great interest the steps taken in Wheeling and Pittsburgh, on the subject, and have been highly gratified to find their own views corroborated by the public sentiment of those places. In looking to the means by which both works shall be completed, and considering the mutual interest of the parties in the undertaking, it has appeared to the Board that the expense should be joint: the State of Maryland, the city of Baltimore, and individual subscribers furnishing the portion required to make the main stem to the point of divergence, and Pittsburgh and Wheeling furnishing the portions equal to the expected cost of their respective branches. The total expense has been roughly estimated at about \$4,600,000, of which Wheeling, some time since, has tendered a subscription of \$500,000. The Board of Directors, vital as they consider the subject of western intercourse, must bear in mind, nevertheless, the extent to which the people of Baltimore have already embarked in it, the probability of further contributions from the same source, and the prospect of receiving that aid from the State which is essential to the object. Of the deep interest which Baltimore now has in the undertaking, and which is, in truth, the interest of the State, the Board have spoken fully in their former reports; and they cannot but believe, that, when it shall be ascertained that a portion of the capital, equal to the cost of their respective branches, will be subscribed in the cities of Pittsburgh and Wheeling, that the State of Maryland, the city of Baltimore, and individual subscribers, will be found ready to contribute the balance. Without some such assurance as is here intimated; without, indeed, being satisfied that the Railroad, when once commenced beyond Cumberland,

would be finished without delay to the Ohio and Pittsburgh or Wheeling, or both, it would not be advisable to make the commencement; for it is only the connection with those cities, and the trade and travel that would be the consequence, which can justify the undertaking. There are some designs so noble and important, that their mere suggestion is sufficient of itself to render their accomplishment certain, notwithstanding what may appear at the time to be disheartening difficulties. The design of western intercourse here indicated is one of these; and the question now is, not whether it shall ever, and remotely, be completed, for of that there can be no doubt, but whether, by prompt and vigorous action, it shall be urged forward without delay, so as to insure the advancement of Baltimore to prosperity, *pari passu* with the other cities of the land.

Admirably situated, as Baltimore is, at the head of the Chesapeake, and in closer proximity to the valley of the Mississippi than any other of the Atlantic cities, all that is necessary to insure her rapid growth in wealth, power and importance, is united effort among her people, aided by the State of which she is the commercial capital. The Susquehanna Railroad from the North—the Washington Branch from the South—the Port Deposit Railroad from the East, and the main stem of the Baltimore and Ohio Railroad from the West, may be considered as so many great arteries, whose prolonged extension and spreading ramifications tend to increase and secure the healthy and vigorous growth of the city which may be termed the heart of the system.

For a statement of the receipts and expenditures of the Company during the past year, and for an exhibit of its general fiscal concerns, the Board refer to the report of the Treasurer.

By order of the Board of Directors,
P. E. THOMAS, Pres't.

October 1, 1835.

RAILROAD INTELLIGENCE.

The following letter from a gentleman in Georgia, shows that another of the "Old Thirteen" is in reality aroused from her torpor—not that this is the first evidence, for that was given in the *Augusta and Athens Railroad*—which, we are gratified to say, is progressing rapidly. The prospect now is, that Georgia will not be behind any of the other States, with her works of Internal Improvement—as we will endeavor to show at an early day.

Forsyth, Nov. 19, 1835.

Dear Sir,—The State of Georgia is at last arousing from her lethargy on the subject of Internal Improvements.

A Charter has been granted for a Railroad from this place to Macon, a distance of 25 miles; the books of subscription have been opened, and all the stock taken up in one day. The Directors have been elected, and steps taken to insure the speedy commencement, and vigorous prosecution of the work to its completion. This road will only be a small link in the chain of internal communication through the State. A bill of amendments to a Charter which was granted two

years since, for a Railroad from Savannah to Macon, is now progressing in the Legislature; also, a bill for a Railroad from this place to the western boundary of the State, to connect with a Road from Montgomery to West Point, on the Chattahoochee River. When all these works are completed, as they unquestionably will be, we shall then have a Railroad from the seaboard to the most eastern extremity of the State, and nearly through its centre, a distance of about 320 miles, to which add the Road from West Point to Montgomery in Alabama, 96 miles, making altogether, a distance of over 400 miles of connected Railroad. Various other Railroad projects are on foot, but none other settled upon as certain, except a Road from Augusta to Athens, which is now constructing.

I give you the above particulars, believing that you will be gratified to know that Georgia, one of the Old Thirteen, is at last awaking to the importance of her own improvement, after having so long looked with listless apathy upon her sisters' rapid strides in Canals and Railroads.

I am, very respectfully,

ALFRED BROOKS.

JAMAICA AND BROOKLYN RAILROAD.—We are gratified to be able to say that this Road is now nearly ready for use—and indeed but for the untimely extreme cold weather, which has retarded operations for several days past, it would have been completed on Monday next for the Locomotive Engine which is now ready for use.

It will be seen, says the *Baltimore American* of December 2d, that sixty miles of the Portsmouth and Roanoke Railroad are now open for travel and transportation. Connected with the road is a line of coaches to Halifax, in North Carolina, and so complete and expeditious are the arrangements, that travellers who leave Halifax in the morning may reach Baltimore on the following morning. The energy with which the Company have prosecuted their work entitles them to the highest praise.

This Company is indeed entitled to great credit for their perseverance; and they will certainly find that their best interests lies in continuing it, not only up the valley of the Roanoke, at least into Pittsylvania and even to the Blue Ridge, but also into North Carolina.

DAYTON AND CINCINNATI RAILROAD.—It will be seen, by the following notice from the *Dayton Journal*, that, "agreeably to public notice, a large and respectable number of citizens met at the Court House on Saturday evening, Nov. 21st, to take into consideration the construction of a Railroad from Dayton to Cincinnati. Jonathan Harshman was called to the chair, and David Winters and Edwin Smith appointed Secretaries."

Among others, the following resolution

was adopted, which shows the object to be a continuation of the "Mad River Railroad" to Cincinnati—a work which will undoubtedly be constructed at an early period.

Resolved, That the great and leading interest and good of the public, would be equally promoted by extending the Lake Erie and Mad River Railroad from Dayton to Cincinnati down the Miami and Mill Creek valleys, and in furtherance of this object, that an application should be made to the next legislature for a charter.

CLEVELAND AND CINCINNATI RAILROAD.

—The Columbus, Ohio, Sentinel and Journal of the 27th ult., contains the proceedings of a meeting held at Cleveland on the 13th, for the purpose of adopting measures to construct a Railroad from that place by the way of Columbus to Cincinnati, at which the annexed, with many other, resolutions were adopted.

Resolved, That, in the opinion of this meeting, the prosperity and business of the Western country demand increased facilities of intercourse between its more commercial sections, and especially between the Lakes and the Mississippi Valley.

Resolved, That, in order to give full effect to the natural advantages of this State, and the relations we sustain to the Atlantic cities and the Mississippi Valley, in our trade and commerce, a Railroad between our two great Commercial Emporiums, Cincinnati on the Ohio River, and Cleveland on Lake Erie—is a work of the first magnitude, and, in the opinion of this meeting, the time has already arrived when the citizens of Ohio should cordially engage in the undertaking.

Thus it will be seen that Ohio, a State of less than forty years, is taking the lead in a system of Internal Improvement, which will at no distant day pervade this whole country—and make neighbors of those of whom we now know comparatively nothing, except as the citizens of distant States.

BROWNSVILLE, PA., INTERNAL IMPROVEMENT CONVENTION.—This Convention met, according to the *Wheeling Gazette* of Friday, in the Episcopal Church at Brownsville at eleven o'clock, and proceeded to its organization, by calling Gen. Andrew Stewart, of Uniontown, to the chair, and appointing John P. Kennedy, of Baltimore, and James L. Bowman, of Brownsville, Secretaries.

On motion of Mr. McCulloch, of Baltimore,

Resolved, That the delegates present furnish to the secretaries the names of the respective delegations appointed to attend this Convention.

Which being done, it appeared that the following delegates were present:

Baltimore City.—James W. McCulloch, Jacob Albert, John P. Kennedy, John S. McKim, Samuel C. Hoffman, John S. Shriver, Wm. F. Murdock, M. S. Norman, Joshua Jones.

Railroad Delegation.—William Stewart.

Baltimore County.—William Jenkins.

Cumberland.—John Gephart, John Hoyer,

Samuel P. Smith, William Lynn, David Shriver.

Wheeling.—Samuel Sprigg, John McClure, Redick McKee, Z. Jacob, W. B. Atterbury, Moses C. Good, John Goshorn, Samuel H. Davis, Thomas Hughes, Joseph Caldwell, Daniel Zane.

West Liberty.—John J. Jacob.

Trisdelphia.—Col. Archibald Woods, Gen. Daniel Cruger, Henry Bell, Thomas Thorburg, Lewis Lunsford, Jacob Gooding, Daniel Steenrod.

St. Clairsville.—James Caldwell, Wm. B. Hubbard, Daniel Peck, David Allen.

Harrison County.—John Anderson, Jas. McMillen.

Bridgeport.—E. Martin.

Uniontown.—Gen. A. Stewart, Wm. P. Wells, H. W. Becson, George Mason, John Dawson, Richard Beeson, R. D. Henniken, J. B. Howell, John M. Austin.

Washington County.—Col. Thomas Ringford, John Oliver.

Williamsport.—Hon. T. H. Baird, Major S. Bently, John McFarland, William Impson, Isaac Van Voorhees, Jos. Hamilton, Jos. Alexander, Samuel Hill.

Fredericktown.—John Bowers.

Millsborough.—Daniel Shutterly, Isaac Colvin, Wm. Vankish, Isaac Holliman.

Pittsburgh.—Alex. Breckenridge, Thomas Blakewell, M. B. Meltenberger, L. P. Darlington, Lewis Peterson, Thomas Williams, Isaac E. Wade, James Patterson, jun.

Brownsville and Bridgeport.—Wm. Hogg, Jacob Bowman, Joshua Wood, Michael Sowers, Benedict Kimber, Robert Clark, George Dawson, David Binns, Jos. Thornton, James L. Bowman, D. L. Blaine, Thos. Sloan, Cephas Gregg, Eli Forsythe, William Cock, David Porter, John Cock, Henry Sweitzer.

West Brownsville.—E. L. Blaine.

On motion of Mr. Sprigg, of Wheeling, a committee was appointed to select suitable persons as officers of the Convention; which was done. A committee was also appointed to report rules for the government of the Convention—after which an adjournment of the Convention until 4 P. M. was carried.

At the appointed time the Convention assembled, when the committee reported the following names, viz:

The Hon. ANDREW STEWART, of Pa., to be President.

Col. Thomas Ringland, of Pa.	} Vice Pres'dts.
Col. Archibald Woods, of Va.	
John Gephart, of Maryland,	
James Caldwell, of Ohio,	
Jacob Albert, of Baltimore,	
A. Breckenridge, of Pittsburgh,	} Secretaries.
James L. Bowman, of Pa.	
J. P. Kennedy, of Baltimore,	
Samuel H. Davis, of Virginia,	

After the adoption of several resolutions, and amongst others the following: That a committee, to consist of three persons from each State represented in this Convention, three from the city of Baltimore, three from the city of Pittsburgh, and three from the town of Wheeling, together with Gen. Andrew Stewart on behalf of the Chesapeake and Ohio Canal Company, and Mr. Wm. Stewart on behalf of the Baltimore and Ohio Railroad Company, be appointed and instructed to consider, arrange, and digest such measures, and report

such resolutions as they may think it expedient for this body to adopt, the Convention adjourned, to meet at 9 A. M. the next morning.

RAILROAD FROM CHAMBERSBURGH, PA., TO WILLIAMSPORT, MD.—The Williamsport Banner of Nov. 28, says:—"A numerous meeting assembled in Greencastle, Pa., yesterday, in pursuance of public notice, for the purpose of considering measures relating to the proposed Railroad from this place to Chambersburg.

The object of this meeting was to adopt measures to obtain a charter from the Legislature of Maryland for a Railroad from Williamsport on the Potomac to the Pennsylvania line—there to connect with a road already chartered by Pennsylvania to Chambersburg. There is also a Railroad called the Cumberland Valley Railroad—uniting Chambersburg with Harrisburgh, which is about to be commenced.

Thus connecting the seat of Government of Pennsylvania with the Chesapeake and Ohio Canal on the South.

The following extracts from the proceedings of a meeting, held at Ogdensburg, on the 9th inst., and the annexed proceedings of the Railroad Convention, held at Malone, on the 12th, taken in connection with previous proceedings in Lebanon, New-Hampshire, show a determination amongst those residing on, and in the vicinity of, the line of the contemplated Railroad from Ogdensburg to Plattsburgh, in New-York, and from Burlington, Vt., through New-Hampshire, to Boston.

This Road will eventually be constructed—and it will afford great advantages to the section of country through which it will pass. It will also afford to the inhabitants of those states an easy, cheap, and expeditious mode of emigration to the West; so expeditious, indeed, and so easy, that many will avail themselves of it, who otherwise would not encounter the labor.

RAILROAD MEETING.—At a large and numerous meeting of the citizens of Ogdensburg, convened at Haskin's Hotel, on the 9th day of November, 1835, pursuant to previous notice, for the purpose of appointing Delegates to attend the Railroad Convention, to be held at Malone, on the 12th instant.

[Silvester Gilbert was chosen Chairman, and Baron S. Doty, Secretary.

The object of the meeting having been stated by the chair, the following persons were appointed Delegates, viz. Silvester Gilbert, Preston King, Henry Van Rensselaer, Baron S. Doty, and John C. Bush.

The following, amongst other resolutions, were passed:

Resolved, That we have the fullest confidence in the ability of this work, to sustain itself, without looking to, or depending upon its extension to Boston.

of Boston, is a project worthy of the combined efforts of the several states and sections of country to be benefitted by it.

Resolved, as the sense of this meeting, That the time has arrived, demanding the active exertions of our fellow citizens, resident along the route of the projected Railway, and that we will co-operate with them in promoting this great enterprise.

Resolved, That B. Perkins, A. C. Brown, E. Vilas, P. King, and G. N. Seymour, be a Corresponding Committee for the county of St. Lawrence.

S. GILBERT, Chairman.

B. S. Doty, Secretary.

In pursuance of previous notice, the Lake Champlain and St. Lawrence Railroad Convention, met at the house of O. T. Hosford, in Malone, on the 12th day of November, 1835, at 12 o'clock, M., for the purpose of taking into consideration the construction of a Railroad from the foot of sloop navigation on the River St. Lawrence to Lake Champlain.

After the ordinary preliminaries, the meeting was adjourned until 2 P. M., when the committee reported the names of the following gentlemen as officers of the Convention.

Hon. W. F. HAILE, of Clinton co., Pres't.	} V. Pres'ts.
Hon. B. CLARK, of Franklin,	
S. GILBERT, Esq. of St. Law.,	
A. C. MOORE, Esq. of Clinton,	
S. RAYMOND, Esq. of St. Law.,	
P. KING, of St. Lawrence,	} Secretaries.
J. PARKHURST, of Franklin,	

Which Report was unanimously adopted, and the Convention duly organized.

Mr. Jackson, from the committee appointed for that purpose, then reported the following resolutions, which, after an able and eloquent discussion of the subjects embraced in them, by Messrs. Bradish, Haskell and Woodward, were severally and unanimously adopted.

Resolved, That the construction of a Railroad from the navigable waters of the Western Lakes to some point on Lake Champlain, is not only practicable, but is imperiously required, by a proper regard to the interests and prosperity of this State and country, and that it can no longer be delayed without an abandonment of the essential interests of at least the northern counties of the State of New-York.

Resolved, That an application be made to the Legislature of this State at its approaching session, to revive the act entitled "An act to incorporate the Lake Champlain and Ogdensburg Railroad Company," passed April 20th, 1832, and so to amend the same as to reduce the capital stock of said Company to six hundred thousand dollars, to appoint commissioners, and to require the books for the subscription of the stock of said Company, to be opened without delay.

Resolved, That the members of Assembly from the counties of Essex, Clinton, Franklin, and St. Lawrence, and the Senators from the fourth Senate District, be particularly requested to aid in carrying into effect the last preceding resolution.

Resolved, That Joseph H. Jackson, William Hagan, Asa Hascall, Jabez Parkhurst, and Amherst R. Williams, be a committee to prepare and forward to the Legislature of this State, in the name of this Convention, a memorial pursuant to the foregoing resolutions.

Resolved, That Smith Stilwell, John L.

Russell, Samuel Partridge, Silvester Gilbert, Preston King, and Horace Allen, of St. Lawrence county, James B. Spencer, Asa Hascall, Benjamin Clark, Clark Lawrence, and Luther Bradish, of Franklin county; William F. Haile, Silas Hubbell, Richard Keese, Amasa C. Moore, Gersham Cook, and James W. Wood, of Clinton county; and Elkanah Watson, Thomas A. Tomlinson, Oliver Keese, Charles M. Watson, and Henry H. Ross, of Essex county, be a General Corresponding Committee, whose duty it shall be, without delay, to open a correspondence on the subject of the proposed Railroad, with such gentlemen in other parts of this State, and in other States, as may be supposed to feel an interest in its construction, and to invite their concurrence and co-operation in the measures necessary for the prosecution and accomplishment of the work.

On motion of Mr. S. Gilbert, Resolved, That the Committee for preparing a memorial to the Legislature, cause the requisite legal notices to be published.

On motion of Mr. F. L. Harrison, Resolved, That the proceedings of this Convention be signed by the officers of the Convention, and published in all the newspapers printed in the counties of Essex, Clinton, Franklin and St. Lawrence, and in the Albany Argus.*

On motion of Mr. Parkhurst, the Convention adjourned.

WILLIAM F. HAILE, President.
BENJAMIN CLARK,
SILVESTER GILBERT,
A. C. MOORE, } V. Presidents.
SEWALL RAYMOND,
PRESTON KING, } Secretaries.
JABEZ PARKHURIT,

There can be little doubt, we imagine, of the success of an application to the Legislature for a renewal of the charter, or of the ultimate construction and prosperity of the road, as we have full confidence in the remark of Mr. Vignoles, that "Railways create their own sources of revenue."

* The Railroad Journal appears not to have been known to the members of the Convention—we will endeavor to have it make their acquaintance.

CANAL INTELLIGENCE.

SANDY AND BEAVER CANAL.—We have long deferred the report of the Directors of this Company, which was made last August to the stockholders—and of which we are now reminded by the report of the Chief Engineer, E. H. GILL, Esq.

This Canal is to extend from the Ohio Canal at Bolivar, to the mouth of the Big Beaver Creek on the Ohio River, and is about 90 miles in length.

The first charter for this Canal was granted, we believe, in January, 1828, by the Ohio Legislature, but in consequence of a variety of circumstances, its commencement was delayed until late in the fall of 1834, when 2½ miles were put under contract. Since that period the work has been prosecuted with spirit and success, as we learn from the Engineer's report, which we shall endeavor to give entire in our next.

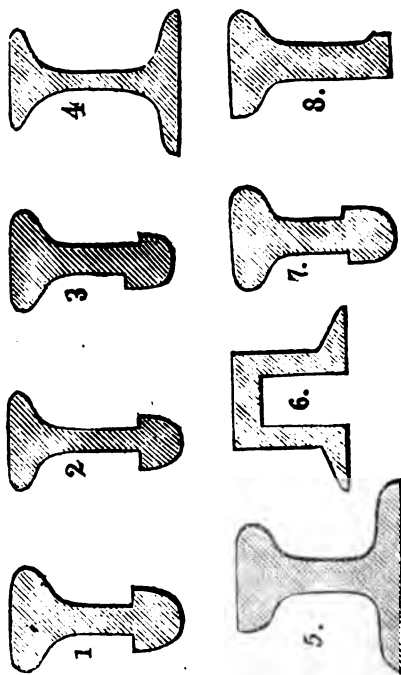
In the mean time, however, we give the following extract, which shows the present condition of the work.

On the eastern division of the line 49 sections or 24½ miles of canal, 13 dams and 46 locks are now under contract, on the middle division, 21 sections or 11 miles including the tunnels and the reservoir mounds on the west fork of Little Beaver Creek and Cold Run. And on the western division 28 sections or 14 miles 11 locks, 1 dam and the aqueduct over the Tuscarawas River, constituting in all 49½ miles of Canal, 14 dams, 57 locks, one aqueduct and two Reservoir mounds now under contract.

The work has been prosecuted in most cases with energy, and is now in a greater state of forwardness than could reasonably have been anticipated, considering that the season was far advanced when it was commenced. About 34 sections or 17 miles of canal are now completed, and likewise the mason work of two locks and 144,000 cubic yards of excavation removed from the summit deep cuts, dam No. 2 on the western division will probably be completed next week. The foundation of five other locks and two dams are laid, and 1500 perches of wall built, and a large quantity of stones, and other materials for the construction of locks and dams are prepared, and on the ground, and I have no doubt, all the work now under contract excepting the tunnels and aqueduct will be finished in the approaching year.

The work placed under contract is in most instances in the hands of responsible and efficient men, and has been taken on terms exceedingly favorable to the company.

There is at the present period on the line a force equivalent to 2100 men; the costs of the locks which are built in the most durable manner of cut sand stone will not exceed \$700 per foot lift, being about thirty per cent. below the ordinary cost elsewhere; the cost of the dams, which are in most instances 14 feet high, will average about 28 dollars per foot linear across the stream, and the canal, exclusive of locks and dams, generally from \$3000 to \$5000 per mile.



(From the Journal of the Franklin Institute.)
Sections of Rails used in the United States.
By J. C. TRAUTWINE, Civil Engineer.
Gentlemen,—I send for insertion in the Journal of the Institute, transverse sections

of eight varieties of parallel rails, employed on different Railroads in the United States. The figures are drawn to a scale of one fourth the full size, and accompanied by a statement of the weights, per lineal yard.

	Weights.
No. 1. Columbia and Philadelphia, per yard, 41½ lbs.	
2. " " " " " " " "	33 "
3. Germantown and Norristown, " " " "	39 "
4. Camden and Amboy, " " " "	39½ "
5. Boston and Providence, " " " "	54 "
6. Wilmington and Susquehanna, " " " "	40 "
7. Alleghany and Portage, " " " "	40 "
8. Boston and Providence, " " " "	40 "

[From the same.]

On Steep Grades for Railroads. By A. C. JONES.

Gentlemen:—In reading the reports of new Railroads that are being located, I have been surprised to see that Engineers propose grades of one hundred feet to the mile, and state that locomotive engines will overcome them with ease; * this being only the case when the greater part of their load has been left behind, or when the assistance of another engine is afforded to aid the first one up the grade.

Inclined planes, with stationary engines, are serious evils on Railroads, and where the plane is such that it requires the power of another locomotive to surmount it, the evil is only lessened: far better would it be for the stockholders, if the Engineer should lengthen the road five miles, than to make a grade over thirty feet to the mile. Where the carrying trade is all one way, there is an exception to this remark, but then such grades are not consistent with safety.

It will be admitted by all, that the state of the water in the boiler of a locomotive engine is of considerable importance, and any person who has seen locomotive engines, with boilers of Mr. Stephenson's plan, will not have failed to notice the great change in the height of the water in the boiler, in passing from a level down a grade of twenty-five feet to the mile. This is easily accounted for, by the angle which the grade makes with the horizon, and as the water in the boiler will find its level, it flows to the lowest end: moreover the centre of gravity being thus moved forward, increases the weight on the springs in front, which are straightened in proportion, while part of the weight being removed from the hind part of the carriage, the elasticity of the springs will raise it up, and the cap of the fire box, and part of the flues, are liable to be left dry.

It may be urged by some, that the ebullition in the boiler will keep the flues wet; but as it is known, that in descending a grade exceeding one hundred feet, no steam will be required, and there being consequently no draught, the water will not be in violent ebullition.

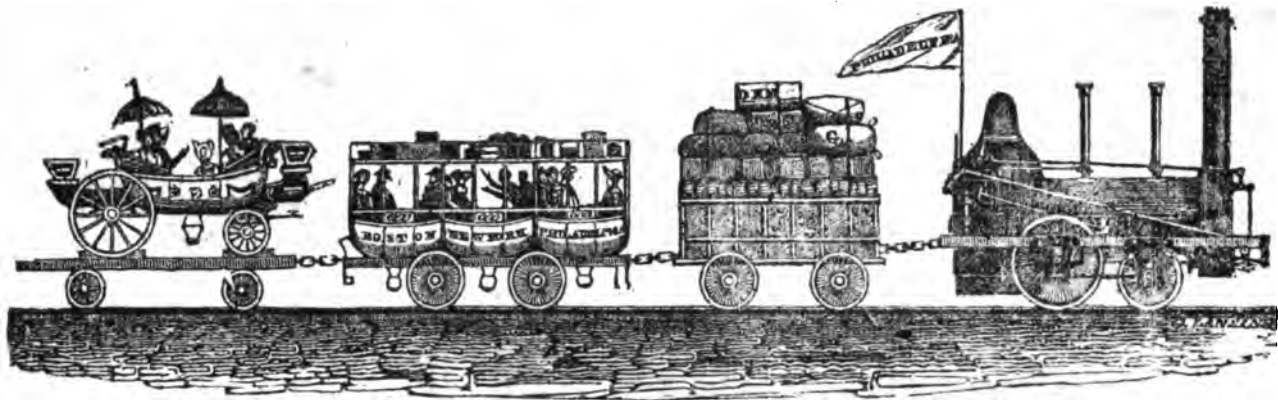
Respectfully yours,
A. C. JONES.

Portsmouth, Va., Aug. 20th, 1835.

* I have not seen the official account of the experiment of ascending the one hundred and seventy-six feet grade, on the Baltimore and Ohio Railroad; but it is not prudent to take a single experiment as a basis by which to form grades.

NEW JERSEY RAILROAD.—We are highly gratified at the industry and enterprise manifested along the line of this great improvement. The entire line of the road from Jersey City to this city is in a great state of forwardness and nearly graded. The rails are being laid on the road, and the contractors are now busily engaged within three miles of the Raritan, which, we think, is a sure guarantee that during the coming winter the road to this city will be completed.—[Fredonian.]

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AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.] SATURDAY, DECEMBER 12, 1835. [VOLUME IV.—No. 49.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, DECEMBER 12, 1835.

TO RAILROAD CONTRACTORS.—By the annexed notice it will be seen that another Railroad is progressing in the Southwest—a part of the country in which Railroads are to be more used and more useful—if possible than in any other—and we would direct the attention of our readers, whose interest may be thereby promoted, to the following notice of the President :

PROPOSALS will be received at the Office of the West Feliciana Railroad Company, in the town of Woodville, (Mississippi,) until the 15th day of January next, (1836,) for grading, bridging and constructing the Railroad for said Company, or any number of Sections thereof, yet unfinished. This road extends from the Mississippi River, near St. Francisville, to the town of Woodville, about 27½ miles, passing over lands composed of light soil and clay, free from rock of any kind, and it is believed, holds out uncommon inducements to Contractors.

It is desirable that all the work in each Section, including grading, bridging and superstructure, should be embraced in the same contract, (the Company finding timber and iron;) it is requested that the proposals be made in conformity thereto.

As it is expected that periodical payments will be required, as the work progresses, it is therefore requested that the proposals state particularly the price for grading per cubic yard, bridging per foot, and the superstructure per mile,—and the time the same will be commenced and completed.—The superintending Engineer will be on the ground to give the necessary information.

The usual evidence of character, capacity, and responsibility, will be required.]

JOSEPH JOHNSON, Pres. W. F. R. R. C.

Woodville, November 12th, 1835.

INTERNAL IMPROVEMENT CONVENTION.—It may perhaps be inferred, from the long delay in publishing the proceedings of the Convention, held at Utica, on the 11th of November, that we take very little interest in its objects and proceedings, as well as of that which is to be held at Albany on the 11th day of January next. Such inference, however, would be very wide of the truth, as many who know us, can bear witness. It may be proper, however, for us to say, that the delay has been entirely accidental, as well, we presume, in the omission, by those who prepared that report for publication, to furnish a copy for the Journal, as it has been in us, in not selecting it before from those papers in which it was published. They are now given, together with a circular, addressed by the Committee, to many gentlemen in different parts of the State, with a view of insuring a general attendance at Albany, of delegates from all parts of the State, that there may be an interchange of opinion, and a comparison of views, in relation to the adoption of measures that shall give renewed impulse, in this State, to the spirit of improvement which will carry out, to its full extent, the great system of Internal Improvement so happily, and so successfully, commenced in 1817.

It is important to a proper appreciation of what is now in contemplation, courses of construction, and in successful operation, in other States, that we should assemble, in Convention, from all parts of the State, and communicate to each other the result of our inquiry and investigations, that the people at large may be apprised of the efforts now making to divert from their works, the immense trade of the West; and with a view of devising measures by which the numerous avenues in this State, yet unimproved, may be brought into use, that we may, at least, have a clear field, and fair competition with our neighbors, for the prize, whose value is, to this city, beyond computation.

It is much to be hoped that gentlemen of

enlightened minds and liberal views will be selected to attend the Convention; and that they will, when there, act in such a manner as will tend to the greatest benefit of the greatest number, by advocating such works as will, when completed, insure the construction of numerous others, and they in their turn of others, until the State shall be intersected, in all directions, by easy modes, and as direct as possible, of reaching market. It is not to be supposed, that gentlemen will not look with some interest to those works which will promote the prosperity either of themselves or their friends; yet it is the duty of every man, and it will, no doubt, so be manifested by the Convention, to merge small, local, or sectional matters, in those of greater magnitude, and thereby insure, at an early day, the accomplishment, by force of public opinion, of those secondary works, which will then be not only of great convenience to community, but also of profit to those who embark in them; whereas, if undertaken previous to the construction of the great thoroughfares, they would be comparatively valueless.

Were it not that we might be thought desirous to lead in the matter, or to direct public opinion, we might give our views as to some of the most important works which should engage the deliberations of the Convention; but as we may be thus viewed by those who are unacquainted with us, we will not venture further upon this point than barely to allude to a few of those great routes, which cannot escape the most casual observer—who gives the subject a thought—leaving the others for the consideration of those more interested, and better qualified to show their importance.

Among other important matters, they will doubtless consider the necessity of so enlarging the Erie Canal, and of connecting it with Lake Ontario, and that lake to Erie, by a Canal around the Falls of Niagara, as to insure the business, which naturally, and always, will follow that channel, an easy and

unobstructed passage to tide water. In relation to that subject, the present is an important moment, for the exercise of the best judgment, and most enlightened forecast of every intelligent man. It is of vast importance that whatever may be undertaken, shall be so accomplished as to render all further enlargement unnecessary—and that such will be the result, we entertain very little doubt.

The Olean Canal is also a work which will doubtless receive that attention to which its importance entitles it. It is a work which will ultimately afford to this city a large amount of valuable timber; and enable many, who now realize but small profits from their lands, to share with the inhabitants of the more favored sections of the State, in the rich returns which an improved navigation to market enables them to derive. These are of immense importance to the people during a part, say about seven months of the year—and they will therefore be properly considered.

It is, however, in this age of improved locomotion, a subject of the first importance, as well to the whole country, as to this city, that other modes of communication should be adopted between this great commercial emporium, and the vast country which contributes to its prosperity; that there may be a constant, easy, cheap, expeditious and unobstructed intercourse, not only for travel, but also for transportation, AT ALL SEASONS OF THE YEAR.

Such has been the march of improvement, and such the increase of facilities for doing business, within the last ten years, that nothing short of the whole year will now satisfy us for the transaction of business; it, therefore, becomes our imperative duty to urge forward those great works that have been projected, which, when completed, will not only annihilate time and space, but also winter and ice, so far as they have heretofore tended to obstruct the regular course of business between this city and Albany, and the western part of the State.

The charter granted in 1832 for a Railroad from this city to Albany, on the east side of the Hudson, will, beyond all question, be renewed during the ensuing winter by our Legislature; and the Road must now, of course, be constructed, by way of self-defence, in consequence of the determination of the people of Boston to remove up to Albany—or rather to remove Albany, and a good portion of our western business, to Boston—by the Railroad between these two cities.

We say, New-York must construct this Railroad, on the east side of the Hudson, in self-defence; and while our hand is in, and by way of retaliation, we will run close alongside of the land of "Blue Laws," and the "Old Bay State," and occasionally board them, in search of such productions of their soil, as will contribute to "our

own convenience, and the convenience of others;" and then Boston may, if she please, take New-York also, with Albany and the Western Canal trade, if she can—or, in sober earnest, the citizens of New-York will not permit Boston to become the seaport of the line of our Canals, during four months of the year, for want of a means of reaching our own better market. Should they do so, by inattention to their best interests, and by an omission to open this channel of communication, then will Boston not only become the seaport of this State, and of the West, for one-third of the year, but she will be richly entitled to the prize she will thus have gained. This road must, and will be constructed; and in order to give as wide a scope as possible for business, inasmuch as it must, for 7 or 8 months of the year, run an express against the Hudson River, it will probably take an inland route; and perhaps in some places even touch upon Connecticut and Massachusetts, and probably connect at Stockbridge with the main Boston line, thereby making a part of the route a common track, which must, of course, make it uncommonly productive stock.

In addition to this Road, which will, during the winter, receive all the travel and transportation, and in summer, at least a share of the travel from the north and west of Albany, destined for New-York; we must refer to another of still greater importance, and which has the advantage of the first, in the circumstance of its being already commenced—the New-York and Erie Road. This Road will not only become a great thoroughfare for all kinds of business for, and from, the far west, but it will become the grand track for a numerous family of lateral roads, which will connect it with the Canal and the country beyond it—thus opening to almost the whole State, an easy and expeditious mode of getting to and from market, at all times and seasons of the year.

The most important of these branch Roads, are the Bettsburgh and Utica Road, which will probably eventually be continued on from Utica to St. Lawrence county—the Binghamton, Courtland and Syracuse Road, which will be continued to Watertown, in Jefferson county—thereby opening an easy channel for the distribution of the immense salt works at Salina and Syracuse, and of supplying that region with the coal and iron of Pennsylvania. In relation to this Road, the people are now just beginning to move, as will be seen from a Circular, in this number of the Journal. Of much of this route we can speak from personal observation, and we hesitate not to say, that a more feasible one, of equal extent, cannot be found in the country; and very few, indeed, which will afford the same amount of permanent business, aside from the products from the cultivation of the soil. With the salt works at one end,

Salina, and the coal and iron of Pennsylvania on the other, both inexhaustible in their supply, and each wanted along the whole line, it cannot but become, if properly constructed, one of the most profitable, as well as convenient, works of the kind in the country.

To this work we would ask the attention of all, as taken in connection with the main track, or by itself, it becomes a work of much interest and importance; and should not, therefore, be passed lightly over.

The next in order is the Owego and Ithaca, which will eventually be continued, not only to Geneva, but also to Auburn, connecting at each of those places with one, which will, at an early day, extend from Albany to Buffalo. Another branch will be made from Steuben, or Alleghany county, to Rochester, and another from some point still farther west to Buffalo, thus intersecting the whole State, at short intervals, and thereby removing almost every farm in the State to within from one to three days travel of this city; and at the same time secure to the city of New-York the business of the west, and to the people of New-York the profits of its transportation; and what is of far more importance, the reputation of being not only first in population, but also first in Internal Improvements, and in Agriculture.

With these important facts before the people, we have not a doubt but that a Convention will assemble at Albany which will do credit to the State; nor that it will, when assembled, take an enlarged and liberal view of the subject on which it came together; and therefore great good must result from the intercourse of so many intelligent men, engaged in the same cause.

New-York, 30th Nov., 1835.

Sir,—By the direction of the "Internal Improvement Convention of the State of New-York," lately assembled at Utica, the undersigned request your patriotic attention to the subjoined proceedings of the Convention.

It is certain that many lines of intercommunication, in this great State, remain unimproved, to the manifest inconvenience and loss of large masses of our citizens, while the vast works, completed and in progress, in neighboring States, enable their inhabitants to reap the advantages to be derived from an extended inland commerce.

The season of frost, which is now closing and rendering useless, for nearly half the year, the only great work of this State, may be deemed a suitable occasion to invite our fellow citizens seriously to reflect upon what should be done, to improve our condition, and to enable us to compete with our sister States. Your personal exertions are solicited, to induce the citizens of your County to assemble, without delay, and to appoint delegates to the Adjourned Convention, to be held

at Albany, on Monday, the 11th of January, 1838.

We are, respectfully, your fellow citizens, and obedient servants.

J. G. SWIFT, 2d Vice President.
DAVID C. COLDEN, Secretary.

INTERNAL IMPROVEMENT CONVENTION OF THE STATE OF NEW-YORK.

The Delegates to this Convention assembled at the Court Room, in the city of Utica, on Wednesday the 11th inst., agreeably to the published call for the Convention, by the Circular of the Chairman of the American Institute. For the purpose of a temporary organization, Gen. JOSEPH KIRKLAND, of Utica, was called to the Chair, and HENRY LOUCKS, Esq., of Montgomery, appointed Secretary. The following Delegates presented their credentials of appointment, and took their seats in Convention:

Long Island.—Edward Copeland, J. G. Swift, H. E. Pierpont, Morris Van Buren, George Hall.

City and County of New-York.—Henry Yates, James B. Murray, H. H. Elliott, John R. Peters, Joseph Blunt, D. C. Colden, Philip Kearney, Joseph E. Bloomfield, Curtis Bolton.

On behalf of the American Institute, New-York.—George Sullivan, Thaddeus B. Wakeman.

Canajoharie and Catskill Railroad Company.—Thos. B. Cook.

Montgomery.—Andrew B. Calhoun, Gerit L. Roof, Henry Loucks.

Herkimer.—Dr. Doolittle, Charles Grey.

Utica, Oneida county.—Joseph Kirkland, Theodore S. Gould, Thomas Walker, Hiram Denio, T. S. Faxon, Samuel Farwell, Chester Griswold, Willard Crafts, Thomas Goodsell, Samuel Beardsley, Rutger B. Miller, Joshua A. Spencer.

On behalf of the Mechanics' Institute, Utica.—Gardiner Tracy, Thomas Colling, Robert M'Bride, John Parsons, Jacob D. Edwards, Samuel P. Lyman.

Clinton, Oneida county.—A. S. Ruddock, Henry G. Everett, Samuel Comstock.

Whitesboro, Oneida county.—S. Newton Dexter, William S. Wetmore, Ichabod C. Baker, George Balis.

Rome, Oneida county.—Henry A. Foster, Benjamin P. Johnson, Joseph Stringham, Calvin B. Gay.

Vernon, Oneida county.—Luke Hitchcock.

Oswego.—T. S. Morgan, G. F. Falley.

Lewis county.—Daniel F. Buck, Sylvester Miller.

A resolution was then adopted that a committee of twelve persons should be appointed by the Chair, to report the names of officers to preside over the deliberations of the Convention. The following persons were appointed by the Chair, agreeably to this resolution:—Messrs. Yates, Wakeman, Blunt, Swift, Tracy, Falley, Buck, Loucks, Cook, Walker, Baker, and Foster.

The Convention then adjourned to meet at the Common Council Room, at 7 o'clock.

7 o'clock, P. M.

The Convention assembled pursuant to adjournment. The committee to report

the names of presiding officers, reported as follows:

For President, Hon. SAMUEL BEARDSLEY, of Oneida.

For 1st Vice President, SYLVESTER MILLER, of Lewis. For 2d Vice President, Gen. J. G. SWIFT, of Kings.

For Secretaries—DAVID C. COLDEN, of New-York, and THEODORE S. GOLD, of Oneida.

On motion of Mr. Copeland, the Report of the Committee was adopted, and the officers named by the Committee took their respective seats.

The following Resolutions were then submitted, and severally adopted by the Convention.

Resolved, That in view of the great and growing interests of this State, and the certain prospect of a continued and rapid increase of its wealth and its commerce, it is incumbent upon the citizens thereof, to unite in adopting such measures as may be calculated to promote Internal Improvements, upon a scale corresponding with our resources, and with the laudable enterprise of the people.

Resolved, That the several counties which have not sent Delegates, be requested to send Delegates to this Convention, at an adjourned meeting: the counties to send three times the number of their representatives in the Assembly, respectively.

Resolved, That when this Convention adjourn, it shall adjourn to the 2d Monday of January next, to meet at the Capitol in the city of Albany.

Resolved, That a Committee, consisting of three members from each Senatorial District, be appointed to facilitate the assembling of said Convention, and that they also be desired to submit a plan for a permanent organization, together with such other matter as they may deem expedient for the action of said Convention.

Resolved, That the said Committee be appointed by the officers of this Convention.

Resolved, That the officers of the Convention be requested to take the necessary steps to procure a full and general representation to the contemplated Adjourned Convention, and that they be authorized to fill all vacancies which may occur in any Senatorial Committee.

Resolved, That a committee of seven be appointed to collect information as to the annual cost of the post and county roads, in this State, and to report, at the next meeting of this Convention, a system for permanently improving their condition.

The following gentlemen were appointed: Messrs. Blunt, Lee, Swift, Pierpont, Cook, Schermerhorn and Lyman.

Resolved, That when this Convention adjourn, this evening, it adjourn to meet at 10 o'clock, to-morrow morning.

Resolved, That a Committee of ten be appointed by the chair to report to this Convention, at its meeting to-morrow morning, subjects for its consideration.

The following gentlemen were named by the Chair, as members of the above committee:

Messrs. Bloomfield, Foster, Swift, Murray, Spencer, Elliott, Loucks, Falley, Buck and Grey.

Communications were received from Ro-

chester, and from the Hon. Gideon Lee, which were severally read and laid on the table.

Convention adjourned to meet to-morrow morning at 10 o'clock.

Before the Convention adjourned, the President rose, and stated that he must, in discharge of his official duty as member of Congress, be absent at the contemplated adjourned meeting of the Convention, nor could he perform the duties devolving on the officers of the meeting, by one of the resolutions adopted; he must, therefore, request the Convention to select another presiding officer in his stead.

Nov. 12—10 o'clock, A. M.

The Convention re-assembled according to adjournment, at 10 o'clock. After the organization had taken place, the President repeated the suggestions made by him last evening, and proffered his resignation.

It was Resolved, That the resignation of the President be accepted, and that the first Vice President, Dr. Sylvester Miller, be requested to preside.

Joseph E. Bloomfield, in behalf of the committee of ten, appointed at the previous sitting of the Convention, then made their unanimous

REPORT.

Whereas, the growing interests of this State require the timely provision of means to give efficient aid to the development of the resources of our vast interior—And whereas, it is important that information on the subject, be collected and disseminated among the people of this State—And whereas, it is believed that we have among us public spirited citizens, willing to devote an adequate portion of their time to promote plans which would be calculated more rapidly and effectually to realize the vast resources which are yet but partially brought into action; therefore,

Resolved, That it is recommended to form a *State Society for the promotion of Internal improvements*, and that this Convention, at its adjourned meeting, adopt means to organize the same; the duty of which society shall be, to collect and diffuse such information as may be deemed of public utility. The society shall consist of a member from each county in this State, who shall appoint such officers and agents, and adopt such by-laws and regulations as they may deem necessary.

Resolved, That to enable the society to execute its functions, each county in this State be requested to form therein a *County Society of Improvement*, which society shall, at its stated meetings, propose plans of public utility to the State Society, and shall raise such sums by subscription, as the friends of Internal Improvements may find it proper to subscribe, to defray every expense incidental to carry into effect the operations of the State Society; and to remit the amount of such funds to the Treasurer thereof.

Resolved, That the State Society petition Congress to appropriate means to improve the Atlantic and Lake frontiers of this State, for naval and commercial purposes.

Resolved, That it is earnestly recommended to the people of this State, to take early measures for the construction of a

Ship Canal around the Falls of Niagara, by an application to the State Legislature, or Congress.

Resolved, That the members of Congress from this State, be requested to urge upon the consideration of that body the propriety of allowing foreign goods to be transported across the territory of the United States, under proper regulations, to the provinces of the Canadas.

Resolved, That in carrying out the views of this Convention, all local and sectional jealousies should be deprecated, and that the people of this State owe it to themselves to direct their combined energies to the speedy completion of all the great works of Internal Improvement, tending to facilitate the intercourse between the different sections of this State with each other and with the other States.

It was then Resolved, That the report be laid on the table for the consideration of the Convention at their adjourned meeting, and the committee be discharged.

It was then Resolved, That this Convention do adopt the fifth resolution reported by the committee.

The following resolution was then presented, by Mr. Copeland, and laid upon the table: "That it be very respectfully recommended to the Legislature to cause a topographical, and, if of sufficient importance, a geological survey of the State, or as much of it as may not already have been surveyed, for the purpose of having before them such information of a definite character, as will enable them to form a just estimate of the wants of every section of the State."

Resolved, That the thanks of this Convention be presented to the Authorities of the city of Utica for their attention in procuring a room for the use of the Convention during its present sitting.

The Vice President, in conformity with a resolution of the Convention, then announced the following gentlemen as committees in their respective Senatorial Districts:

1st District—Stephen Allen, Charles Henry Hall, John A. King.

2d District—George D. Wickham of Orange, Allen McDonald of Westchester, and Albro Aikin of Dutchess.

3d District—Samuel Cheever of Albany, Richard P. Hart of Rensselaer, and Alonzo C. Paige of Schenectady.

4th District—Edwin Dodge of St. Lawrence, Luther Bradish of Franklin, Richard Keese, of Clinton.

5th District—Hiram Denio of Oneida, Isaac W. Bostwick of Lewis, and Alvin Bronson of Oswego.

6th District—John H. Prantiss of Otsego, Chas. Pumpelly of Broome, and I. S. Beebe of Tompkins.

7th District—John Wilkinson of Onondaga, Azariah Smith of Onondaga, and Gerard Wilson of Ontario.

8th District—Elisha B. Strong of Monroe, Jas. Stryker of Erie, and Benjamin Chamberlain of Cattaraugus.

Resolved, That the thanks of the Convention be presented to the officers of the meeting.

Resolved, That the proceedings of this

Convention be published, and that the officers, including the late President, be requested to subscribe their names thereto.

The Convention then adjourned.

SAMUEL BEARDSLEY, Pres't.
SYLVESTER MILLER, } V. Pres'ts.
J. G. SWIFT, }
DAVID C. COLDEN, } Secretaries.
THEODORE S. GOLD, }

In connection with the proceedings of the Convention published above, we give the letters below—one of them written by the Hon. Gideon Lee, now member of Congress elect from New York, and the other by Mr. Schermerhorn of Rochester, in behalf of the delegation from that city.

New-York, Nov. 7, 1835.

Henry Yates, Esq. Chairman.

My Dear Sir:—I am gratified with the proposed measure of a State Convention at Utica, relative to the prospective internal improvements of our great and growing State. I think the measure will elicit and concentrate a mass of information on this important subject, calculated to produce greater uniformity of sentiment and greater unity of action than has been, and, I trust, will result in the adoption of some general practical system, promotive of this great paramount public interest.

I regret that recent engagements, added to old ones, put it out of my power to attend personally. Your obed't serv't,

GIDEON LEE.

Rochester, 9th Nov. 1835.

To the Chairman of the Convention to be held at Utica on the subject of Internal Improvement, 11th Nov., 1835.

Dear Sir:—At a public meeting held in this city, pursuant to notice, five delegates were elected to meet with you at Utica: unforeseen circumstances prevent a majority from attending; we therefore shall not be represented. We cordially approve of the call for a Convention, and shall be happy to co-operate with you in any measure to advance the interests of our State.

We are deeply sensible of the importance of constructing and improving canals, rail and common roads, for the convenience and benefit of the State generally.

Respectfully, your ob't serv'ts.

J. M. SCHERMERHORN,
For the Committee.

BALTIMORE AND OHIO RAILROAD REPORT.—We commence in this number, the sixth annual report of JONATHAN KNIGHT, Chief Engineer of this Road. The first part, or rather first report, for there are two, relates to the Road and affairs generally of the Company. The other part, or second report, refers particularly to the examinations and surveys of routes for the Road from Cumberland to the Ohio River, at Pittsburgh and Wheeling. We shall give this report entire, notwithstanding its great length, that our readers may see and duly appreciate the obstacles to be overcome in crossing the Alleghanies, and the enterprise and energy of our neighbors of Baltimore which grapples with them, and which, we

doubt not, will successfully overcome—as well as to place within their reach much useful and valuable information; by which all interested in such works may be stimulated to renewed efforts in the outset, as well as profit by the information in their operations.

Sixth Annual Report of the Chief Engineer of the Baltimore and Ohio Railroad.

ENGINEER'S OFFICE, BALTIMORE }
AND OHIO RAILROAD, }
Baltimore, October 5, 1835.

To PHILIP E. THOMAS, Esq.

Pres't Baltimore and Ohio Railroad Co.

The time for making the annual statements relating to the affairs of the Railroads in charge of this Company, having arrived, I have now the honor to present my sixth annual report.

It was stated, in my report of last year, as probable, that a single track of railway upon the Washington Branch Railroad, would be opened and travelled from Baltimore to the line of the district of Columbia, by the first of July then next; and it is with unfeigned satisfaction, that I am now enabled to state that the result is in accordance with the belief then entertained: For on the first day of July last, a locomotive engine, with a train of cars containing the President, Directors, and other persons, went and returned over the entire space mentioned.

Within the present year, the Company, availing itself of the legislation of the general government, and of the most friendly and enlightened grants of the municipality of the city of Washington, has pushed forward the work with unflinching energy, having completed the graduation and masonry, and the laying down of the first track of Railway for a distance of about three miles within the District of Columbia to the boundary of the corporate limits of Washington, and likewise for an additional distance of about 1½ miles within those limits to Pennsylvania Avenue, in that city; so that the entire line was opened for travel on the 25th day of August last, on which day the President and Directors opened the Road with appropriate ceremonies; four of the locomotives, with their respective trains, having, on this interesting occasion, passed from Baltimore to Washington and returned during the day, conveying nearly one thousand persons—the speed being about twenty miles an hour.

In the very short time of a few months, say in less than two years, the formation of this Road, involving the building of upwards of 46,000 perches of masonry, and the excavation and removal of nearly 2,000,000 cubic yards of earth, have been effected, and in the same period, a single track of Railway upon the entire distance (30½ miles), and 5 miles of the second track in the principal excavations, have been laid. I congratulate the Board upon so speedy a completion of the work to the extent described, and at a cost which puts it beyond doubt that when the second track shall be completed, the total amount of expenditure upon the construction of this Railroad will fall short of the lowest estimate made by me, and which was reported on the 27th July, 1833. Sec. 7th, Annual Report of President and Directors, page 59.

Since the opening of the Branch Road, as above mentioned, two locomotive engines have been employed upon it in the convey-

ance of passengers, each making one circular trip, daily, and no trip has been lost, or even delayed, beyond a few minutes.

The time consumed in making a trip with the engine, is usually from 2 hours 10 to 2 hours 30 minutes; although sometimes the journey has been made in 2 hours. The average time, however, has been about 2 hours 15 minutes, with a running velocity of about 20 miles an hour, but inclusive of the time spent at the water stations, the average speed is about 16 2-3 miles per hour. This is quite a high velocity, considering the rawness of the embankments and the consequently liability to derangement in the Road, as with the utmost care, unequal settlements of the rails will occur, and may have an evil effect before a readjustment can take place: And this may happen on many parts of the line at the same time, especially on occasions of heavy rains. These reflections would seem to suggest the propriety of a lower rate of speed, until the subsidence of the embankments had rendered the road more permanent, after which the journey might be made in 2 hours—meantime 15 miles an hour would be more safe, and at this speed the time would be 2 hours 30 minutes.

It was stated, in my last annual report, that the graduation and masonry upon the sixth division of the Baltimore and Ohio Railroad, were then completed, and that in the course of that season, a single track of railway would probably be laid down the entire length of this division, extending up the Potomac, and along the margin of the Chesapeake and Ohio Canal, from the Point of Rocks to the bridge at Harper's Ferry. This expectation was duly fulfilled, and the Road was opened for travel on the 1st day of December last, from which time the trade and travel have continued to pass upon the Railroad between this city and the point to which the Road is finished opposite to Harper's Ferry, without any serious interruption.

The plan of a viaduct to be erected across the Chesapeake and Ohio Canal and the Potomac River at Harper's Ferry, has been designed chiefly by my late assistant, B. H. Latrobe. The mason work of this structure which is (besides other uses) to form a connection between the Baltimore and Ohio and the Winchester and Potomac Railroads, has already been contracted for, and it is intended likewise to contract for the superstructure, which is to be of wood, as soon as practicable; in order that the entire viaduct may be finished in the shortest time possible.

For the details relating to the construction upon both Railroads, I refer to the report of Casper W. Wever, superintendent of graduation, masonry and construction.

The surveys and drawings connected with them having been generally completed to Harper's Ferry and to Washington, the services of several of my assistants have been dispensed with; of this number are Benjamin H. Latrobe, who is now Chief Engineer upon the Baltimore and Port Deposit Railroad, and Henry R. Hazlehurst, and James Murray, who are likewise upon that Road as his assistants.

In the department of machinery the constructions have advanced successfully as regards cars and coaches, as well as locomotive engines, in all of which, I am happy to say, our efforts have been crowned with the most brilliant success. For the details in this department of the service, I refer to the Superintendent of machinery.

With regard to the locomotive engine, we have to remark that no changes in the

principle of its construction, have been introduced and adopted since last year. The working of these American engines proved so satisfactory that it was thought more advisable, inasmuch as the branch to Washington was to be travelled exclusively by the power of steam, to construct, without delay, a sufficient number of them to insure a successful commencement and continuance of the transit between Baltimore and the capital of the Union, than by attempting to improve so costly a machine, that already worked so well, and by that means risking the chance of a failure in the requisite supply of locomotive engines. Some slight modifications, however, have been usefully made, whilst others, of the decided value of which, time only can test, are in the course of experiment.

In the report of last year, it is stated that the diameter of the working cylinders of the "Arabian" engine were each 12 inches, and the stroke 22 inches. All the engines since made, however, whilst the same length of stroke is preserved, have the diameter of their cylinders increased to 12½ inches: and this was justified by the competency of the boiler to generate steam enough to work the enlarged cylinders with effect.

It was likewise mentioned in my last Annual Report, that the waste steam, in passing from the cylinders to the fan-wheel was transmitted in a hollow belt, encircling the boiler, in which belt the water pipes leading from the supply pumps were inclosed, in order that the water in its passage to the boiler might receive heat from the waste steam. In relation to this mode of saving fuel, or increasing the supply of steam, we have now to say, that in consequence of being attended with two evils, the plan failed to realize the benefits expected from it. In the first place, the reaction of the water immediately before the closing of the valve caused a sudden and powerful strain, upon the long and slender pipe, in which that fluid was enclosed, by which means the failure of the pipe at the joints, or in some other place, would often take place: and when this happened the pipe was not easy of repair, by reason of the difficulty of access to it. In the second place the transmission to the water of the caloric of the steam, so far condensed the latter as to render its elasticity unequal to the production of the requisite blast, by means of the fan-wheel. The plan of the belt and its inclosed pipes was therefore abandoned, whilst the steam was conducted in a different manner, and more directly from the cylinders to the fan-wheel: at the same time the engine continued to work remarkably well, although, as was supposed, with less economy than if the heat of the waste steam were imparted to the water, previously to the injection of the latter into the boiler.

To effect the accomplishment of this purpose it was proposed by Ross Winans, assistant engineer of machinery, to cause the waste steam, after it should have operated upon the blowing apparatus, to pass through 100 copper tubes, each half an inch in diameter and 15 inches in length, contained and fixed within a cylinder 14 inches in diameter and 15 inches in length; which cylinder is attached to the exterior of the boiler, and with the fixtures of the fan-wheel, presents a uniform finish. The water on its way from the force pumps to the boiler is impelled into and through the cylinder amongst the copper tubes, through which the steam is discharged, as above mentioned, by which expedient the boiler would be supplied with water already charged with a considerable degree of heat,

The apparatus for heating the water before it is thrown into the boiler, as last described, has been made and attached to one of the engines of the latest construction; but there has not yet been time to measure the utility of the contrivance by the test of experience.

Subsequently to the construction of the "Arabian" engine described in the last report, weighing 7½ tons, an increase of weight to the extent of about one ton appears to have been introduced, so that the engines of the most recent construction weigh about 8½ tons. The augmentation in weight has accrued from an increase of metal in the wheels, and in several other parts, being introduced in order to secure greater permanency and durability in the machine.

The opinion was expressed in my last Annual Report that an engine of 6½ tons would have sufficient adhesiveness for the conveyance of passengers upon the branch road to Washington; and if an engine of this weight could be made of sufficient strength and durability of parts, and having at the same time a capacity to supply steam enough to maintain the desired speed; such should be the class of engines to be employed upon that road. The immediate necessity, however, for fabricating a number of engines sufficient to effect the business that would be required, has prevented an effort to produce a locomotive engine of the desired weight: at the same time we have sanguine hopes that success will attend our labors, in this respect also, whenever the effort can be considerably made.

In relation to the power of the Arabian engine the result of an experiment was given in the Report above mentioned, by which it appeared that this engine, the adhesions of both pairs of wheels being employed, drew after it, exclusive of the tender, upon a level part of the Baltimore and Ohio Railroad 112 tons 18 cwt. 1 qr. gross at a speed of 11.79 miles per hour, and it ascended a grade of 17 feet per mile in a curve of less than 1000 feet radius at the rate of 6 or 7 miles an hour. Engines of such power, as were here displayed, would seem to be capable of doing any kind or amount of business that commerce or intercourse should demand; nevertheless, those subsequently made, whilst they have been somewhat augmented in mass, have come forth with a power of steam and of traction hitherto unequalled, weight for weight, it is believed, in the operations of the locomotive steam engine. One of them drew upon the occasion of opening the branch to Washington, on the 25th of August last, 250 persons in 5 eight-wheeled coaches, being a gross weight of about 47 tons; at a speed of 20 miles an hour, and at this rate too up the ascents of 20 feet to the mile, of which grade there are on that road 5 or 6 consecutive miles.

The power of one of the new engines of 8½ tons, called the "George Washington," was recently tested upon the Washington Branch Railway. It drew a train of 30 freight cars and one passenger coach, weighing, exclusive of the engine and tender, 113 tons gross. With this load the time in passing over 29 miles of the road towards Washington was 2 h. 44 min. 30 sec., including the time consumed in stopping by the way to replenish with water, &c., amounting to 32 min. 40 sec. And the time employed in returning over the same distance, with the same train, was 2 h. 30 m. 33 sec., including stoppages to the amount of 25 min. 55 sec. In the one direction the average velocity whilst in motion was, therefore, 13.2, and in the other 14 miles

per hour. The road at the two ends of the journey is nearly upon the same level, yet the part at Washington is lower by about 20 feet than at the commencement of the branch at the Patapsco.

The average speed, though great with the enormous load mentioned, does not furnish a just measure of the full power of this engine: on account of the extent of the level and descending parts of the way, the speed might have been much greater, but extreme velocity was not the object of the experiment, and the supply of steam in the cylinders was regulated by the Engineer so as to approximate to a uniformity of speed upon all parts of the road. It is upon the ascending parts of the Railway, therefore, that we are to look for the full display of power on this occasion: and it was observed that the train ascended 5 consecutive miles of the road, having a uniform ascent at the rate of 20 feet to the mile, in 26 min. 8 sec., being a velocity at the rate of 11.48 miles per hour. Here, the weight of the tender being 5½ tons, and the resistance upon a level part of this Railway being assumed at 11 lb. per ton, the force of traction required to balance the friction and gravity of the train of 113 tons was 2203 lb. whilst, allowing for the gravitating tendency down the descent, of the engine and tender, it will appear that the engine did, upon this occasion, exert a power of traction, (beyond what was sufficient to overcome the friction upon a level, of itself and tender) equal to 2322 lb. at a speed of 11.48 miles per hour; being equal to the conveyance upon a level at this velocity of a train of cars weighing gross 211 tons.

This engine, with several others of the same model, have been built during the past year, at the Company's workshop, by the contractors Davis and Gartner, which firm is now dissolved in consequence of the lamented death of Phineas Davis, the efficient partner, who attended personally to the planning and construction of the engines; and to whose genius and worth, the world is indebted for several valuable improvements in Railway machinery.

For the operations relating to transportation, I must refer to the Report of the officer having charge of that department of the service.

With the approbation, and at the solicitation of Samuel Sprigg and Joseph Caldwell, Esquires, on behalf of the citizens of Wheeling and its vicinity, and of John Thompson, Esq., residing at the Flats of Grave Creek, on behalf of the interests at that place and its neighborhood, I commenced early in the month of May last, a reconnaissance of the Alleghany mountains, and the country generally, from Cumberland, in Maryland, to the Ohio River at Wheeling, and likewise at the Flats of Grave Creek, in Virginia, with a view to judge of the practicability of obtaining a route for a Railroad from the Potomac at Cumberland, to the Ohio River at the points just mentioned.

The examination was likewise carried to the Ohio River, at the city of Pittsburgh.

In the course of this reconnaissance, many difficult defiles in those mountainous regions were penetrated and examined, and connections traced between the gaps, which nature has formed, in the various parallel chains of which the Alleghanies are composed; and access was had to all the authorities that could shed light upon the topography of the country in question, either as to distances or attitudes.

These examinations have resulted in a perfect conviction on my part, of the en-

tire feasibility of a Railroad from Cumberland to the Ohio River: and moreover, that it is entirely practicable to construct a Railroad, within reasonable limits of expense, from Cumberland to Wheeling, and likewise to Pittsburgh, upon which the motive power may be that of steam by locomotive engines, and dispensing entirely with fixed or stationary engines, with their inclined planes, ropes, and other fixtures.

For a more detailed account of the reconnaissance and the results, and of the capabilities of the locomotive engine in traversing different grades at various velocities, reference is made to my report to the Committee of the 30th ult. upon that subject; which report I hereunto annex, accompanied with a map of the country from Cumberland to the Ohio River, exhibiting the routes examined.

Respectfully submitted,

J. KNIGHT,

Chf. Engr. Baltimore and Ohio Railroad.

RAILROAD INTELLIGENCE.

CHARLESTON AND CINCINNATI RAILROAD.

In this number will be found the Report referred to in our last in relation to this contemplated improvement. With this, and the more certain improvements in Pennsylvania and Maryland staring us in the face on the South—the Railroad from Albany to Boston on the East—and the improvements going on in Canada on the North—it becomes the State of New-York (to move, soon, steadily, onward, or be eclipsed as she will) richly deserve, and as we hope she will, by her more considerate and enterprising neighbors.

Railroad from the Banks of the Ohio River to the Tide Waters of the Carolinas and Georgia.

PROCEEDINGS IN CINCINNATI.—On Monday evening, August 10th, 1835, a public meeting of citizens of Cincinnati, was held at the *Commercial Exchange*, for the purpose of promoting the construction of a Railroad, from Newport or Covington, opposite Cincinnati, to Paris, in Bourbon county, Kentucky. After the requisite proceedings on this subject were concluded, Dr. Daniel Drake offered the following resolution:

Resolved, That a committee of three be appointed to inquire into the practicability and advantages of an extension of the proposed Railroad, from Paris into the State of South Carolina.

Which, being unanimously adopted, Dr. Drake, J. W. Bakewell, and J. S. Williams, were appointed said committee.

The meeting then adjourned till the next Saturday, the 15th, when a number of gentlemen from Newport and Covington were present. An elaborate report from the pen of Mr. Williams having been made on the subject of the Railroad to Paris, and the steps necessary to promote a survey of the route taken, the committee on the extension of the road into the southern States, were called upon, when Dr. Drake presented and read the following report:

The committee to whom was referred the subject of a Railroad from the valley of the Ohio River to the maritime coast of the Carolinas and Georgia, having in a general manner considered its practicability and

advantages, beg leave to submit the following

REPORT.

The States which border on the Ohio, or are watered by its great tributary streams, are western or tramontane Pennsylvania and Virginia, Ohio, Indiana, Illinois, Kentucky, and Tennessee; nearly through the centre of which that river flows, almost parallel with the sea coast of the old southern States. From the seven States above mentioned, there are highways of communication with the ocean in but two directions—northeast, and southwest. The former, consisting of several distinct lines of river, canal, Macadamized and Railroad communications, reaches the Atlantic ocean between the west end of Long Island Sound and the mouth of the Chesapeake Bay—from New York to Norfolk—a distance, on a straight line, of 300 miles: The latter communicates with the Gulf of Mexico by the delta of the Mississippi. Between these two points of marine connection with the interior, is a coast nearly 3000 miles in extent, constituting the seaboard of southern Virginia, North and South Carolina, Georgia, Florida, Alabama, and Mississippi, with which the States in the valley of the Ohio have no direct communication, even by means of a good post road, so that the mail to the northern frontier of Georgia and the Carolinas, not three hundred miles distant from the banks of the Ohio, in a straight line, is actually sent by Washington City, on a route nearly four times as long. With that part of the southern coast which lies west of the peninsula of Florida, the Ohio States have already intercourse, by the Mississippi River; but with the region east of that peninsula, they are destitute of all adequate means of commercial and social connection. Here then is a great desideratum, which can be supplied in no other manner than by the contemplated Railroad.

Starting, perhaps from more than one point on the Ohio River, in the State of Kentucky, this road should stretch nearly south; and branching, when it enters the Carolinas and Georgia, to reach their tide waters at several different places. Taking Cincinnati as a city intermediate between Maysville and Louisville, and Charleston as intermediate between Wilmington, in North Carolina, and Augusta, in Georgia, the road might be said, more especially, to connect Cincinnati and Charleston, and may for convenience in this report, take its length and designation from those two cities. Starting from the former, or rather, from the opposite bank of the Ohio River, in Newport or Covington, it would traverse the State of Kentucky to the Cumberland Gap, near the southwestern angle of the State of Virginia, then cross the State of Tennessee, and, ascending the valley of the French Broad, in North Carolina, arrive at Greenville, or some other point, in South Carolina, beyond the Alleghany mountains, whence it may pass down to Augusta, in Georgia, by one branch, and by another more immediately to Charleston, in the direction of Columbia. In traversing North Carolina, it might, with facility, the surface of the country permitting, be connected by a lateral road, with the projected Cape Fear and Yadkin Railway; which passing through Fayetteville, is to terminate at Beatty's Ford, on the Catawba River.

The distance between Cincinnati and Charleston, on a straight line, is about 500, which would probably require a Road of 700 miles. South Carolina, however, has al-

ready made a Railway, 135 miles in length, to Hamburg, on the Savannah River, opposite Augusta, nearly in the direction of Cincinnati; and the contemplated Railroad to Paris, in Bourbon county, Kentucky, exactly in the course of Charleston, (for the construction of which there are, in the opinion of your committee, a great many weighty reasons of a local nature,) would have a length of about 90 miles, thus leaving but 475 miles to complete this new and most important communication, between the interior and the sea-board of the south.

The middle of this main trunk would be intersected by the projected Railroad from Richmond, Virginia, via Lynchburg, to Knoxville, in East Tennessee, by which the Old Dominion would acquire a new channel of intercourse with her daughter, Kentucky; and also with several of the States formed out of the North-Western Territory, which was once her property,—travelling from the West to southern Virginia, being thus restored to the route which it took in the infancy of our settlements.

By an extension west, to Nashville, of the Richmond, Lynchburg, and Knoxville Road, the whole of central and northern Tennessee would be enabled, with great facility, to communicate with the Carolinas and Georgia, by means of the southern extremity, with the State of Ohio, by means of the northern extremity of the great highway under consideration.

From the maritime terminations, and the lateral branches of this extended trunk, let us turn our attention to the northern or continental connections which it would establish.

These would extend, both east and west, from Cincinnati, for several hundred miles, and through every intervening northern point. First, the Ohio River would connect it with western Virginia and western Pennsylvania—embracing the valleys of the Great Kenhawa, Monongahela, and Alleghany rivers; Second, the Ohio and Erie Canal, from Portsmouth to Cleveland, already finished; the Miami and Maumee Canal, in progress from Cincinnati to Lake Erie, uniting at Fort Wayne, with the Erie and Wabash Canal of Indiana; and the Mad River and Sandusky Railroad, from Dayton to the Lake, the execution of which has commenced, would connect it with the entire chain of northern lakes, from the Falls of Niagara to the Straits of Mackinac, and even Green Bay, on the western shore of Lake Michigan, including the eastern border of Wisconsin Territory, north or maritime Illinois and Indiana, the whole of Michigan Territory, a part of Upper Canada, and the centre and northern declivity of Ohio: Third, the Wabash and Erie Canal, just mentioned, and the Railroad from Lawrenceburg, at the mouth of the Great Miami, to Indianapolis, already begun, would carry its advantages into the depths of Indiana: Fourth, the Ohio River from Cincinnati to the Mississippi would connect it, beneficially, with south and west Illinois, Missouri, and the immense extent of unsettled territory watered by the upper Mississippi and Missouri Rivers. Thus the proposed main trunk, from Cincinnati to Charleston, would resemble an immense horizontal tree, extending its roots through, or into, ten States, and a vast expanse of uninhabited territory, in the northern interior of the Union, while its branches would wind through half as many populous States on the southern sea-board.

The extent of this inland communication from north to south, through the centre of the United States, would comprehend at least 15° of latitude, and could only be com-

pared with that established by the Mississippi River. It would not indeed be limited by the continent, for, as many important islands of the West Indies are contiguous to South Carolina, they would, in fact, be comprehended in the new facilities of intercourse that would be established between the south and north, and should, therefore, be taken into the estimate.

Of the physical practicability of constructing the main trunk of the proposed Railway, across the States of Kentucky, Tennessee, and North Carolina, your committee see no reason to entertain a doubt. It is true, that it must traverse many of the branches of the Cumberland and Tennessee rivers, and scale the southern extremities of the Alleghany mountains. One of the branches, however, of the latter river, the French Broad, as we have already seen, originating on the slopes of the Blue Ridge, the most southern of the mountain chains, runs to the north, traversing the western angle of North Carolina, to unite with the Tennessee, thus opening a pass through a part of the mountains, and inviting to the enterprise. Of the height of the remaining mountains, your committee cannot speak with confidence, but believe it to be less than that of the Alleghanies, where they are traversed by the Railroad and canals from Philadelphia to Pittsburg. However this may be, no decision of the question of physical practicability can be made, but by competent engineers, on an actual examination of the route.

The question of expense can of course only be settled by the same means. Assuming that the projected Railroad from the Ohio River, opposite Cincinnati, to Paris, in Bourbon county, Kentucky, will, from the considerations limited to the region of country concerned, be most certainly executed, and referring to the actual completion of the Railroad from Charleston to Augusta, the intervening section would not, as we have seen, exceed 475 miles, which, at the high price of 12,500 dollars per mile, would not amount to 6,000,000 of dollars; a sum not greater than is about to be expended by a company of capitalists, in the construction of a Railway within the State of New-York, to run nearly parallel with her Grand Canal, and connect the same waters with the same city.

It may be said, however, that the central part of the Cincinnati and Charleston road would run through a country but thinly inhabited, and furnishing little aid, either in the construction of the road or in swelling the amount of transportation upon it. But why is it so sparsely peopled? Manifestly, in part, because, of all portions of our common country, it is the most inaccessible and the most destitute of facilities for the exportation of its iron, salt, coal, tar, turpentine, and other natural productions. To wait, therefore, for a denser population, as a condition for commencing a great work of Internal Improvement, which only can augment that density, would be to wait for the development of an effect, before resorting to the only cause that can produce it. Let the road be executed, and an instantaneous impulse will be given to improvement in that region. If, however, it were too sterile for such a result to occur, no argument against the project could arise from that fact, for the undertaking is necessary to the reciprocal exchange of the production of the States penetrated by its extremities, in which respect it would be similar to the Philadelphia and Pittsburg route, which, in a part of its course, passes over uninhabited

mountains, and still facilitates an immense trade between the east and west.

Thus it is not necessary that the whole line of an artificial way should lie through a cultivated and populous country, nor need we look to the inhabitants along this or any other projected Railroad or Canal, for the means of its construction. These will be furnished by the capitalists of any and every part of the country, or even by those of Europe, the moment the enterprise is authorized by the States through which it is to be carried on, and the probabilities of a profitable investment are rendered manifest. In the opinion of your committee, the States of Kentucky, Tennessee, and the Carolinas, might, in their sovereign capacity, execute this work, and make it a rich and lasting source of revenue; and, they have as little doubt, that the incorporated joint stock companies would at once be able to command the requisite capital.

Your committee are of opinion, that the strongest motives exist for the immediate execution of this great work. At least half the people of the Union, comprehended, in whole or in part, in East Florida, Georgia, South Carolina, North Carolina, Virginia, Pennsylvania, Tennessee, Ohio, Michigan, Indiana, Illinois and Missouri, are interested in its completion, as they would instantly participate in its advantages; and, as your committee believe, need only to investigate the subject, to be at once aroused to efficient action.

Would it pass, like the New-York Canal, or the projected Railroad from Augusta, in Georgia, to Memphis, in Tennessee, nearly from east to west, and consequently combine regions which have similar climates, and identical productions, its value would be far less. But, as we have seen, stretching boldly from north to south, and, with the present and future public works of the States between the Ohio River and the Lakes, establishing a high road of communication through nearly all the climates and varieties of soil, productions, and people of the United States, it would forever stand alone and conspicuous among the public works of the Union, both in the kind and amount of commercial and social intercourse which it would promote.

The sustenance and manufactures of the corn States, from Kentucky to Michigan, would instantly pass along it to the southern consumer, of the region from Cape Florida to the Chesapeake Bay, avoiding all the delays, commissions, dangers of the river, and dangers and damages of a tropical sea voyage which belong to the Mississippi and Gulf route; and even much of the produce that might be designed for coasting or foreign exportation, would reach the seaports of South Carolina and Georgia, by the same channel, instead of going to New-Orleans or New-York. On the other hand, the tropical productions of the northeast of Cuba, and of East Florida—their spices, sugar, oranges, lemons, and figs;—and the indigo, rice, and cotton of Georgia and Carolina would, by the same direct route, penetrate, in a few days, the interior of the continent, and spread among the consumers, even to the shores of Lake Superior.

Some of your committee, indeed, incline to the belief, that the same channel would, at no distant time, become an inlet for many of the productions and manufactures of foreign countries; for commerce, as far as possible, should be based upon a direct exchange of productions and commodities. Thus the shipping merchants of Charleston and Savannah, might barter their com-

tion in Europe for manufactures required by the people of the States in the Valley of the Ohio, and exchange the same for their sustenance; the whole operation, both continental and marine, being performed without the instrumentality of any other money than that employed in defraying the expenses of transportation.

Of the amount of the business that would, at length, be conducted on this national highway, the committee scarcely dare to speak. To them it appears of a magnitude, which they fear the meeting and the community at the present time would regard as extravagant and incredible. By the existing population of the portions of country, even now connected with the work, there would be a great amount of travelling and transportation; but the extent to which it would augment the population of the zone of country through which it would pass; the impulse to agriculture it would impart; the manufacturing establishments it would set up, and the lateral Turnpikes, Railroads and Canals it would suggest, to new districts of country, from the western slopes of the Allegheny mountains to the banks of the Mississippi, from the sea to the lakes, would make it the parent of a great system of central internal improvement, and enable it to augment the amount of its articles of transportation to an indefinite degree. These immense pecuniary benefits, accruing to millions of people, should, of themselves, prompt those who are interested to an immediate attention to the work; but there are other and nobler considerations, which should not be overlooked.

No public work could contribute more powerfully to our national defence. Establishing a direct and rapid communication, between the northern and southern frontiers of the United States, separated, unlike the eastern and western, from the dominions of foreign nations by narrow sheets of water only, it would afford facilities for the transportation of troops, munitions of war, and military sustenance, from the centre to the borders, or even from one frontier to the other, with unexampled rapidity; thus favoring a concentration, requisite to national defence in time of war, which could not otherwise be effected; and which would present a new triumph of civilization over barbarism, by making civil public works, an efficient substitute for standing armies and powerful navies, which exhaust the resources and endanger the liberties of a nation.

But the most interesting and affecting consequences that would flow from the execution of this enterprise, would be the social and political.

What is now the amount of personal intercourse between the millions of American fellow-citizens, of North Carolina, South Carolina, and Georgia, on the one hand, and Kentucky, Ohio, Indiana, and Illinois, on the other? Do they not live and die in ignorance of each other; and, perhaps, with wrong opinions and prejudices, which the intercourse of a few years would annihilate forever? Should this work be executed, the personal communication between the north and south would instantly become unprecedented in the United States. Louisville and Augusta would be brought into social intercourse; Cincinnati and Charleston be neighbors; and parties of pleasure start from the banks of the Savannah for those of the Ohio River. The people of the two great valleys would, in summer, meet in the intervening mountain region of North Carolina and Tennessee,

one of the most delightful climates in the United States; exchange their opinions, compare their sentiments, and blend their feelings—the north and the south would, in fact, shake hands with each other, yield up their social and political hostility, pledge themselves to common national interests, and part as friends and brethren.

Finally, the immense summer throng of visitors which annually go up to the north, along the seaboard, would be made still greater, and turning westwardly, through the States of Virginia, Maryland, Pennsylvania, and New-York, spread over the northern centre of the United States, to the shores of the Lakes and upper Mississippi; concentrating on their return in the Valley of the Ohio; having seen what they now never see, and made acquaintance with what at present is unknown to them, the very heart of the Republic. On the other hand, the people of the north would, in autumn and winter, pour down upon the temperate plains of the south, in turn, studying their political, civil and literary institutions, participating in their warm hospitality, catching a glow of southern feeling, gratifying their curiosity, and return enlarged in their patriotism and enriched in their knowledge of our common country. Thus, this travelling, alone, would, at no distant day, reimburse the expenditures by which it might be created, while it would unite with the ties of business, in confining with a new girdle, States which are now but loosely connected, and thereby contribute powerfully to the perpetuity and happiness of the Union.

DAN. DRAKE, } Committee.
T. W. BAKEWELL, }
JNO. S. WILLIAMS, }

Cincinnati, Ohio, August 15, 1835.

On motion of J. D. Garrard, Esq., seconded by General James Taylor, of Newport, the report was unanimously adopted.

Dr. Drake then offered, from the committee, the following resolutions, which were severally adopted.

SUPPLEMENTARY REPORT.

The Committee to whom was referred the subject of a Railroad from Ohio to South Carolina, having prepared a series of resolutions to be offered in case their report should be adopted, beg leave to present the following:

1. Resolved, That a Standing Committee of Inquiry and Correspondence be appointed, consisting of seven members—four from Cincinnati, two from the adjoining part of Kentucky, and one from eastern Indiana; four of whom shall be a quorum.

2. That it shall be the duty of said Committee to elect from their own body a Chairman and Secretary, and take immediate measures for the publication and dissemination of the report just adopted, together with such communications as they can promptly obtain, and such an address of their own as they may consider relevant to the subject.

3. That it be recommended to them, to make an immediate communication to the Governors of each of the States and Territories, interested in the proposed work, requesting them to bring the subject before their respective Legislatures, at their next sessions.

4. That they be requested to adopt such measures as may be practicable to inform and interest the people living near the proposed Road, relative to the subject.

In pursuance of the first resolution, the following gentlemen were appointed a

Standing Committee of Correspondence and Inquiry:

Gen. William H. Harrison, } Of
James Hall, Esq., } Cincinnati.
Edward D. Mansfield, Esq., }
Dr. Daniel Drake, }
Gen. James Taylor, Newport, Ky.
Dr. John W. King, Covington, Ky.
George A. Dunn, Esq., Lawrenceburg, Ia.
The meeting then adjourned, subject to the call of the Committee.

T. W. BAKEWELL, Chairman.
JAMES McCANDLESS, Secretary.

RAILROAD ACROSS THE MOUNTAINS.—It will be seen that the Mayor, at the request of a number of citizens, has called a town meeting at the Exchange, to-morrow, the 19th inst., at 12 o'clock, for the purpose of considering the subject of the construction of the railroad from Cumberland to Brownsville, and thence to Pittsburg and Wheeling—and of appointing delegates to represent this city in the Convention which is to be held at Brownsville on the 25th instant. The work in question is of vital importance to Baltimore, and is worthy of all the aid which can be brought to bear upon it.—[Baltimore American.]

CANAL INTELLIGENCE.

We insert with pleasure the annexed correction:

[FOR THE NEW YORK AMERICAN.]

ERROR CORRECTED.—Mr. Editor: Will you permit a stranger from the City of Brotherly Love, to remove an impression made in your paper last evening, that might, and probably has led some of your readers to suppose the tolls received in Pennsylvania, for the year ending on the 1st of November, amount to the sum of \$403,008, and no more, on the Inland Improvements, in that State. Your paper says:

"PENNSYLVANIA.—The receipts from the Canals of the State, for the year ending November 1st, were \$403,008. Those from the New York Canals, for the same period, will more than treble that amount."

The Auditor General of Pennsylvania reports:

The receipts on the public canals, for the year 1835,	\$403,008
do on the public railroad uniting the main canal, between Philadelphia and Pittsburg,	981,379
	684,397
To which add—Schuylkill canal, for the year, (an incorporated company,)	320,000
do Union canal, leading from the Schuylkill to the Susquehanna,	175,000
do Lehigh canal, leading from Mauch Chunk coal mines to the Pennsylvania canal, at Easton,	130,800
Making together,	\$1,309,387

This amount may be fairly considered the product of Tolls on the Pennsylvania improvements, for the year 1835, independent of the Chesapeake and Delaware canal, and a variety of railroads leading from the city of Philadelphia into the interior of Pennsylvania.

New York, December 1st, 1835.

THE MORRIS CANAL was closed on the 19th inst. for the season. The water was drawn off one month earlier than usual, in consequence of the necessity of altering the Inclined Planes, and making other improvements to facilitate the navigation with increased tonnage, previous to the cold weather setting in.

The total number of boats which have been cleared during the season at the head of the Canal at Easton, for Newark and intermediate places, is 2096, carrying 41811 tons, 13 cwt. We understand that arrangements are in progress to get the Canal in operation at an early day in the Spring, when the business will be increased by enlarged facilities, heretofore wanting.—[Newark Daily Adv.]



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 7 WALL STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.

SATURDAY, DECEMBER 19, 1835.

[VOLUME IV.—No. 50.]

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AMERICAN RAILROAD JOURNAL. NEW YORK, DECEMBER 19, 1835.

THE RAILROAD JOURNAL, although delayed two weeks by the late conflagration, by which nearly all my printing materials, and back volumes, and numbers, were destroyed, is dated, and numbered, as it would have been, if issued at its proper time—the two following numbers, which will complete the volume for 1835, will also be dated in the same way, in order to keep the volumes within their respective years.

This delay from the above cause has been unavoidable; I hope, however, to be able to issue the two ensuing numbers and the last of volume 4 in a few days—and also to bring out No. 1, of volume 5, in an improved style, by the 12th or 15th instant.

Editors of newspapers, who may receive this number, will, by giving it an insertion, or by referring to the facts, confer a particular favor on their obedient servant,

D. K. MINOR.

New York, January, 1836.

We are promised, by our correspondent in Albany, and shall undoubtedly receive at early dates, copies of all important documents in relation to the subject of the Internal Improvements of this State, which we shall endeavor to lay before our readers.

LOSSES BY THE LATE CONFLAGRATION.—Amongst the other losses which we have sustained by the fire, is that of nearly all our *Railroad and Canal Reports*,—as well those which had not, as those which had, been republished, in whole or in part in the

Journal. This will cause much inconvenience, as we had occasion frequently to refer to them—especially to those of the *Baltimore and Ohio Railroad Company*—the last of which was in course of republication.

We shall esteem it a great favor if our friends will favor us with duplicate copies at their earliest convenience.

TO CORRESPONDENTS.—We owe an apology to many of our correspondents, but to none perhaps as much as Major VOORHIES, of Avoyle Ferry, La., who has for years past furnished us with a monthly meteorological table, accompanied by remarks in relation to the weather, and crops of the country—which we have always published until within the last four months, and should have continued them regularly, during that time, but for having, for a time, mislaid those for August and September, which came together, and while the editor was confined to his room. They have however come to hand again, and will be published in our next, and those for October and November in the following number.

In the mean time, we publish the following extract from the Major's letter of December 6th, in relation to Texas. The address of the President of the Texian Council, which accompanied this letter, will appear next week.

Avoyle Ferry, on Red River, La.,
Dec. 6, 1835.

D. K. MINOR,

Editor Am. Railroad Journal:

Sir,—Enclosed is a copy of Meteorological Table for November, 1835, regularly entered as stated.

Most respectfully,

Your obedient servant,

P. G. VOORHIES.

I also enclose you a slip relating to Texas.

A report has reached us, that *wants confirmation*, that Gen. Cos sent out a detachment from St. Antoine—that the Texians defeated them, and took a brass six pounder. Whenever an official report reaches here, I will forward it.

Your obedient servant,

P. G. VOORHIES.

194 Rifle Volunteers, part from Kentucky, Tennessee, Mississippi, and Alabama—(from Natchez)—passed up this week, (in the steamboat Statesman,) bound for Texas. (What will the volunteers do for provisions?)

BALTIMORE AND OHIO RAILROAD.—We commence the re-publication of the Report

of Jonathan Knight, in relation to his examination of the route of this Railroad over the Alleghanies, both to *Wheeling*, in Virginia; and to *Pittsburg*, in Pennsylvania; and shall continue it as soon as we can obtain another copy of the Report from Baltimore, ours, except a few pages, having been destroyed by the late fire.

This report should be attentively read by those who desire to obtain accurate information in relation to those, hitherto considered, almost impassable barriers, the Allegheny mountains.

A route, and a far more favorable one than was anticipated, has been discovered, both to Pittsburgh and Wheeling, on which stationary power will not be required.

NEW JERSEY RAILROAD.—We find in the Newark Daily Advertiser of December 7th, an interesting account of the opening of the Railroad between Newark and Elizabethtown. We were aware that this work was progressing rapidly, but not that it was yet in readiness for use.

We also learn, that in a very few days it will be opened for use to Rahway, and, at an early period, to New Brunswick—thus completing another portion of the line between this city and Philadelphia, the whole of which, it is to be hoped, will ere long be in successful operation.

It was our intention to have published the account from the Daily Advertiser, but this long delay occasioned by the destruction of our office must be our apology.

When the road is opened to Rahway, we hope to participate in the pleasures of the event.

TENNESSEE.—This State seems resolved to act with energy. The Legislature have a Bill before them proposing to appropriate \$500,000 to the Nashville and New Orleans Rail Road, \$300,000 to the Western Rail Road Company; \$1,500,000 to construct a Road from the Nashville and Orleans Rail Road to the eastern extremity of the State; \$750,000 for a Rail Road from Charleston to Cincinnati through East Tennessee; and \$250,000 to the Atlantic and Mississippi Rail Road.

INTERNAL IMPROVEMENT CONVENTION.—

The time approaches for the assembling at Albany of the adjourned Convention, for the purpose of taking into consideration the subject of *Internal Improvements* in the State of New York.

There are, fortunately for the prosperity of the people, those who know and feel that extensive fields for improvement, are still open, and that all parts of the State are now equally entitled to the fostering care of liberal Legislation. They feel, too, that the fact that the State has expended large amounts of money to accomplish one or two important works, with their appendages, is no reason why other *equally* important works should be left for the enterprise of individuals. It may appear very clear to the more enlightened minds of some gentlemen who have made princely fortunes by the operation of those works which have been wholly constructed by the State, why other works—the utility of which will, to say the least, be every way equal, so far as the business community is concerned, to those already constructed—should be left to be “made and owned by the Company when done;” but to us, and thousands or others, whose only interest is to be found in the prosperity of all classes of community, and all parts of the country, it does appear passing strange that rational and honorable men, upon most subjects, should be found, who utterly oppose whatever may tend, not to depress them at all, but, to elevate their neighbors, in some degree to their level, by a liberal and general, as they themselves have been elevated by a partial, distribution, or rather *application*, of the resources of the State.

Why it is that men are so constituted it would seem difficult to divine; but so, unfortunately, it is, and we must therefore encounter, in all *great* enterprises, not only their *natural* difficulties, but also the prejudice, and interested opposition of some from whom *better* things would naturally be anticipated. It is to be hoped, however, that, at this Convention, the important subject upon which it shall have assembled will be considered, discussed, and treated with enlarged and liberal views; and that the interest, prosperity and happiness of the people, and the *whole* people, will be the leading and prominent principle of its action.

That the present is an important era in the history of New York, no one who has noted the signs of the times can doubt; nor that upon the proceedings of this Convention, her future progress and prosperity, so far as they can be effected, advanced, or retarded, by *Internal Improvements* or the want of them, in a great measure depends. It therefore becomes the duty of every man who may be selected to attend this Convention, and who has a particle of State pride and public spirit, to divest himself of sec-

tional and selfish feeling, and act as becomes a citizen of the State of New York.

It will be observed, by the extract from the annual message of the Governor of Ohio, which we give in this number, that the competition for the trade of that, and other western and south-western States, is one of no small interest to her; and it will be also observed by the letter of John S. Williams, of Cincinnati, in relation to the *Cincinnati and Charleston, South Carolina Railroad*, that another, and an unlooked for competitor is about to enter the field for that trade. It is therefore *now* doubly the duty of those whose feelings and interests are all centered in the State of New York, to come forward and give their aid to all such works as will tend to retain the present, and secure the future trade of that vast and fertile region beyond the Lakes and the Alleghenies.

Amongst these works, and perhaps the most important at this period, are the *New York and Erie Railroad*, the *New York and Albany Railroad*; on the east side of the Hudson; the *enlargement of the Erie Canal*, and *connecting it with Oswego*; and a *SHIP CANAL AROUND NIAGARA FALLS*.—These are works which, when completed in a proper manner, and met, as they will be met by corresponding works from the west, will put all successful rivalry at defiance, and make this city the *London of the world*—that is the largest city in the world—but if, on the contrary, sectional feeling and self-interest are permitted to bear sway, and all improvements which do not pass through, or terminate at, any particular place, are to be opposed and defeated, then may we look elsewhere as we should deserve to, for the means of becoming what nature has destined us to be, and what but for a selfish suicidal policy we should be, the commercial emporium, *eventually*, of the world. Of the correctness of this prediction some may doubt, but one moment's reflection by an intelligent mind, will satisfy it that there is no city in the world with equal natural and permanent advantages within itself for business; which has such an extensive, almost *unlimited*, and so fertile a country, intersected by such watercourses and studded by such inland seas, as New York! And nothing is wanting to make these important advantages available but a liberal spirit, and the active and determined perseverance of those who take pride in being citizens of the State of New York. It therefore becomes the imperative duty of this Convention to adopt such measures as will ensure the construction, at the earliest possible period, of those important works herein mentioned, together with such *intersecting* lines from the Lakes, and the Canal, with the New York and Erie Railroad, and from the New York and Albany Railroad, to the interior of New England, as will insure an easy, cheap, and rapid intercourse with all parts of *this*, and the adjoining States.

INTERNAL IMPROVEMENT.

The following is an extract from the Annual Message of the Governor of Ohio to the legislature, made on the 7th inst. We are gratified to find that the projected Niagara Canal, has received his favorable attention. The State of Ohio has a most important interest in the success of this enterprise, and we look to her citizens and Legislature to give it an efficient support.

“It is deemed important that the public mind should be directed to the various public works that have been projected in other States, which must have an important influence upon the interests of Ohio. In addition to those which have already been completed in New York and Pennsylvania, I would mention the construction of a ship Canal round the falls of Niagara, thereby uniting Lake Ontario with Lake Erie. (A report of a Committee in New York appointed to memorialize Congress on that subject, is herewith transmitted, marked A.) Thence as we progress south and south-west, we see the project of the great western Railroad from New York through Ohio to the Mississippi; the Chesapeake and Ohio canal; the Baltimore Railroad; the Winchester turnpike road; the James river canal, which is intended to be extended to the Ohio river, either by canal, Railroad or turnpike road; and the Charleston Railroad; (a branch of which, with a view to the construction of a turnpike road was some years since reconnoitered, passing through the Allegheny mountains at the head of Nolichucky in North Carolina, and extending thence through east Tennessee, western Virginia and the eastern part of Kentucky, to the Ohio river, opposite the Southern termination of the Ohio canal at Portsmouth.) The attention of the public, I am happy to learn, has been recently drawn to the importance of a communication between the southern Atlantic States and the great western States.—The project of a Railroad from Cincinnati, in this State, to Charleston in South Carolina, has excited the attention of the southern States. A report of the present committee of the Charleston Chamber of Commerce on the subject of the contemplated Railroad, from Charleston to Cincinnati, and the proceedings of the citizens of Charleston, embracing the report of the committee, and the address and resolution adopted at a general meeting in reference to the proposed railroad from Cincinnati to Charleston, are herewith transmitted for your consideration marked B and C. I perceive also in the communications of the Executives, of North Carolina and Georgia, to their respective Legislatures, that the attention of these States has been partially drawn to the important subject of direct communication with the North Western States. All these communications can be no less important to us in the West than they are to our neighbors in the South-East and North, and if accomplished, will unite us in a community of interests that must be highly beneficial to all.”

LETTER FROM J. S. WILLIAMS, CIVIL ENGINEER,

To Dr. Daniel Drake, of the Committee of Correspondence and Inquiry:—

DEAR SIR,—Your note of the 18th inst., requesting me, if convenient, "to contribute any facts, observations, or suggestions, in addition to those contained in our report on the subject of the Cincinnati and Charleston Railroad," is received, and in answer thereto I may inform you that I have very few, if any, ideas not contained in that report, but have taken efficient measures to collect information, both general and particular, relative to every bearing of the subject, which shall be at the call of your committee as soon as it is in my possession.

The subject of connecting this city with Charleston, S.C. cannot be too closely examined nor too fully investigated. It is one that involves the interests, if not the destiny, of millions of Americans, born and unborn. The experiment we propose, differs in many respects from anything heretofore tried, and which, if carried out, would produce the happiest results. It would strengthen the bonds of union between the cotton-growing, slave-holding, and the wool-growing, victualing districts. It would cross a line of demarcation over which a work of internal improvement has not yet been prosecuted. By means of the proposed work we should enter into the closest connection and union of feeling, with those to whom we are total strangers, farther than the mere circumstance of belonging to the same great confederacy makes us familiar. At present, in a national point of view, we have less sympathy for our fellow citizens of South Carolina, than we have with those of Louisiana, although the separation from the latter, both by distance and national origin, is greater than from the former. Construct but the proposed work, and we should habitually call those our neighbors and friends, who now feel to us as foreigners. Intermarriages would take place, and personal acquaintance would be the result followed by friendships, instead of the present estrangement from those who are politically our brethren. As things are, some of us transfer our dislike of slavery to the persons of the slave owners; but were we more intimately acquainted with the circumstances that surround them, we should treat the subject as their misfortune,—not their crime; and instead of viewing the condition of slaves as always to be abhorred, we should be brought to believe that, odious as slavery in the abstract may be, it is often greatly to be preferred to degraded liberty. Our fellow citizens of the south, by becoming better acquainted with us, would not be so liable to mistake the opinions of a few for the prevailing sentiment of the north and west. Individually, I hail every effort to unite the slave holder and the non-slave holder more closely together, as tending to perpetuate our Union, to promote morality, increase religion, and establish universal freedom upon a proper and safe basis. The south, possessing a slave population, whose physical strength increases in a ratio greater than that of their owners, will, no doubt, view this additional bond of union with their white brethren as auspicious of their own safety.

It will not be on account of political economy alone that the south-east will see it her interest to be connected with the north-west. By the proposed work, her greatest opportunity will be almost brought into juxtaposition with the most south-westwardly manufacturing city, and the greatest victualer in the U. States. Cincinnati, as a victualer,

has no rival. Within one year from this day gone, she has shipped for other ports, agreeably to the best calculations, 130,000 barrels of flour, 84,500 barrels of pork, 17,000,000 pounds of bacon, and 255,000 kegs of lard! Large quantities of these supplies are now taken by steam, or floated to New Orleans, 1550 miles; they are there shipped, and after being navigated about the same distance, in hot climates, are landed at Charleston, which might arrive there, by the proposed Railroad, in six days after being packed in Cincinnati.

The same inducements that would cause Charleston to obtain her supplies by way of the Railroad, would make her the shipping port for the most of the exports of this country destined for Europe or the eastern States. One half of the flour and pork of Ohio, now finds a port at New-York, after traversing eight hundred miles by canal, lake, canal again, and river. Might not Charleston step forward and take a share in this important trade? Again, the eastern and European goods which we receive via New-York, Albany, Buffalo, Cleveland and Portsmouth, travel 1100 miles from New-York to Cincinnati by two rivers, two canals, and the lake. Could not Charleston compete with this upon 700 miles of Railroad? Is the harbor and enterprise of that city so inferior to those of New-York? Further, the merchandise we receive from Philadelphia travels by two Railroads, two canals, and one river, 850 miles, would not a Railroad and Charleston harbor be better than this line and the Delaware Bay? Further still, from Baltimore via Pittsburgh, should the Baltimore and Ohio Railroad terminate there, to Cincinnati would be about 800 miles, would the Chesapeake Bay and this line of transportation be preferred to 700 miles of Railway? Both cities are deeply interested in the proposition, in a commercial point of view, for in no case can the dangerous and long route by the Gulf of Mexico and Mississippi and Ohio Rivers never as closely connect them as their mutual interest requires, but as other channels of transportation are opened, Cincinnati and Charleston will become greater strangers.

Add to a commercial, our manufacturing character, and a connection with us will appear still more important. We manufacture almost every American article that the southeast wants, and which we would gladly barter for merchandise taken by her in commercial transactions with the eastern States and Europe. We have upwards of fifty steam engines and much water power, in effective operation. Our steam engines rate from five to three hundred horse power each. They do almost every thing that the genius of man has yet done by steam on land, and are equal to the task of at least twenty thousand men. We are manufacturing, this summer, one hundred and eleven steam engines, and about twenty sugar mills—the engines mostly very large, and many of the very largest class. The manufacture of these takes most of the power of ten of the smaller class of our engines. Three more are in part employed in the manufacture of cotton gins. This is a new branch of manufacture among us, just springing into importance. In 1834, we made but fifty-five as the first experiment. This year we are making two hundred and forty-five, and preparations are in progress to supply the full demand next year, estimated at five hundred and thirty, and all for the Mississippi Valley. They average sixty saws—six set in cast frames, and

beautifully finished. We can make and send them to Charleston cheaper than she can either manufacture or procure them from the east, had we a quick and safe conveyance. The southeast requires at least a thousand annually, and they could not only barter on good terms for gins, but for horses or steam engines to work them. When the above thirteen engines are deducted, we have all our large and some smaller ones, numbering about forty, doing every thing in which that useful power can to aid the labor of man. We are not, moreover, behind other cities in the performance of labor that takes the almost unaided human sinew to perform. Of this class is ship-building. The tonnage that our shipyards are about to get afloat this season, amounts to 5,452 tons, in twenty-five boats, from 93 to 512 tons burthen each. This is not mentioned as forming any part of my subject, farther than the business and importance of our city is connected with it.

By comparing the proposed Railroad with other prominent works of Internal Improvement, its importance will stand in bold relief. New-York is now about to double the size of her Erie Canal, and also to construct a Railroad parallel with it, the entire length of the State. Philadelphia has scaled the mountains, by Railroads and Canals, and with two turnpikes. Baltimore is about to do the same, by a Railroad, not satisfied with a turnpike—Washington City is menacing the Alleghanies with the Chesapeake and Ohio Canal, and Richmond is looking this way,—and all for what? To prevent the fatness of the Ohio Valley from swimming down to New-Orleans! The experiment has not failed—New-York has enriched herself by it—Philadelphia is doing so—Baltimore, Washington, and Richmond, wish to do it, and Charleston may, if she enters for the prize. She stands in the front rank, and she will enter the list, when she finds the course clear for southern competition, and she will win. New Orleans, too, finding that steamboat navigation is too slow for her, stretches north to snatch the prize which the eastern cities are about to take; and her Nashville Railroad of about 650 miles is not considered too great a stake.

Compare that proposed work, parallel with a river capable of carrying 500 tons in one load, from point to point, with the work we are advocating, along no navigable stream. Compare the easy access of Charleston to the open Atlantic, with that of Orleans by 120 miles of river and 650 of dangerous Gulf navigation, and the difference is conspicuous. Will Nashville, will Tennessee, take that direction at all? Will she prefer 600 miles of Railway, through other States, that will deliver her produce in an unhealthy climate, behind the Gulf of Mexico and the reefs of Florida, to joining our road from Knoxville, when she will arrive at open sea with less distance? Will she prefer to pay other States her fare, when by a road through the centre of her own, she can rise to wealth and importance by the transit of her merchandise? Nay, we cannot think so. Nashville will find it to be her interest to unite with Charleston and Cincinnati, and by a union of effort, accomplish a work that will at once raise three or four States above midway importance. And who can say that within ten years from this day, a route from the mouth of the Ohio, by Nashville, Knoxville, and Charleston, will not only be the shortest and safest, but the cheapest route to Europe from the upper Mississippi—the far, far West! More might be added, but my time is

bids; less I fain would say, but my theme commands, and should I find that now, or at any future time the views of your committee have been advanced by me, it will be a source of gratification to your obedient servant,

JNO. S. WILLIAMS.

Cincinnati, August 22, 1835.

We have much pleasure in presenting some views in the following extract of a letter, to a correspondent in this city, solicited by us for publication, on this all-important subject. The writer, we trust, will pardon the liberty taken with his valuable communication, at a time when the enlargement of the Locks will claim the attention of the Canal Board and Legislature—and is a subject so interesting to this city, we may add, the whole State.

"The project of the enlargement of the Erie Canal is becoming better understood by the people in this section of the State, and great anxiety is felt at the result. The Canal Board are finding difficulties at every step. There is more difficulty in adhering to the channel of the present canal, than was anticipated. I am satisfied that a canal 70×7 feet, if properly located, from the Hudson to the Seneca river, would not occupy the bed of the Erie Canal, more than one-third or one-fourth of the distance—and but for the name of it, might as well be called a new canal. If the ground was not occupied on the north side of the Mohawk, I should say unhesitatingly that it would be better to make an entire new channel, from the Hudson to Lake Ontario. This would allow an entire new arrangement of the locks. The average lift of the present locks, is 8 feet; this is altogether too low. I would go as high as 12 or 16 feet. This would lessen their number, and consequently their cost, and the delay in passing them. The gates would be somewhat heavier, but with suitable fixtures, would be as easily worked. There are now 50 odd locks, from Utica to Albany. If this number could be reduced to 30 or 35, it would be a great point gained. I have just received a letter from one of the Engineers on the Lehigh Navigations, stating that the locks in that work, which are to be 100 by 20 feet, in the clear, are constructing with lifts of 20 to 30 feet. This is higher than I should venture to go, but it shows the views which intelligent Engineers are taking of the subject. As the act now reads, the Canal Board are authorised to erect duplicate locks. If the locks are widened to 17 or 18 feet, as they probably will be, they will admit boats of 150 tons or three times the tonnage of the present boats. The business on the canal must therefore increase three or four fold, before double locks will be required. Where then, is the necessity for expending money at this time, in the erection of double locks? There is another subject to which attention seems not to have been directed, and that is, the policy of erecting and maintaining farm bridges. For a Canal 70 feet wide these bridges should be at least 80 feet span, though I understand it is contemplated to make them 72 feet,

setting the abutments on the berm side, ten feet into the Canal, which is very objectionable. These bridges, if properly built, will cost from 1200 to 2000 dollars each, and require 200 dollars per annum to keep them in repair, making the whole cost to the State, equal to an outlay of not less than 4000 dollars for each bridge. I am satisfied that one half this amount will, on the average, pay all the damage of removing them, while at the same time the navigation will be essentially improved."

Sixth Annual Report of the Baltimore and Ohio Railroad Company.

(Continued from our last.)

TO PHILIP E. THOMAS,

Pres't Baltimore and Ohio Railroad Co.

Having recently made a reconnaissance with a view to a Railroad across the Alleghany mountains, from the Potomac River at Cumberland, in Maryland, to the Ohio River at Wheeling, and at the Flats of Grave Creek in Virginia, and also at Pittsburgh in Pennsylvania, I avail myself of the present occasion to report the results, and to offer such views in relation to the scheme as shall seem just and proper.

The construction of the Baltimore and Ohio Railroad, having reached the bank of the Potomac opposite to Harper's Ferry, and its further extension up that river towards Cumberland, being staid by the terms of the compromise between the Railroad and Canal Companies, until such time as the Canal shall be, or by its charter should be, completed to Cumberland; and the liberal grant of the State of Maryland, at the last session of the legislature, being calculated to ensure a speedy completion of the Chesapeake and Ohio Canal to that point, the present was deemed by many to be a proper time to make examinations, with a view to induce the extension of the Railroad from the same point to the Ohio River. The people of Wheeling, in that spirit of enterprise for which they are conspicuous, made the first movement to procure the examination, and having obtained thy approbation and my own consent, I undertook to make the reconnaissance at such time as I could be spared from the Railroad service here. In pursuance of this arrangement, I commenced at Cumberland in the month of May last, examining the several routes hereinafter described, and completed the service in the month of August; having during the time visited this city in June, upon the business of my office as Chief Engineer.

Upon reaching Wheeling with the examination, a route was likewise viewed to strike the Ohio River near Elizabethtown, at the flats of Grave Creek. This was done at the request, and upon the representations of the citizens of that place and vicinity.—A route was also examined to the city of Pittsburgh, as the grant of the State of Pennsylvania to the Baltimore and Ohio Railroad Company, for right of way, &c. through that State, required that if the main stem of the Railroad should not terminate at the Ohio River in the vicinity of Pittsburgh, then the said Company should construct simultaneously, a lateral Railroad from the main stem to that city. Such however, is the importance of the city of Pittsburgh, and its connection with the north and west, as well as with the great Lakes, that an examination to it, would have been amply justified in the absence of any legislative injunction to that effect.

Accompanying this report is a map of the country comprising such parts of Virginia, Maryland and Pennsylvania, as are necessary to exhibit the relation of the several routes, and connection of the more important places situated upon roads or water courses, or intersected by the several lines examined and marked upon the map. There is likewise represented the route of the Cumberland road to Wheeling, as constructed by the General Government, and the route surveyed and recommended for the Chesapeake and Ohio Canal, from Cumberland to Pittsburgh, by the United States' Board of Internal Improvement, and to this map reference is made for a better understanding of what is written in this report.

Instrumental levels and surveys having been executed from Cumberland along the principal ravines and water courses, and through the more noted passes across the mountain chains, also to Wheeling and Pittsburgh, in the course of operations connected with the location and construction of the Cumberland road, and of the traces of routes for the contemplated Chesapeake and Ohio Canal—I have availed of the knowledge of heights and distances so ascertained, combined with those estimated in this reconnaissance, to infer the grades that it may be necessary to establish upon any given route with a view to a Railroad.

Passing from Cumberland in any direction towards the Ohio River, we meet with a succession of mountains and ridges, nearly parallel to each other, and ranging about northeast and southwest. The difficulties presented to the eye of the traveller in his course upon the common road across the Alleghanies, would seem to forbid the construction across them of any Railroad for the purpose of general and reciprocal trade and intercourse, much less one upon which the locomotive steam engine should ply with effect and speed.—Pursuing the route of the Cumberland turnpike road, already mentioned, in the direction towards Brownsville and Wheeling, we are almost continually ascending and descending the mountain slopes for a distance of sixty miles, to the western base of Laurel Hill, near Uniontown. At the town of Cumberland, beautifully situated upon the left bank of the North Branch of Potomac, at the mouth of Will's Creek, and at the eastern base of Will's mountain, the National Turnpike road commences, and ascends that creek, through a gap in that mountain; thence turning to the left of Braddock's run, it passes through the gap of Dan's mountain, and immediately commences the ascent of the Great Savage, or the Great Backbone mountain, as the same ridge is denominated where it divides the eastern and western waters southwest of the pass through it of Savage River. The summit of this mountain upon the road, is gained in about thirteen and a half miles from Cumberland; and the top of the Little Savage mountain, a mere spur of the Great Savage, is reached at a mile and a quarter further. Between this spur and the main ridge in what is called here the Cranberry Swamp, situated about two

miles northeast of the turnpike road, heads the Savage River, which runs a southwest course about twenty miles to its junction with Crabtree creek, and thence a south-eastern course five miles to the Potomac, at about 30 miles by the course of the river, above Cumberland. Descending westward from the Little Savage to Bromley's, now Beall's tavern, the turnpike passes the ridge that here divides the eastern and western waters, or the Savage river and the Fishing branch of Piney run. This dividing ridge is called the Little Backbone mountain, and is here about 1737 feet above the level of Cumberland, or 2372 feet above the level of the tides of the Chesapeake.

The following table exhibits the principal summits, and some of the depressions traversed by this road, from its commencement at Cumberland, to its termination in Wheeling, at a point about 80 feet above the level of the Ohio River.

Names of places on the Cumberland Road.	Distance in miles.	Total distance from Cumberland.	Height in feet above tide.
Cumberland,	00	00	635
Frost-town,	11	11	1255
Great Savagemount summit,	24	131	2025
Savage river, 2 miles from its head,	4	144	1741
Little Savage mount. summit,	4	148	1900
Little Backbone mountain, summit (at Beall's) dividing eastern and western waters,	4	152	1737
Meadow mountain summit,	51	21	2019
Casselman's river,	24	234	1442
Negro mountain summit,	51	29	2191
Keyser's ridge summit, a spur of Negro mountain,	2	31	2208
Winding Ridge summit,	4	35	1899
Smythfield at Youghiogheny river,	6	41	770
Barren Hill summit,	5	46	1815
Woodcock Hill, or Briery mountain,	3	49	1805
Laurel Hill, or most western mountain,	83	57	1777
Munroe, at western base of Laurel Hill,	3	60	430
Uniontown,	24	63	317
Cauley's Hill,	8	71	639
Brownsville, at Monongahela river,	4	75	198
Hillsborough,	12	87	1115
Washington,	12	99	771
West Alexandria,	16	115	1162
Wheeling, at Ohio river,	16	131	113

The height of Cumberland above tide is here assumed to be 635 feet, as stated by N. S. Roberts, in his Report to the Chesapeake and Ohio Canal Company upon the coal mines and Railway routes from the same to Cumberland, 18th Sept., 1829. The level of a point one mile below Cumberland is stated in the Report of the U. S. Board of Internal Improvement, signed S. Bernard, Brig. Gen., Wm. Tell Poussin, Capt. Top. Engrs., Wm. Howard, Civil Engr., Washington City, 23d Oct., 1826, to be 578 feet above tide: and this point is readily conceived to be 57 feet lower than the place in Cumberland selected by N. S. Roberts, as the base of his operations. In James Shriver's map, published in 1824, the level of Cumberland is assumed to be 537 feet above that of tide water, a height that has been corrected by subsequent levellings, and especially in those conducted by Col. Abert for

the United States Board of Internal Improvement. The heights upon the turnpike road, in the preceding table, are partly taken from the profile of Shriver's map, but as the level of Cumberland was not accurate, and as the levels of the several points westward of that town, were deduced from the grades of the road which, although they may be sufficiently accurate for the purpose of such a road, are yet not so exact as levellings taken for a Canal or a Railroad, not to mention that no correction for the earth's curvature was made; some changes in the height above tide, have been made from Cumberland to Casselman's River—none, however, have been made beyond that stream, as the omission to correct for curvature would cause those parts to be represented too high: and they are yet too high, especially beyond the mountains. For instance, Brownsville, upon the river bank, about 50 feet above low water mark, is stated to be 833 feet above tide, whereas, it is probably but 730 feet, deduced as follows:

	Feet.
Monongahela River at Pittsburgh, according to levels for Chesapeake and Ohio Canal, (supposed at low water,) above tide,	648
Fall in the Monongahela, from Brownsville to Pittsburgh, as ascertained at low water, by Dr. Howard,	30
Low water at Brownsville, above tide,	678
Add for height of street on river bank, say	52

Height of Cumberland Road at Brownsville, above tide, 730
Wheeling is about 650 feet, Pittsburgh 700 feet, and Brownsville 730 feet above tide.

It will be seen, from what is stated in the table of the heights just given, that the Cumberland Road in traversing the several mountains and streams, frequently deviates very greatly from the same level, and sometimes the change is made in very short distances. The more prominent levels only are, however, here given. In addition to these, the number of hills and ravines crossed are very great, inasmuch that the far greater proportion of the entire Road is either ascending or descending at four or five degrees, the latter being at the rate of 1 in about 11 1/2 or 460 feet per mile. To the view of the traveller upon this Road, therefore, as has been already remarked, the aspect of the country passed through would seem to deny the possibility of obtaining a graduation suitable for a Railroad of the description contemplated.

When, however, the object is a line suitable for a Canal or for a Railroad, the eye of science expands its view and embraces the widest field within the limits of practicability, and it is soon perceived that many of the formidable barriers encountered upon the turnpike road, have been rent asunder in the convulsions of nature, that stamp the great features of this portion of the earth's surface. After a little further investigation, it is found that all the mountain ridges, save one, have been severed, and that the gaps thus formed, afford so many passages for the streams that drain these high and humid regions, and that the rivers rising in, and flowing from, the single unbroken dividing ridge, the one eastward to the Potomac, and by it into the Chesapeake bay, and the other westward to the Monongahela, and by this stream into the Ohio river, are sufficiently direct, in their courses through these mountains, to afford one or more practicable routes for a Canal; should

there be found a sufficiency of water for its supply, not only at the highest level where the ridge dividing the eastern and western waters must be pierced by a tunnel, but likewise at all the inferior levels throughout the line. It is seen that the same routes are entirely practicable for a Railroad, even if there should be a lack of water for a canal; and that a shorter tunnel, if any, will be required for the Railroad. Dispensing with the condition of any but a small supply of water, other routes entirely impracticable for a Canal, will be altogether feasible for a Railroad. Hence, with a view to the latter improvement, the field of examination is much wider than for the former.

In point of fact, two routes have been pronounced by the U. S. Board of Internal Improvement, practicable for the Chesapeake and Ohio Canal, from Cumberland, to Turkeyfoot, (the junction of the Youghiogheny river, Casselman's river and Laurel hill creek—the one 88 miles 1040 yards in length, 2837 1/2 feet of lockage, and 1 mile 568 yards in length of tunnel; with a superincumbent ridge 235 feet high; the other 70 miles 1010 yards in length, 1961 feet of lockage, and 4 miles 80 yards in length of tunnel, with a superincumbent mountain 856 feet high above the tunnel level. The summit level of the one comprises a distance of 12 miles 1604 1/2 yards, of which 5 miles 832 yards are of deep cutting, (mostly in the glade of Deep Creek) beside the tunnel of 1 mile 568 yards just mentioned, whilst the summit level of the other, (by Will's creek and Flaugherly) is in length 5 miles 1230 yards, of which beside the tunnel of 4 miles 80 yards, there are 1200 yards of deep cutting. In either case the summit level and many miles of Canal, with the numerous locks upon the same, are to be supplied with water mainly from stupendous reservoirs, to be erected and maintained in the Youghiogheny, or the Casselman's river and their tributaries. From Turkeyfoot the route of the Canal continued upon the right bank of the Youghiogheny river to the Monongahela, and thence to Pittsburgh.

Mention is here made of the route surveyed and reported for the Chesapeake and Ohio Canal, in order to show their adaptation to a railroad, and in pursuance of that design there are extracted and here given, a few more notes, observations, and statements, from the report of the U. S. Board of Internal Improvement, already mentioned.

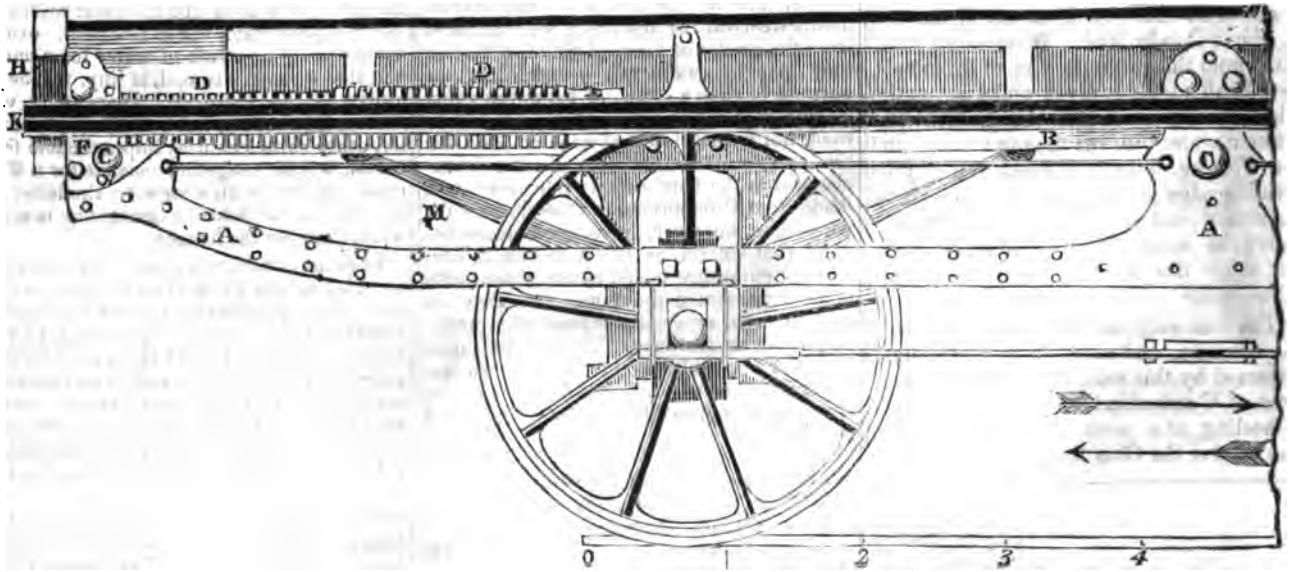
[To be continued.]

CURE FOR A CANCER.—Mr. Thomas Tyrell, of Missouri, advertised that a cancer upon his nose, which had been treated without success by Dr. Smith, of New-Haven, and the ablest surgeons in the western country, had been cured in the following manner: He was recommended to use a strong potash, made of the ashes of red oak bark boiled down to the consistence of molasses, to cover the cancer with it, and in about an hour afterwards cover it with a plaster of tar, which must be removed after a few days, and if any protuberances remain in the wound apply more potash to them, and the plaster again, until they shall disappear, after which heal the wound with common salve. Caution and the knife had been previously used in vain. This treatment effected a speedy and perfect cure.—[Baltimore Farmer.]

STEAMBOAT LOST.—The steamboat Indian, arrived on Friday evening, reports the loss of the steamboat New Companion, Capt. Barlow, about fifty miles above the mouth of the Ohio River, in the Upper Mississippi.

BERGIN'S PATENT RAILWAY BUFFING-APPARATUS.

Fig. 1.



[From the London Mechanics' Magazine.]

BERGIN'S PATENT RAILWAY BUFFING-APPARATUS.

We have more than once had occasion to mention the ingenious buffing-apparatus which Mr. Bergin, the intelligent Secretary of the Dublin and Kingstown Railway, has applied to the carriages under his superintendence, and the good effects which have resulted from its adoption. Our attention is again drawn to the merits of the invention by the Third Annual Report of the Board of Public Works in Ireland, now before us, in which we find it spoken of in the following favorable terms:—

"Thomas F. Bergin, Esq., Secretary to the Company, has applied to the Carriages a spring-bar (for which he has obtained a patent,) admirably adapted to ease the shock of sudden stopping or putting in motion, while, at the same time, it is more strong, more simple, and much more economical, and attended with other great advantages, over the system hitherto adopted."

A description of the apparatus, furnished by Mr. Bergin, and illustrated by engravings, is annexed to the Commissioners' Report. We shall now transfer the former, with but little abridgment, to our pages; and so much, also, of the latter as is necessary to a clear understanding of the construction of the apparatus.

MR. BERGIN'S DESCRIPTION.

Immediately after commencing the traffic on the Liverpool and Manchester Railway (the first on which long trains of carriages were moved by locomotive-engines at high velocities), it was found that every time a train was put in motion or stopped, violent concussions took place between the several carriages, equally disagreeable to the passengers and destructive to the carriages themselves. These concussions arose from the following cause, viz. by reason of the inertia of all heavy bodies, the same engine-power which would be adequate to draw a given load along a railway at any required speed, would not be sufficient to start the same load from a state of rest; it was therefore necessary to connect the several carriages by chains of considerable length, say three or four feet, by which arrangement the inertia of the train was, as it were, divided into as many parts as there were car-

riages, and these several parts being each within the power of the engine, were overcome in succession; but as the first carriage would have attained a certain amount of velocity when the connecting chain came to pull the second, this second must of course be at once dragged from rest into motion at a speed nearly equal to that already acquired by the first, and so on through the entire train. Now a very slight knowledge of the principles of mechanics teaches that the concussions already mentioned were the necessary results of the action described; the same principle (inertia) produced the same effects at stopping a train, and also at every change in the relative velocities of the individual carriages when in motion; and as the force of these shocks was dependent on the velocities, the greater the speed of travelling the more violent they became.

The obvious remedy for the evil complained of was to provide a means by which the full amount of motion acquired by any part of the train should be gradually, not instantaneously, communicated to the other parts: the elasticity of a spring was a suitable means, and an apparatus was accordingly added to the Liverpool and Manchester passenger coaches, a sketch of which is annexed, and which has been termed a buffing-apparatus.

[Here follows a description of this apparatus]:—

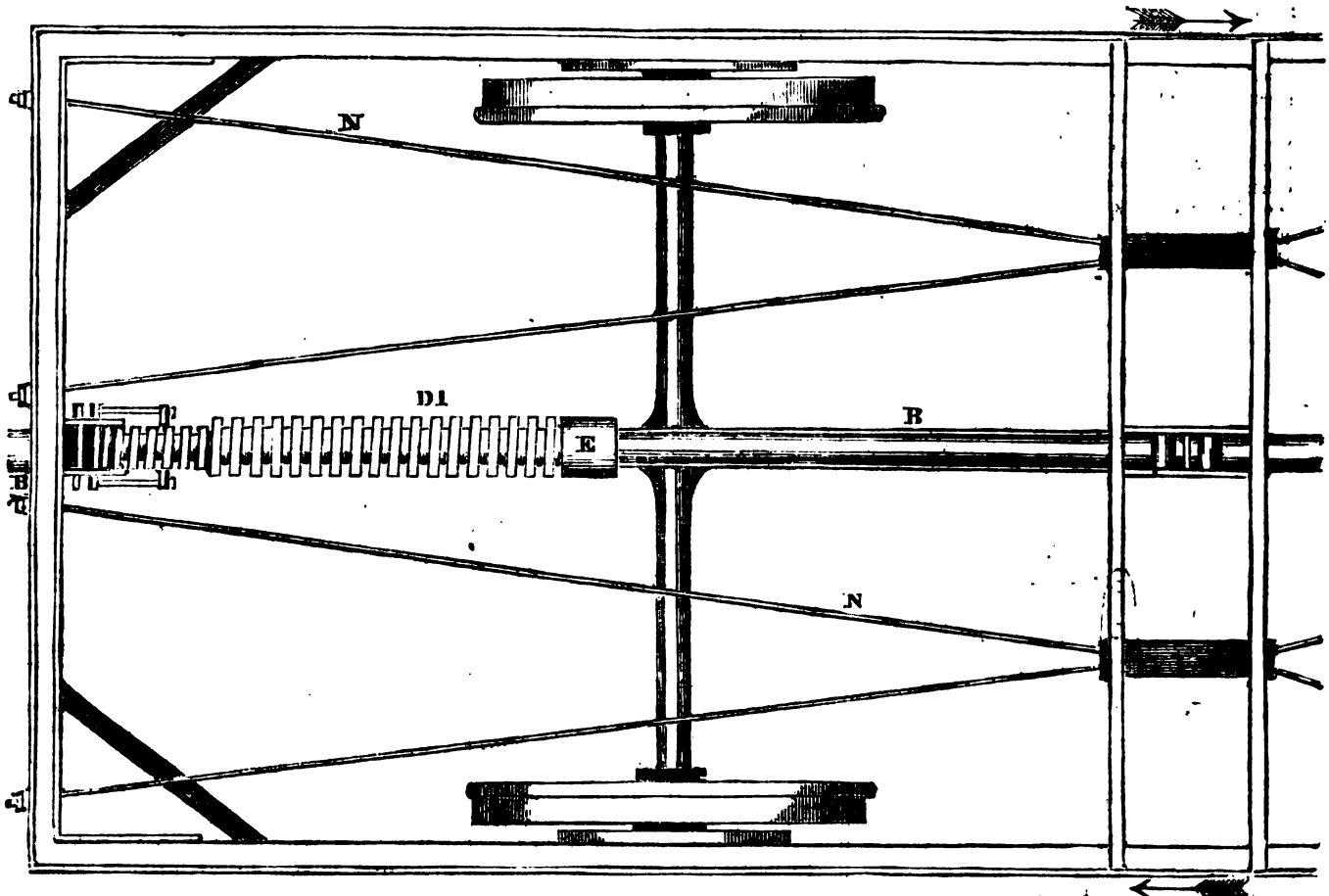
This apparatus is complex, and consequently expensive; it also requires to be very strong, as on a little consideration it will be evident that the spring-bars, levers, and frame of the first carriage have to bear the resistance of the entire train; a very rigid spring is therefore necessary, the range of action of which is, of course, very limited, (in practice not exceeding a few inches,) consequently the concussions, although much diminished, are still very considerable. The apparatus being attached to the carriage-frame, which is, of course, supported on bearing springs, it rises and falls according to the load; whence it constantly occurs, from the carriages being unequally weighted, that the buffer-heads, opposed to each other, and which by right should be at the same level, vary by nearly their own diameter. Whence, in the even

of a violent blow, the bars to which they are fastened are almost certain either to be bent so as not to play in their sockets, whereby the whole apparatus becomes inoperative; or else to be broken off (such we have found to be the case in every instance when an unusually severe blow took place.) After the apparatus described was added to the Liverpool and Manchester carriages, it was found that the train no longer proceeded with a steady motion in the direction of the rails, but that each carriage had acquired a very considerable lateral motion, by which the flanges of the wheels were constantly striking or rubbing against the rails, so as to cause a considerably increased resistance from side friction; indeed, on looking along a train of six or eight carriages, the serpentine motion is very striking. The cause of this unsteady motion will be evident, when we recollect that the point from which each carriage is drawn is in one direction, the centre, and in the other the after extremity. These considerations, the result of numerous careful examinations of the carriages on the Liverpool and Manchester Railway previous to ordering our own, led me to seek for a remedy; as on the Dublin and Kingstown Railway, so very large a proportion of the traffic of which would be passengers, the extent of which would be difficult to anticipate, but which must of necessity be immense, it became a matter of paramount importance to attain, as far as practicable, the most perfect comfort and security, and also to reduce, as much as possible, the wear and tear of the numerous carriages which the company must provide. The apparatus which I designed, and which has been successfully applied to thirty-five of our carriages, is represented in plan, section, and elevation in the accompanying drawings.*

A slight frame of sheet-iron, AAA, consisting of two similar plates, three inches apart, each about 3-16ths thick, secured together by rivets, rests on turned bearings on the centres of the axles; a single bar,

* We have given the section and plan only (our figs. 1 and 2,) and have omitted the after-part of the carriage-frame in each, as it is an exact counterpart in every particular of the front part. We have also, for convenience sake, given detached views of the buffer-heads; figs. 3 and 4, being a section and plan of that in the front, and figs. 5 and 6, a section and plan of that in the rear.—Ed. M. M.

Fig. 2.



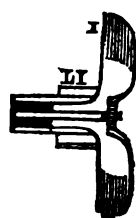
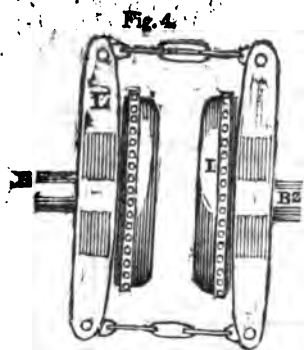
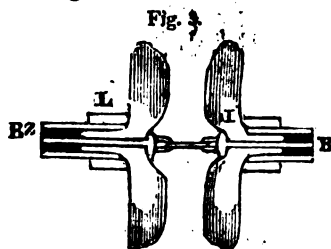
BB, (I have used a welded iron tube of 5-16ths inches thick, and three inches diameter, as being the stiffest,) the entire length of the carriage, and extending about two feet beyond each end, passing through an oblong hole three inches wide and nine inches long (H, 4), is supported on this frame by rollers, CCC, allowing it to be moved lengthways with great facility; on this tube or bar BBB is placed at either end (without the framing of the carriage) about four feet of spiral springs, DDD, of graduated strengths; one end of each of these sets of springs rests against a strong collar or boss, E, fixed to the bar or tube, and the other end against a small box of iron, F, attached to the frame A, and furnished with one of the rollers C previously mentioned; also with the two friction rollers G and G projecting a little beyond its surface, and resting against the inner side of the carriage-frame end. To each extremity of the tube BB is attached a buffer-head, I, by means of a bar of iron K, passing through BB, and furnished with a nut and screw at each end; immediately within the buffer-head, and resting against it, is a bar of iron, L, for attaching the carriages together. It will be observed, that this apparatus lying loosely on the axles, is perfectly independent of the frame-work of the carriage, which is supported in the usual manner on bearing springs, MM, and, in consequence of the oblong holes HH, rises or falls according to the load without affecting the buffing apparatus. The action of the apparatus is as follows:—The train being to be moved in the direction of the upper arrow, the motive power is applied to L I, and draws forward the central tube BB, thereby compressing the springs DD between the boss E and the friction roller, box F, which rests

against the end of the carriage-frame, without moving this latter until the elastic force of the compressed springs becomes sufficient to overcome the resistance presented by the friction and inertia of the carriage, when the latter begins to move forward so gently as not to be perceptible to persons seated therein; the second and each succeeding carriage in the train is, by similar means, brought from a state of rest into motion, as (altogether independent of the springs DD,) the tube BB acts on B 2 merely as a simple connecting chain, rope, or bar, would. In case of a concussion from behind, or of one carriage running against another, it will be at once seen that the resistance is offered by the furthest end, the effect being to drive the tube BB forward, compressing the springs at the remote end; and the carriage will not be affected by the blow until (as in drawing the train) the elasticity communicated to the springs overpowers the inertia of the carriage, which then begins to move, actuated by a force just sufficient to start it; any ordinary velocity might be thus (theoretically) resisted by sufficient length of spring, without any strain or violence to the carriage receiving the blow; but practically, the springs are limited to about four feet, allowing a range of action of about two feet, beginning to be compressed by a force equal to about twenty pounds, and presenting a gross resistance to entire compression of upwards of two tons, and which have been found sufficient for all practical purposes. It will be observed, that as the springs of each carriage act totally independent of each other, and of all the carriages in the train, except to that to which they are attached, each has but to bear its own share of the resistance, the sum of which is made up of the separate resist-

ances of all the springs acted on: thus, if one set offers a resistance equal to two tons receding through two feet, and that there be ten carriages in the train, the gross resistance to a concussion would be equal to twenty tons through two feet; and if the buffer-heads of each carriage were in contact, this gross amount of resistance would be opposed without the carriages being necessarily moved forward, as in the case of any obstruction on the rails, or any of them bearing more than two tons. On the contrary, in the other apparatus, supposing each spring also to resist a force of two tons, and to recede, as in the case in practice, about eight inches, each spring being acted on by all that preceded it, the resistance offered by a train of ten carriages would be but equal to two tons through ten times the space each separate spring moved, or $10 \times 8 = 80$ inches, or 6 feet 8 inches; consequently the first and each succeeding carriage would, to enable all the springs to act, be forced through a space equal to the sum of the spaces through which the separate springs act: thus the first carriage of the ten would be forced through eight inches for each of the remaining nine carriages, or in all six feet, and it is easy to conceive the difference of the effect in the two cases. Experiments have been tried on this railway, by placing a single carriage, fitted with the new apparatus, on the rails, and running an engine and tender against it with a velocity of six to seven miles an hour, without producing any injurious effect. I have more than once sat in a carriage so struck, without sustaining any injury or other effect greater than is felt on starting a train of carriages fitted with the old apparatus.

Another effect which has been realized by the adoption of this apparatus is a per-

fectly steady forward motion in the trains, whereby very much of the side friction of the flanges of the wheels against the rails is avoided; and instead of that undulating lateral motion previously described, all the carriages constituting the train move forward in a steady path, as if they had not the power of motion independent of each other. Carriages are hereby rendered much less liable to go off the rails, and can be pushed before the engine in case of necessity with far greater confidence and less lia-



bility to accident; as although the impulse is given to the central bar from behind, yet it is obvious the carriage is acted upon from the front, precisely as it would be if drawn in the same direction. I have frequently, during our experimental trials before opening the railway, propelled one and two carriages in this manner at a velocity of thirty miles per hour with perfect safety. The diminution of side friction necessarily diminishes the power requisite to draw a train: the amount of saving in this respect I have as yet been unable to ascertain experimentally with sufficient accuracy to state in this place; I have, however, ascertained that it is very considerable.

One other object, of no trifling importance

to a concern like the Dublin and Kingstown Railway, which must have an exceedingly large stock of carriages, is also effected; namely, a diminution of first cost of between 50L. and 60L. per carriage.

In describing the figures, I omitted to state that as the entire resistance to the action of the springs D D is on the ends of the carriage-frame, the centre of each is armed with a strong plate of iron, about fifteen inches square, through which pass the tension rods N N to the outer angles of the opposite ends of the frame; consequently these rods receive the entire force of the springs.

NATCHEZ, (Miss.) Dec. 10.

Burning of the Walk-in-the-Water.—The steam boat Walk-in-the-Water was discovered to be on fire on Tuesday evening between 8 and 9 o'clock. From the great volume of flame which burst from her almost immediately after the alarm, it is presumable that she had been on fire under the deck for a considerable period. An effort was made to save the cabin furniture, but the rapidity of the fire was such, that the attempt was abandoned. The clerk's office was locked, and himself absent. One or two individuals tried to break it open without success. The books, papers, about 1200 bales of cotton, and \$3500 in money, were burnt. The cotton was all insured, either here or at New Orleans.

The Walk in the Water was lying opposite the warehouse of Robert Mitchell & Co., and A. L. Wilson, inside of the Charleston, which latter boat was cut loose and towed up outside of the flat boats. The stern line of the Walk in the Water was then cut, and by the action of the eddy, her stern swung round against the stern of the Charleston, setting her on fire the second time. The Charleston was then sent adrift with her upper works in a blaze, and with but three individuals on board, to wit: the captain, mate, and one of our citizens, Mr. Wm. Woods. To these individuals much credit is due for saving the boat. While the people on the wharf were sending boats out to rescue them, not expecting that the Charleston could be preserved, by the extraordinary exertions of these individuals the fire was got under, and with the assistance of those sent to take them off, was finally extinguished. Steam was then raised, and she was again brought up to the landing, having floated down one or two miles. In the mean time the Walk in the Water was a mass of flames, producing a bright glare for miles around her. To save the warehouses and stores within danger, she had also been cast adrift, and as she floated in the midst of the waters, was a magnificent sight.

The sides of the bluff were brightly illuminated, and the distant shore of Louisiana was traced as with a pencil dipped in gold; while the long line of smoke, which rose but a little above the bluff, and floated northward over the bed of the river, looked bright in contrast with the surrounding gloom; and as the unruffled surface of the water reflected back, with increased vividness, the burning mass, it presented a scene worthy of the painter.

A bear which was chained between the two decks, was burnt, and it is supposed that a human being also suffered.

A white man was seen, after the Walk-in-the-Water was cut adrift, at the stern of the boat, apparently in search of some object. He was hailed, and advised to come ashore. He replied; but all he said was not heard. He was understood so say, that he would not leave the boat until he found that for which he was in search. Report states, he was afterwards seen to fall, by the giving way of the deck, into the hold.

The bear being chained about midway of the upper deck, excited strongly the sympathies of the spectators. As the flames rose they were drawn between the decks, and met over the bear—as they shot upwards, first upon one side and then upon the other, he would leap in the contrary direction to escape, and would as often be opposed by a wall of fire. He finally made one desperate effort and cleared the deck, but did not break his chain. He attempted to raise himself by grasping his chain above, but he was soon suffocated.

The boat belonged to Captains Crain and Glover, who had just purchased her, and we have not learned whether she was insured or not.

The boat continued burning until this morning,

when she sunk about four miles below, near the Louisiana side. She was of the largest class of boats, and the loss of boat and cargo, is estimated at \$110,000.—[Courier.]

STEAMBOAT ACCIDENT.—On Tuesday evening the steamboat Levant, on leaving the landing, came in contact with the steamboat Marion that was just coming in. The concussion was so great that the bows of the Marion were stove in, and in a short time she sunk. The Levant was speedy in rendering assistance, and with the prompt aid of Captains E. Strong, Ackerman, of the ship Byron, and the officers of the ship Star, Southerner, Nashville, and others in the neighborhood, a fast was got hold of the Marion, and she was hauled into the Levee. Her cargo, consisting of sugar, molasses and cotton, however, will be a loss. It is much feared that some of the passengers or hands are lost.

MOST MELANCHOLY ACCIDENT.—The Easton Whig of the 26th contains an account of the loss of the schooner Hester Ann, of Wye River, which sailed from Baltimore for the Eastern shore on the 15 instant. She had on board, as passengers, several of the most respectable and worthy citizens of Talbot county, all of whom, as well as the crew, making ten or twelve in the whole, have met with a watery grave. We annex the melancholy particulars, as far as they had become known.

EASTON, Dec. 26.

When we laid down our pen on concluding the lamentable occurrence which we published in our paper of Tuesday last, giving the melancholy fate of Mr. JAMES G. ELLIOTT, and the loss of the schooner Hester Ann of Wye River, we entertained the hope that we should not have to resume it to give other particulars, or be pained to record further loss of lives. We now have to add, that from the circumstances related to us by gentlemen from the wreck, beyond a doubt all of the passengers and crew are lost; supposed to be ten or twelve in number.

Capt. Marshall left Baltimore on last Tuesday week in the steamboat Maryland for Easton, entrusting to his cousin (Mr. James Marshall) the command of the Schooner, which sailed on the same morning for Wye river. Our informant and Capt. Marshall both conversed with the passengers on the Monday night previous to their sailing, and in corroboration of the fact of their being on board the Hester Ann, Capt. Benny of the Easton Packet, actually recognized and conversed with them just before they parted company on the night of the accident.

The following are the individuals lost: James G. Elliott, John P. Paca, jr., Richard Baker, John Redman, James Marshall, and three colored men. It is also supposed there were several colored passengers on board.

Capt. Marshall, with several other gentlemen, reached the wreck on Tuesday morning last, and succeeded in getting out of her some freight; the trunks, and some wearing apparel of the unhappy sufferers, but found none of their bodies; those of Mr. Elliott and the colored man (named Aaron Smyler) having been previously taken off by some of the people of Poplar Island. The schooner was found a perfect wreck, nearly under water, having bilged, it is supposed, after she capsized; the mainmast was carried away, and her anchor cast out; consequently they labored under much difficulty in searching the cabin; but from the circumstance of finding boots and shoes belonging to the sufferers, it is inferred they were below when the accident happened, probably abed. There was a large quantity of freight on board, principally owned by Mr. Paca, but so much injured as to render it unworthy of taking from the wreck. She was hauled ashore on Poplar Island and sold. Mr. Elliott's body has been carried to the residence of his family, where it will be interred.

DREADFUL EARTHQUAKE.—The Journal of Odessa describes the ravages of a dreadful earthquake, which occurred on the 25th of August at Knissarich, (the ancient Caesarea in Cappadocia,) and the surrounding villages. On that day, about 5 in the afternoon, a thick column of smoke was seen to arise at the foot of Mount Ardescheh, (on the side of which the town is situated,) from which volumes of flame burst forth with an appalling noise. At the same moment the shocks of an earthquake began, and continued for several hours, accompanied by a noise like thunder. Those who survived the effects, describe their sensation as if they had been

on the surface of an ocean agitated by a storm. About 2000 houses were destroyed in that city. All the inhabitants that could effect their escape, fled into the country, but about 150 perished in the falling ruins. Up to the 1st September the surviving inhabitants were still in the fields, afraid to return to the city; and during that time three or four shocks were felt every day, but becoming gradually weaker. The destruction in the villages, to the distance of 140 miles, was terrific. Some were swallowed up; and the place of one of them, Kermetz, was occupied by a large lake. The number of lives lost has not yet been ascertained, but it appears to have been very great.

FEW THINGS IMPOSSIBLE.—"It is impossible," said some, when Peter the great determined to set out on a voyage of discovery, through the cold northern regions of Siberia, and over immense deserts; but Peter was not discouraged, and the thing was done.

"It is impossible," said many, when they heard of a scheme of good Oberlin's. To benefit his people, he had determined to open a communication with the high road to Strasburg, so that the productions of de la Roche (his own village,) might find a market. Rocks were to be blasted, and conveyed to the banks of the river Bruche, in sufficient quantity to build a wall for a road along its banks, a mile and a half, and a bridge across it. He reasoned with his people, but still they thought it was impossible; but he seized a pickaxe, put it across his shoulder, proceeded to the spot, and went to work, and the peasants soon followed him with their tools. The road and bridge were at length built, and to this day, the bridge bears the name of the "Bridge of Charity."

"It is impossible," said some, as they looked at the impenetrable forests which covered the ragged flanks and deep gorges of Mount Pilatus in Switzerland, and hearkened to the daring plan of a man named Rupp, to convey the pines from the top of the mountain to the Lake of Lucerne, a distance of nine miles. Without being discouraged by their exclamations, he formed a slide or trough of 24,000 pine trees, 6 feet broad, and from 4 to 6 feet deep; and this slide, which was contemplated in 1812, was kept moist. Its length was 44,000 English feet. It had been conducted over rocks, or along their sides, or over deep gorges where it was sustained by scaffolds; and yet skill and perseverance overcame every obstacle, and the thing was done. The trees slid down from the mountain into the lake with wonderful rapidity. The large pines, which were one hundred feet long, ran through the space of eight miles and a third in about six minutes.

A gentleman who saw this great work, says:—"Such was the speed with which a tree of the largest size passed any given point, that he could only strike it once with a stick as it rushed by, however quickly he attempted to repeat the blows."

Say not hastily, then, of any thing, "It is impossible." It may not be done in an hour, or a day, or a week; but perseverance will finally bring you to the end of it. "Time and patience," says a Spanish proverb, "will turn a mulberry leaf into silk."

[From the Jersey City Gazette.]

TRIAL FOR FORGERY.—Previous to the late fire in New-York, we had prepared for publication a statement of the following case, the copy for which was destroyed on that occasion; and the consequent derangement of our office has prevented an earlier attention to the subject on our part.

On the 8th of December last, before the Court of General Sessions for the City and County of New-York, the Recorder and Aldermen Taylor and Labagh presiding, NATHANIEL FREEMAN, of Aharsimus, was tried on an indictment for forgery in the third degree, in counterfeiting the signature of Arthur Tappan & Co., of New-York, to a note addressed to John Rankin, also of that city, requesting the loan of ten or twelve hundred dollars, with intent to defraud said Rankin thereof.

The District Attorney, for the prosecution, called Messrs. Lewis Tappan and John Rankin, who proved the forgery.

N. Nye Hall, of counsel for the defence, entered a plea of insanity, and called a great number of witnesses to sustain the plea; the most important of which were,

Mrs. Mary Hall, a highly respectable lady of 70 years of age, who had for a considerable time resided in the family of the accused, and had been acquainted with him from infancy. This witness testified that she had no doubt that Freeman was occasionally insane; and that she had the best reason for believing that the malady was hereditary, both his father and his mother having been subject to occasional fits of mental alienation.

Simon Healy had known the accused long and familiarly; had for some time past considered him partially deranged. A few months previous, Freeman had told witness that he felt a disposition to blow his own brains out; that he was frequently subject to a depression of spirits, which tempted him to commit suicide.

Col. Samuel L. Knapp had known Freeman many years, both in New-York and Boston; and from his universal uprightness of character and honorable conduct, believed it impossible that he should commit such an act as that charged in the indictment, unless laboring under an aberration of mind.

Gen. Robert Swartwout, Dr. J. D. Garner, and many other highly respectable witnesses, gave similar evidence; and all testified to the good character and integrity of demeanor of the prisoner, previously to the commission of the act for which he was now on trial; and were unanimous in the belief that he was subject to occasional fits of hallucination, especially on subjects connected with religion and the abolition of slavery, to the latter of which subjects allusion was made in the note for the writing of which he was now on trial.

So full and clear was the evidence to the fact of insanity, that the Jury, in reply to a question from the Recorder, whether they

were satisfied of that fact, rendered an immediate verdict of acquittal, without leaving their seats.

The verdict was received with great and unfeigned satisfaction, by the numerous friends of the accused, whom the occasion had called together, and in company of whom he left the court.

We are sincerely happy at this clear and impartial decision of an affair which had caused a deep and melancholy sensation in the minds of the highly respectable circle in which Mr. F. and his amiable family had moved.—[Jersey City Gazette.]

MORRIS RAILROAD CONTINUED.—An application will be made to the Legislature, at its next sitting, for a law authorising the construction of a Railroad from Morristown, by the most eligible route, through Sussex and Warren counties, to the Delaware River, at or near the Water Gap.

The Belvidere Apollo states, that the bridge over the Delaware, at that place, is now completed, and ready for the passage of any description of vehicles, at a very reasonable toll.

A writer in the Sussex Register recommends the construction of a railroad through that county, from the coal region on their west, to the Hudson River at New-York.

BANK OF NEW-BRUNSWICK.—The N. Y. Commercial Advertiser says:—"It is understood that bills of this Bank, amounting to about \$20,000, put in circulation previous to its bankruptcy the 19th February, 1834, have never been redeemed by the Bank, or presented to the receivers, and that many of them are now offered for sale. The public are cautioned not to receive these bills, as the time limited to the creditors of the Bank expired on the 4th of May last, and the bills in the hands of persons who may now receive them, will be entirely worthless."

COUNTERFEITS.—Counterfeit five dollar notes of the Bank of New-Brunswick, says the New-York Mercantile, with fictitious signatures, and evidently filled up with the same hand, are in circulation. The plate is a genuine one, and was probably stolen from the Bank, when it was robbed some time since.

SUDDEN DEATHS.—The Morris papers mention the sudden death of Mrs. Phoebe Schenck. She was found dead in a sitting posture, leaning against a post of the piazza, on Monday afternoon, though she had enjoyed usual health, and was engaged in her domestic duties during the day. An affection of the heart is one of the conjectured causes.

The wife of John Walter, of German Valley, it is also stated, dropped dead on Tuesday. She had been long afflicted with dropsy in the chest.

AGRICULTURE, &c.

From the Farmers' Register.

ON THE USE OF LIME AS A MANURE.

By M. PUVIS.

Translated for the Farmers' Register from the *Annales de l'Agriculture Française*, of 1835.

The publication of the following communication to the *Annales de l'Agriculture Française*, was commenced in the February No. of that journal, (which was received here in May,) and the June No. contains the end of the first part, "On Liming," and enables us to offer the translation of that portion to our readers. Only a few pages of the next portion of the series, "On Marling," has yet appeared, and not enough to permit a judgment to be formed of its worth.

Though there are many deficiencies in this treatise on liming—and also opinions as to the theory of the action of lime, in which we cannot coincide—still, on the whole, we consider it as presenting far more correct views, and more satisfactory information, both on theory and practice, than any other work on liming that we have before seen. In other points, and those of most importance, the facts here presented, (and now first learned from any European authority,) strongly sustain the views maintained in the *Essay on Calcareous Manures*. It would be both unnecessary and obtrusive to remind the reader of these points of difference, and of agreement, whenever passages exhibiting either may occur. They will, therefore, generally be submitted in the author's words, without comment. A few exceptions only to this rule will be made, in cases which appear particularly to call for them.

We have no information whatever of M. Puviss, the author of this treatise, previous to the appearance of the commencement of the publication in the *Annales*. But he is evidently well informed on his subject, and is stated by the introductory remarks of the French editor, to be entitled to all respect, for his long experience, and his practical, as well as scientific investigation of the subject. If, then, there remains no ground to distrust his judgment, or his facts, the statements made are most important to a very large portion of this country, which has heretofore been generally supposed to be deprived of all possible benefit from the use of calcareous manures, on account of their remoteness and high price of carriage. M. Puviss states that the most successful and profitable liming in Europe (for the expense incurred) is in repeated applications of very small dressings—making less, on the average, than four bushels of lime to the acre, annually. This small amount, if really as efficacious as is alleged, would cost so little in labor and money, that the limits of the region capable of being limed may be very far extended. It would not matter though the applications should require to be repeated forever, provided the annual returns gave good profit upon the annual expenses; and far greater will be the profit, if (as we think) the soil ultimately, will no longer require such repetitions—or only at very distant intervals of time—and still be a highly productive, because it has been made a calcareous and fertile soil.—[Ed. Farm. Reg.]

On the Different Modes of Improving the Soil.

To improve the soil is to modify its composition in such manner as to render it more fertile.

This definition, which might be extended to manures charged with vegetable

mould [*humus*] or animal substances, which also modify the composition of the soil, is limited by French agriculture to substances which act upon the soil, or upon plants, without containing any notable proportion of animal or vegetable matter.

It is said that manures, [putrescent or enriching,] serve for the nutriment of plants. But it is the same as to substances improving to the soil, which furnish to it matters which it needs to be fruitful, and which furnish to vegetables, the earth and saline compounds which enter as essential elements in their composition, their texture and their products. Such improving substances ought well to be regarded as nutritive.*

Thus lime, marl, and all the calcareous compounds employed in agriculture, since they furnish lime and its compounds, which sometimes form half of the fixed principles of vegetables, ought also to be considered as aliments; or, what comes to the same, as furnishing a part of the substance of vegetables. Thus again, wood-ashes, pounded bones, burnt bones, which furnish to vegetation the calcareous and saline phosphates which compose a sixth of the fixed principles of the stalks, and three-fourths of their seeds, ought well to be considered, and surely are, nutritive.

What then particularly marks the distinction between manures which improve the soil [*amendemens*] and alimentary manures, [*engrais*] is, that the former furnish, for the greater part, the fixed principles of vegetables, the earths, and salts, which are abundantly diffused throughout the atmosphere, whence vegetables draw them, by means of suitable organs: and what is most remarkable, is, that the vegetable, by receiving the fixed principles of which it has need, acquires, as we shall see, a greater energy to gather for its sustenance the volatile principles which the atmosphere contains.

The greater part then of soils, to be carried to the highest rate of productiveness, require manures to improve their constitution. Alimentary manures give much vigor to the leafy products—but they multiply weeds, both by favoring their growth, and conveying their seeds—and they often cause crops of [small grain] to be lodged, when they are heavy. Manures which improve the soil, more particularly aid the formation of the seeds, give more solidity to the stalks, and prevent the falling of the plants. But it is in the simultaneous employment of these two means of fertilization by which we give to the soil all the active power of which it is susceptible. They are necessary to each other, doubling their action reciprocally; and whenever they are employed together, fertility goes on without ceasing—increasing, instead of diminishing.

The greater part of improving substan-

* The two classes of manures which are described generally above, are conveniently designated in French each by a single word. "*Engrais*," which we can only translate as manure, is limited in signification to such substances as directly enrich soils, and feed growing plants—and "*amendemens*," signifying substances which alter and improve the constitution, texture, and indirectly, the fertility of soil, but the operation of which is not to furnish food to plants. In speaking of the action of these different classes, the sense may be rendered, though not very precisely, by the words "enrich," and "improve"—but there is no one English term that will convey the meaning of either class of substances. "Alimentary manures" will be used for the first class, and "manures improving the constitution of soil," or some similar awkward, but descriptive phrase, can only render the meaning of the word "*amendemens*"—useless "improvers" could be tolerated as a substitute, for convenience. Tn.

ces are calcareous compounds. Their effect is decided upon all soils which do not contain lime, and we shall see that three-fourths, perhaps, of the lands of France are in that state. The soils not calcareous, whatever may be their culture, and whatever may be the quantity of manure lavished on them, are not suitable for all products—are often cold and moist, and are covered with seeds. Calcareous manures, by giving the lime which is wanting in such soils, complete their advantages, render the tillage more easy, destroy the weeds, and fit the soil for all products.

The improving substances have been called *stimulants*; they have been thus designated because it was believed that their effect consisted only in stimulating the soil and the plants. This designation is faulty, because it would place these substances in a false point of view. It would make it seem that they brought nothing to the soil, nor to plants—and yet their principal effect is to give both principles which are wanting. Thus the main effect of calcareous manures proceeds from their giving, on the one hand, to the soil the calcareous principle which it does not contain, and which is necessary to develop its full action on the atmosphere—and on the other hand, to vegetables, the quantity which they require of this principle, for their frame work and their intimate constitution. It would then be a better definition than that above, to say that to improve the soil is to give to it the principles which it requires, and does not contain.

Importance of Manures which improve the Constitution of Soils.

The question of improving manures is of great interest to agriculture. This means of meliorating the soil is too little known, and above all, too little practised in a great part of France—and yet it is a condition absolutely necessary to the agricultural prosperity of a country. In the neighborhood of great cities, alimentary manures being furnished on good terms, may well vivify the soil; but animal manures cannot suffice but in a few situations, and of small extent—and in every country where tillage is highly prosperous, improving manures are in use. The Department of the North (of France) Belgium, and England owe to them, in a great measure, their prosperity. The Department of the North, (which is, of all Europe, the country where agriculture is best practised, and the most productive,) spends every year, upon two thirds of its soil, a million of francs in lime, marl, ashes of peat and of dead coal, [*houille*] and it is principally to these agents, and not to the quality of the soil, that the superiority of its production is owing. The best of its soil makes part of the same basin, is of the same formation, and same quality, as a great part of Artois and Picardy, of which the products are scarcely equal to half the rate of the North. Neither is it the quantity of meadow land which causes its superiority; that makes but the fifth part of its extent, and Lille, the best *Arrondissement*, has scarcely a twentieth of its surface in meadow, while Avesne, the worst of all, has one-third. Nor can any great additional value be attributed to the artificial meadows, since they are not met with except in the twenty-sixth part of the whole space. Neither can this honor be due to the suppression of naked fallows, since in this country of pattern husbandry, they yet take up one-sixth of the ploughed land,

* Statistique du département du Nord. 2

every year. Finally, the Flemings have but one head of large cattle for every two hectares* of land, a proportion exceeded in a great part of France. Their great products then are due to their excellent economy and use of manures, to the assiduous labor of the farmers, to courses of crops well arranged, but above all, we think, to the improvers of soil, which they join to their alimentary manures. Two thirds of their land receive these regularly: and it is to the reciprocal action of these agents of melioration, that appears to be due the uninterrupted succession of fecundity, which astonishes all those who are not accustomed continually to see the products of this region.

At this moment, upon all points in France, agriculture, after the example of the other arts of industry, is bringing forth improvements; in all parts especially, cultivators are trying, or wishing to try, lime, marl, ashes, animal black. It is this particular point in progress, above all, for which light is wanting; and this opinion has induced the preparation of this publication. Since more than thirty years, the author has devoted himself, from inclination, to agriculture; but he has been especially attentive to calcareous manures. He has studied in the practice of much extent of country, in his own particularly, in personal experiments, and in what has been written on them both by foreigners and countrymen. An *Essay on Marl* has been the first fruit of his labors; an *Essay on the use of Lime* will soon be ready: it is with these materials that he now sets himself to work. To prepare for this object, a series of articles, of the nature of a recapitulation rather than of a regular work, it was necessary to be concise, and yet not to omit any thing essential. It is proper then that he should limit himself to the prominent parts of his subject, those especially useful to practice. His advice will then be as often empirical as regular, and his directions will be precise, although supported by few developements.

An extract from this work has appeared in the *Encyclopedie Agricole*: here it will again appear, but by separate articles, which will be corrected by a systematic general view of theory, founded on practice. This is the moment for multiplying publications on this subject, because that in almost all parts of France, it is the point in agriculture most controverted,—that which induces the most labor and the greatest expenditures—which presents most doubts—and which has consequently most need of being made clear.

We shall not enlarge here upon the manner in which improving manures act: we will put off this important question, with its developements to the article on lime. Here we only present the theory. Hereafter, that which we will hazard will be founded upon facts, and yet we will not promise these developements, but for the purpose of enlightening and directing practice.

* The hectare is very nearly equal to two and a half English (or American) acres. See account of French Weights and Measures, p. 508. Vol. II. Farm. Reg.—Ta.

† *Essai sur la marne*, published 1836, at Paris. This is the first notice which we have had of the existence of this work, and have forthwith sent for a copy, as well as for one of the author's forthcoming *Essay on the use of Lime*, that no source of information on this important subject may be excluded. But it may be inferred (from the author's expressions) that these more extended works will contain nothing more of what is essential, than is presented in this condensed form, prepared by himself for the *Annales*. Ed. F. A. R. R. R.

Of the various kinds of Improving Manures.

The first in order, and the most important, are the calcareous manures. We comprehend under this name, lime, marl, old plastering mortar, and other rubbish of demolished buildings, beds of fossil shells, [*faun*]* or shelly substances, plaster or gypsum: experience and reason will prove that we ought to arrange in the same class, and by side of the others, wood ashes, ground bones, and burnt bones. We will not place in the same list the ashes of peat, of dead coal, and red pyrotous ashes: their effect is not owing to their lime, but (as will be seen afterwards,) rather to the effect of fire upon the earthy parts, and particularly upon the argil which they contain.

We will next in order treat of manures of the sea, or saline manure of different kinds, of mixtures of earth, of calcined clay: and finally, of paring and burning the turf, and the different questions which peat presents in agriculture.

Of Liming—On the Use of Lime for the Improvement of Soil.

1. Among the immense variety of substances, and of combinations which compose the upper layers of the globe, the earthy substances, silex, alumine, and lime, form almost exclusively the surface soil: the greater portion of other substances being unfit to aid vegetation, they ought to be very rare upon a surface where the Supreme Author willed to call forth and to preserve the millions of species of beings of all nature, which were to live on its products.

It was also a great benefit to man, whose intelligence was to be exercised upon the surface of the soil, to have so few in number the substances proper to support vegetation. The art of agriculture, already so complex, which receives from so many circumstances such diverse modifications, if there had been added new elements much more complicated, would have been above the reach of human intelligence.

2. But among these substance, the two first, silex and alumine, form almost exclusively three-fourths of soils; the third, the carbonate of lime, is found more or less mixed in the other fourth: all soils in which the latter earth is found, have similar characters, producing certain families of vegetables which cannot succeed in those in which it is not contained.

The calcareous element seems to be in the soil a means and a principle of friability. Soils which contain calcareous earth in suitable proportions, suffer but little from moisture, and let pass easily, to the lower beds, the superabundance of water, and consequently drain themselves with facility. Grain and leguminous crops, the oleaginous plants, and the greater part of the vegetables of commerce, succeed well on these soils.

It is among these soils, that almost all good lands are found. Nevertheless, the abundance of the calcareous principle is more often injurious than useful. Thus it is among soils composed principally of carbonate of lime that we meet with the most arid and barren, as Lousy Champagne, part of Yonne, and some parts of Berry.

3. The analysis of the best soils has shown that they rarely contain beyond 10

* "*Faun*.—Beds formed by shells. There is one of these immense beds in Touraine. The cultivators of that country use this shelly earth to improve their fields." This definition is from Rozier's *Cours Complet*, and though it clearly shows that the substance in question is the same as what is called "marl" in Virginia, it is equally clear that neither of these authors consider *faun* as being marl. Ta.

per cent. of carbonate of lime; and those of the highest grade of quality seem to contain but from 8 to 5 per cent. Thus the analysis of Messrs. Berthier and Drupe, show 3 per cent. of it in the celebrated soil of the environs of Lille.

4. But all these properties, all these advantages, all these products, calcareous manures bear with them to the soils which do not contain the calcareous principle. It is sufficient to spread them in very small proportions: a quantity of lime which does not exceed the thousandth part of the tilled surface layer of the soil, a like proportion of drawn ashes, or a two-hundredth part (or even less) of marl, are sufficient to modify the nature, change the products, and increase by one-half the crops of a soil destitute of the calcareous principle. This principle, then, is necessary to be furnished to those soils which do not contain it; it is then a kind of condiment disposed by nature to meliorate poor soils, and to give to them fertility.

Ancient Date of the Use of Lime.

5. Lime, as it appears, has long ago been used in many countries. However, nothing proves that its effect was well known to the Greeks and Romans, the then civilized portion of mankind. Their old agricultural writers do not speak of the use of lime on cultivated lands, nor on meadows. Pliny, the naturalist, tells us, however, that it was in use for vines, for olives, and for cherry trees, the fruit of which it made more forward: and he speaks of its being used on the soil generally in two provinces of Gaul, those of the Pictones and *Ædui*,* whose fields lime rendered more fruitful. The agriculture of the barbarians was then, in this particular, more advanced than that of the Romans. After that, all trace of the use of lime in agriculture, is lost for a long time—whether that it had ceased to be used, or only that the notice of it was omitted by writers on agriculture. The trace is again recovered with Bernard Pellissy, who recommends the use of it in compost in moist lands, and speaks of his use of it in the Ardennes. Nearly a century later, Olivier de Serres,† advises its employment in the same manner, and reports that they made use of it in the provinces of Gueldres and Juliers [in Belgium]. He makes no mention of its use in France: but as the practices of agriculture were not then much brought together, and were but little known, it may be believed that at that time, Flanders, Belgium, and Normandy, made use of lime.

In England, liming seems to have been in use earlier and more generally than in France. But then, and in all time since, good agricultural practices have remained in the particular countries where they were established, without being spread abroad. Now, novelties carry no alarm with them—and in the last twenty years, liming has made more progress than in the two preceding centuries.

Of Soils suitable for Liming.

6. Lime, as has been said before, suits the soils which do not contain it already. To distinguish these soils from others, chemical analysis is, without doubt, the surest means; but it offers often too many difficulties, and lime may be met with in a soil in proportion great enough to exert its power on vegetation, without producing ef-

* *Ædui et Pictones calce uberrimos fecere agros.*

† Who wrote on agriculture in the reign of Henry IV. of France. Ta.

ferrescence with acids.* But visible characters may furnish indications almost certain. The soils where the cow wheat, [*metamphyre*], rest-harrow, [*l'ononis, ou arret-bauf*], thistles, colt's foot, [*tussilage*], and red poppy, spring spontaneously—which produce well in wheat, legumes, (or plants of the pea kind), and especially sainfoin—where the chestnut succeeds badly—which shows but little of dog's-tooth, [*chiendent*], volunteer grasses, or common weeds, [*graminées adventices*], except of the small leguminous kinds—soils which, after being dry, crumble with the first rain—all these are almost certainly calcareous, have no need of lime, nor its compounds†, and would feel from their use, rather ill than good effects.

On the contrary, all soils composed of the moulderings [*debris*] of granite or schistus, almost all sandy soils, those which are moist and cold of the immense argilo-silicious table lands [*plateaux argilo-silicieux*] which separate the basins of great rivers; [*petit ajonc*] the heath, *les petits carex blancs*, the whitish moss spring spontaneously—almost all the soils infested with *avoine a chapelets*, with dog's-tooth, with bent grass [*agrostis*], red sorrel, and the little feverfew—that soil where, unless so clayey as to offer great difficulty to cultivation, only rye, potatoes, and buckwheat, can be made, and where sainfoin and the greater part of the crops of commerce cannot succeed—where, however, trees of all kinds, and especially the resinous kinds, the wood-pine, the sea pine, the larch, the northern pine, and the chestnut, thrive better than in the best land—all these soils are without the calcareous principle, and all the improving manures in which it is found, would give to these the qualities of, and nourish the growths peculiar to calcareous soils.

But there, more than elsewhere, it is especially necessary to avoid too much haste. Liming upon a great scale, ought not to be done, until after having succeeded in small

experiments on many different parts of the ground designed to be improved.

Extent of Surface to which Lime is suitable.

7. A great proportion of the soil of France does not contain the calcareous principle. The country of primitive formation—the mountains of which the rock is not calcareous—many soils even, of which the sub-soils inclose calcareous formations—the great and last alluvion which has covered the surface, and which still composes it wherever the return waters have not carried it off with them—also extensive surfaces, in the composition of which the calcareous principle had not entered but in small proportions, and which small amount has been used by the successions of vegetation—all these kinds of soil, which compose at least three-fourths of the surface of France, to be fertilized, demand calcareous manures. If it is admitted that one-third of all this space has already received aid from lime, marl, ashes of wood, or of peat, of bones burnt, or pounded, there will still remain the half of France to be improved by such means: an immense task, doubtless—but of which the results will be still more prodigious, since it will cause the products of all this great space to be increased by one-half, or more.

Of the various Modes of Applying Lime to the Soil.

8. Three principal procedures are in usage for applying lime. The first is the most simple, and is the most general wherever lime is obtained cheaply, and where culture is but little advanced in perfection, and hand labor is dear. This consists in putting the lime (the burned limestone) immediately on the ground in little heaps at 20 feet average distance, and each heap containing, according to the rate of limiting, between a cubic foot of the stone, to half that quantity. When the lime has been slaked by exposure to the air, and has fallen into powder, it is spread over the surface, so as to be equally divided.

9. The second mode differs from the first in this respect: the heaps of stone are covered with a coat of earth, about six inches thick, according to the size of the heap, and which is equal to five or six times the bulk of the lime. When the lime begins to swell, by slaking, the cracks and openings in the heap are filled with earth: and when the lime is reduced to powder, each heap is worked over, so as to mix thoroughly the lime and the earth. If nothing hurries the labor, this last operation is repeated at the end of 15 days—and then after waiting two weeks more, the mixture is spread over the soil.

10. The third process, which is adopted where culture is more perfect, where lime is dear, and which combines all the advantages of liming without offering any of their inconveniences, consists in making compost heaps of lime and earth, or mould. For that, there is first made a bed of earth, mould, or turf, of a foot, or thereabout, in thickness. The clods are chopped down, and then is spread over a layer of unslaked lime of a hectolitre* for the 20 cubic feet, or a ton to the 45 cubic feet of earth. Upon this lime, there is placed another layer of earth, equal in thickness to the first, then a second layer of lime; and then the heap is

finished by a third layer of earth. If the earth is moist, and the lime recently burned, 8 or 10 days will suffice to slake it completely. Then the heap is cut down and well mixed—and this operation is repeated afterwards before using the manure, which is delayed as long as possible, because the power of the effect on the soil is increased with the age of the compost—and especially if it has been made with the earth containing much vegetable mould. This method is the one most used in Belgium and Flanders: it is becoming almost the exclusive practice in Normandy: it is the only practice, and followed with the greatest success, in La Sarthe. Lime in compost is never injurious to the soil. It carries with it the surplus of alimentary manure which the surplus of product demands for its sustenance. Light soils, sandy or gravelly, are not tired by repetitions of this compost. No country, nor author, charges lime, used in this state, with having been injurious to the soil. In short, this means seems to us the most sure, the most useful, and the least expensive mode of applying lime as manure.

11. The reduction of burnt lime to powder by means of a momentary immersion in water, in handle-baskets, serves much to hasten the slaking, whether the lime is to be applied immediately to the soil, or in compost heaps—some hours in this manner sufficing, in place of waiting two weeks. However, the effect of lime, in this state, may well be different, as we have then the hydrate of lime, and less of the carbonate of caustic lime.* If great rains follow, this process is not without inconveniences, because then the lime, which is already saturated with water, is more easily put in the state of mortar, which ought to be avoided more than every other injury to the manure.

The reduction of burnt limestone to powder, whether it be spontaneous, or by immersion, produces in the compost a bulk greater by one-half or more, than that of the stone—10 cubic feet, producing 15—or a ton, 10 cubic feet. This increase is not uniform with all kinds of lime; it is more strong with rich [*grasses*], waters, and weaker with the poor [*eaux maigres*.†]

Liming, as practised in different Countries. In the Department of Ain.

12. The applications of lime in Ain date from fifty years back. At the present time, the soil which has been limed is still more productive than the neighboring, not limed. Nevertheless, liming is but beginning to extend, while marling, which was begun fifteen years later, has already covered many thousands of hectares. This is because marling is an operation within the means of poor cultivators, being accomplished by labor alone; while liming requires considerable advances, especially in this country where lime is dear, and the dose given is heavy.

The dressings vary in quantity, from 60 to 100 hectolitres the hectare, according to the nature of the ground, and often according to the caprice of the cultivators. Although these limings have not been made with all the care and economy that was desirable, they have been very efficacious, when the soil has been sufficiently drained. The following tables, extracted from the

* This is a full though indirect admission of the truth of the doctrine of *neutral soils*, maintained in the Essay on Calcareous Manures. Ta.

† Though both the truth and the usefulness of this passage, in general, are admitted, yet it is incorrect in the position that none of the "compounds of lime" would be advantageously employed on calcareous soils. On the contrary, the sulphate of lime (gypsum), the most important compound as a manure, next to the carbonate, is most effective where the land has lime in some other form: and indeed, (as has been maintained elsewhere), it seems generally inert and useless on soils very deficient in lime.—[Essay on Calcareous Manures, pp. 50, 92.]

‡ The character of the lands called by the author "*plateaux argilo-silicieux*," and which he refers to frequently in the course of his essay, can only be gathered from the context. They are poor, intractable under tillage, and but little pervious to water. The name indicates their composition to be silicious and aluminous earth almost entirely. It may be inferred that such lands resemble in soil the elevated level *ridges*, which in lower Virginia separate different water courses, and especially those which, in addition to being miserably poor, are remarkably close, stiff, and "water holding"—and are in some places called "cold liverly land," "pipe-clay," or "cray-fish" soils. Soil of this kind, and of the most marked character, is particularly described at page 40, Essay on Calcareous Manures, 2d ed. M. Puvion elsewhere speaks of this "argilo-silicieux" soil as being found every where in France, and as known in different places under the various names of "terrien blanc," "blanche terre," in the south, "boulbenne," in the north, of "terre clytre," and "terre a bois"—and the basin of the Loire, "terre de Sologne." The last name would direct us to the lands of Sologne, which furnish it, as it may be presumed, as being of like quality. Arthur Young says, "Sologne is one of the poorest and most unimproved provinces of the kingdom, and one of the most singular countries I have seen. It is flat, consisting of a poor sand or gravel, everywhere on a clay or marl bottom, retentive of water to such a degree that every ditch and hole was full of it." Ta.

* The hectolitre contains 6102.8 English cubic inches, or is equal to 2.82, (or about 2.6-7) Winchester bushels. Therefore the hectolitre is rather more in proportion to the hectare, than our bushel is to the acre. The decalitre (named next page) is the tenth of a hectolitre, and of course the "double decalitre," is the fifth. Ta.

* An incorrect expression certainly, but literally translated. Ta.

† We are unable to give the meaning, with certainty, of these provincial terms. They are probably equivalent to our "hard and soft" waters—terms which are as little descriptive of what they mean, as the French "*eaux grasses*" and "*eaux maigres*."

registers of three contiguous domains, belonging to M. Armand, three years before, and nine years during the progress of liming, give us the means of appreciating the results. The quantities of seed and of crops, are calculated in double decalitres, or in measures of fifths of hectolitres.

Table of product of the domain of La Croissette.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	110	600	24	146
1823	110	764	24	136
1824	110	744	24	156
1825	107	406	27	251
1826	106	576	28	210
1827	100	504	30	249
1828	90	634	36	391
1829	82	538	48	369
1830	60	307	60	459
1831	78	350	40	417
1832	55	478	68	816
1833	61	529	52	545

Table of product of the domain of Mizériat.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	120	487	16	100
1823	120	708	16	103
1824	120	644	18	84
1825	112	504	28	228
1826	120	677	20	115
1827	115	594	20	162
1828	118	726	40	328
1829	104	566	41	277
1830	79	298	71	477
1831	91	416	43	326
1832	79	411	75	736
1833	76	616	49	351

Table of product of the domain of La Baronne.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	110	505	22	180
1823	110	643	22	138
1824	110	662	24	149
1825	102	398	32	252
1826	110	612	32	187
1827	107	546	34	204
1828	98	606	38	343
1829	84	608	40	268
1830	91	399	59	374
1831	92	411	40	295
1832	70	512	80	649
1833	75	511	51	471

The application of 3000 hectolitres [8,490 bushels] of lime, of the value of 6000 francs [£1116] upon 32 hectares [80 acres] of ground, made successively during nine years, has then more than doubled the crops of winter grain, the seed being deducted. The other crops of the farms have received a proportional increase; and the revenue of

the proprietor, in doubling, has annually increased two-thirds more than the amount of the sum expended in the purchase of lime. Still, there is not yet half the arable land limed, since of 66 hectares; only 32 have received this improvement.

The products of 1834 are still greater than those of 1833. But these are sufficient to prove the importance and utility of applying lime to suitable soils.

Many other examples sustain these results; and from them all it appears, that the wheat seedings are increased from double to triple—that the rye lands, from bringing four to five [to one of seed] in rye, are able to bring six to eight in wheat—and that other products are increased in proportion. The melioration then is, relatively, much greater upon bad ground than upon good, since it is two-thirds and more on the wheat land, and on the rye lands the crop is increased in value three-fold.

Flemish Liming.

13. The use of calcareous manures in the department of the North, as in Belgium, appears to be as old as good farming. It is now much less frequent in Belgium. The ancient and repeated limings have, as it seems furnished to great part of the soil, all that is necessary to it, for the present. But the department of the North still receives lime, marl, or ashes, every where, or nearly so, where lime is not a component ingredient of the soil. They distinguish in this country two kinds of liming. The first [*chaulage foncier*], consists in giving to the soil every 10 or 12 years, before seed time, four cubic metres, or 40 hectolitres of lime to the hectare.* They often mix with the slaked lime, ashes of dead coal, or of peat, which enter into the mixture in the proportion of from a third to a half, and take the place of an equal quantity of lime. The other mode of liming [*chaulage d'assolement*], is given in compost, and at every renewal of the rotation, or upon the crop of spring grain. It is also in regular use in this country, still more than in Belgium, upon the meadows, on cold pasture lands, which do not receive the waters of irrigation. It warms the ground, and increases and improves its products. The older the compost is, the greater its effect, which lasts from 15 to 20 years, at the end of which time the dressing is renewed.

14. The limings of Normandy, the most ancient of France, are kept up in the neighborhood of Bayeux, while elsewhere they are forbidden in the leases: however, now they go over all the surface which has need of them; but in place of being applied immediately to the soil, as in the ancient method, the lime is almost always put in compost.

Liming of La Sarthe.

15. Of the modes of using lime, that of La Sarthe seems preferable. It is at once economical and productive, and secures the soil from all exhaustion. It is given every three years, at each renewal of the rotation, in the average quantity of 10 hectolitres to the hectare, in compost made in advance, with seven or eight parts of mould, or of good earth, to one of lime. They use this compost on the land for the autumn sowing, and placed alternately with rows of farm-yard manure. This method, of which the success is greater from day to day, is extending on the great body of flat argilo-silicious lands, which border the Loire; and it

* 46 bushels to the acre, English or American measure.

1114 bushels to the acre.

would seem that this method ought to be adopted every where, on open soils that permit surplus water to drain off easily.—On very moist soils the dose of lime ought perhaps to be increased.

We would desire much to inculcate with force the suitableness, and eminent advantages, of using at the same time lime and [alimentary] manure. Here they do better still, in using at the same time a compost of lime with earth and dung. In addition, during the half century that the Manceaux have been liming, the productiveness of the soil has not ceased to increase.

16. The countries of which we have spoken, are those of France in which liming is most general. However, more than half the departments I think, have commenced the use, and in a sixth, or nearly, it seems to be established. Doubtless, the first trials do not succeed every where. There is required a rare combination of conditions for new experiments, even when they have succeeded, to induce their imitation by the great mass. Still, successful results are multiplied, and become the centres of impulse, from which meliorations extend.

English Liming.

17. The English limings seem to be established upon quite another principle from that of France. They are given with such prodigality, that the melioration upon the limed soil, has no need to be renewed afterwards. Whilst that in France we are content to give from a thousandth to a hundredth of lime to the tillable soil, from 10 to 100 hectolitres the hectare, they give in England from one to six hundredths, or from 100 to 600 hectolitres the hectare. The full success of the method of our country might make us regard the English method as an unnecessary waste. It seems that they sacrifice a capital five, six, ten times greater, without obtaining from it a result much superior; and that without lavishing [alimentary] manures also afterwards, that the future value of the soil would be endangered, in the hands of a greedy cultivator.

We will not urge the condemnation of a practice which seems to have resulted in few inconveniences. The abundance of alimentary manures which the English farmer gives to his [limed] soils, has guarded against exhaustion: and then, in very moist ground, they have doubtless by the heavy liming, made the soil healthy, and its nature seems modified for a long time to come; and such kinds, and where humus abounds, will take up a heavy dose of lime, and as it seems, always without inconvenient consequences; there is then formed there the *humate of lime* in the greatest proportion, and we will see that this combination is a great means of productiveness in the soil.*

* In this passage the author distinctly affirms the truth of the chemical combination in the soil of calcareous and vegetable (or other putrescent)—or the power of calcareous earth to fix and retain enriching matter—which is maintained in the *Essay on Calcareous manures*, (pp. 30, 31,) to be the most important action of calcareous matter as an ingredient of soil.—Still M. Puvion seems to attach much less importance to this than to other agencies of lime, which are considered in the *Façon* as of little value in comparison. Tr.

(To be continued.)

Extract of a letter, dated Mobile, Dec. 19, 1835.—“Our Cotton market is very quiet since the Liverpool accounts of Oct. 30th, and the Message is daily expected. Our rivers are low, and supplies light.”

A letter from New Orleans, dated Dec. 19, states, “that business was very dull, and little doing. Sales of Cotton limited.”

NEW-YORK AMERICAN.

DECEMBER 26, 1836—JANUARY 2, 1836.

LITERARY NOTICES.

THE AMERICAN MONTHLY MAGAZINE for January, 1836. New York, GEO. DEARBORN. Boston, E. R. BROADERS.—This Magazine comes to us enlarged by the incorporation with it of the *New England Magazine*, heretofore edited by *Park D. Benjamin*, who will continue as a joint editor of the periodical. It is handsomely printed, on fine paper, and has an etching of the grave diggers scene in *Hamlet*, executed with great spirit.

The first paper, by *COLE*, on American Scenery, is written with the taste and fervor of the artist, who has made to live on canvass, some of the very scenes he so well describes.

The paper on *Miss Sedgwick's* novels, does not overpraise the truly American character and tendency of her writings.

From another paper, "The Altar of Ammon," which is cleverly conceived as a frame wherein to set scattered offerings, we copy one—so happily characterized as "a gem of his double art, from the poet painter of our country."

These lines form the subject of a picture lately painted by the author, for *Mr. N. Appleton*:

ROSALIA.—By *Washington Allston*.

Oh, peer upon my soul again
That sad, unearthly strain,
That seems from other worlds to plain;
Thus falling, falling from afar,
As if some melancholy star
Had mingled with her light her sighs,
And dropped them from the skies.
No—never came from aught below
This melody of woe,
That makes my heart to overflow
As from a thousand gushing springs
Unknown before; that with it brings
This nameless light—if light it be—
That veils the world I see.
For all I see around me wears
The hue of other spheres;
And something blent of smiles and tears.
Comes from the very air I breathe.
Oh, nothing, sure, the stars beneath,
Can mould a sadness like to this—
So like angelic bliss.
So, at that dreamy hour of day
When the last lingering ray
Stops on the highest cloud to play—
So thought the gentle Rosalie
As on her maiden reverie
First fell the strain of him who stole
In music to her soul.

We extract entire the curious article, which follows, on American Antiquities:

ANTIQUITIES OF NORTH AMERICA.

In the history of our country every thing relating to the earliest inhabitants must be interesting, not only to the professed antiquary but to the general reader. There is much evidence to show, that the post diluvian earth was originally one continent—that this country, America, was peopled from Central Asia, before the dismemberment of that single continent—that the people brought with them the manners, arts, and civilizations of Central Asia; perhaps the very manners, arts, arms, and modes of warfare described in the Homeric poems; and that, sometime after America was separated from the other continent, immense hordes from the North of Asia crossed Behring's Straits, and gradually took possession of the country.

Before these barbarian invaders the inhabitants retired south into Mexico, carrying with them the arts and civilization that afterward so astonished their more modern invaders from Spain.

It is a fact well known in history, that Cortes found in Mexico arms and utensils such as are known to have been used in Asia Minor, and such as have been found nowhere else. And the discoveries recently made at Palenqué and Yehemel, plainly point to Central Asia as the country of their origin.

That the Indians found here by the discoverers were not the original inhabitants, has, we believe, never been disputed; on the contrary, it has ever been acknowledged that there was a distinct race anterior to them. But whence came this race, whither they went, and what monuments they

have left here, are questions that have afforded matter for much speculation. It has generally been believed that the mounds in the western country are the work of their hands, notwithstanding that some ingenious gentlemen have lately argued, perhaps to their own conviction, that the mounds are the direct work of nature, and raised by the action of water. But as to the mounds, we leave the question where we find it—the old race have left other monuments.

The Indians found here by the discoverers, in fact never pretended to be the original inhabitants; but had a tradition, that their forefathers came into the country across the sea—probably Behring's Straits—that they found the country inhabited—that with the inhabitants they waged a long war, and ultimately drove them south into the sea.—Such was the tradition—the fact probably was, that the conquered people retired to Mexico.

The Mexicans also had a tradition strongly corroborative of this—that their forefathers lived at the north for many ages, and then gradually emigrated south.

These traditions alone, without any other evidence, afford ground for a strong presumption that the territory, now the United States, was inhabited by a race that afterwards peopled Mexico.—But the evidence does not stop here; there are other facts that go far to reduce the presumption to a certainty.

The Mexicans worked the metals for various purposes of use and ornament; the Indians found here by the discoverers never used the metals in any way; but wood, stone, shells, &c. supplied them with weapons and ornaments. Hatchets, swords, and arrow-heads of brass have been found in various parts of the United States, many of them in good preservation. These, although rude in form and design, are yet skilfully made; but with that pains-taking and laborious skill that ever marked the infancy of the arts.

But it may be asked, why are not these relics more frequently discovered, if it be true that a whole nation, to whom the manufacture of them was known, were once transient dwellers in this land? We think the wonder should rather be, how many of them have been preserved. The preservation of the few that have been found must undoubtedly be ascribed to the nature of the soil at the time of their deposit. Since in some soils, and under some circumstances, they would be preserved by earthy particles, uniting themselves with the salts of the brass in the first stages of oxydation, and thus forming a sort of petrified incrustation that would prevent decay.

But a discussion of these theories is not intended, since it would necessarily involve speculations too prolix and discursive for the limits of this paper; the main object of which is, to give a description of what we consider the most interesting relic of antiquity ever discovered in North America—the remains of a human body, armed with a breast-plate, a species of mail and arrows of brass; which remains we suppose to have belonged either to one of the race who inhabited this country for a time anterior to the so called Aborigines, and afterwards settled in Mexico or Guatemala, or to one of the crew of some Phœnician vessel, that, blown out of her course, thus discovered the western world long before the Christian era.

These remains were found in the town of Fall River, in Bristol county, Massachusetts, about eighteen months since.

In digging down a hill near the village, a large mass of earth slid off, leaving in the bank, and partially uncovered, a human skull, which on examination was found to belong to a body buried in a sitting posture; the head being about one foot below what had been for many years the surface of the ground. The surrounding earth was carefully removed, and the body found to be enveloped in a covering of coarse bark of a dark color. Within this envelope were found the remains of another of coarse cloth, made of fine bark, and about the texture of a Manila coffee bag. On the breast was a plate of brass, thirteen inches long, six broad at the upper end and five at the lower. This plate appears to have been cast, and is from one eighth to three thirty-seconds of an inch in thickness. It is so much corroded, that whether or not any thing was engraved upon it has not yet been ascertained. It is oval in form—the edges being irregular, apparently made so by corrosion.

Below the breast plate, and entirely encircling the body, was a belt composed of brass tubes, each four and a half inches in length, and three six-

teenths of an inch in diameter, arranged longitudinally and close together; the length of a tube being the width of the belt. The tubes are of thin brass, cast upon hollow reeds, and were fastened together by pieces of sinew. This belt was so placed as to protect the lower parts of the body below the breast-plate. The arrows are of brass, thin, flat, and triangular in shape, with a round hole cut through near the base. The shaft was fastened to the head by inserting the latter in an opening at the end of the wood, and then tying it with a sinew through the round hole—a mode of constructing the weapon never practised by the Indians, not even with their arrows of thin shell.—Part of the shaft still remains on some of them.—When first discovered the arrows were in a sort of a quiver of bark, which fell in pieces when exposed to the air.

The skull is much decayed, but the teeth are sound, and apparently those of a young man.—The pelvis is much decayed, and the smaller bones of the lower extremities are gone.

The integuments of the right knee, for four or five inches above and below, are in good preservation, apparently the size and shape of life, although quite black.

Considerable flesh is still preserved on the hands and arms, but none on the shoulders and elbows. On the back, under the belt, and for two inches above and below, the skin and flesh are in good preservation, and have the appearance of being tanned. The chest is much compressed, but the upper viscera are probably entire. The arms are bent up not crossed; so that the hands turned inward touch the shoulders. The stature is about five and a half feet. Much of the exterior envelope was decayed, and the inner one appeared to be preserved only where it had been in contact with the brass.

The following sketch will give our readers an idea of the posture of the figure and position of the armor. When the remains were discovered the arms were brought rather closer to the body than in the engraving. The arrows were near the right knee.

[This sketch we have no means of giving.]

The preservation of this body may be the result of some embalming process; and this hypothesis is strengthened by the fact, that the skin has the appearance of having been tanned; or it may be the accidental result of the action of the salts of the brass during oxydation; and this latter hypothesis is supported by the fact, that the skin and flesh have been preserved only where they have been in contact with, or quite near, the brass; or we may account for the preservation of the whole by supposing the presence of saltpetre in the soil at the time of the deposit. In either way, the preservation of the remains is fully accounted for, and upon known chemical principles.

That the body was not one of the Indians, we think needs no argument. We have seen some of the drawings taken from the sculptures found at Palenqué, and in those the figures are represented with breast-plates, although smaller than the plate found at Fall River. On the figures at Palenqué the bracelets and anklets appear to be of a manufacture precisely similar to the belt of tubes just described. These figures also have helmets precisely answering the description of the helmet of Homer's *megas koruthaios* Ektor.

If the body found at Fall River be one of the Asiatic race, who transiently settled in Central North America, and afterwards went to Mexico and founded those cities, in exploring the mines of which such astonishing discoveries have recently been made; then we may well suppose also that it is one of the race whose exploits with the *kalkereia douira* have, although without a date and almost without a certain name, been immortalized by the Father of Poetry; and who, probably, in still earlier times, constructed the *Cloaca* under ancient Rome, which have been absurdly enough ascribed to one of the Tarquins, in whose time the whole population of Rome would have been insufficient for a work, that would, moreover, have been useless when finished. Of this GREAT RACE, who founded cities and empires in their eastward march, and are finally lost in South America, the Romans seem to have had a glimmering tradition in the story of Evander.

But we rather incline to the belief that the remains found at Fall River belonged to one of the crew of a Phœnician vessel.

The spot where they were found is on the sea

coast, and in the immediate neighborhood of "Dighton Rock," famed for its hieroglyphic inscriptions, of which no sufficient explanation has yet been given; and near which rock brazen vessels have been found. If this latter hypothesis be adopted, a part of it is, that these mariners—the unwilling and unfortunate discoverers of a new world—lived sometime after they landed; and having written their names, perhaps their epitaphs, upon the rock at Dighton, died, and were buried by the natives.

J. S.

ILLUSTRATIONS OF THE SKETCH BOOK OF GEORGE CRAYON, Gent., in outline, by C. MAYZ. New York, WILEY & LONG.—No. 1. of these really clever and spirited Sketches—by an artist, who, if encouraged, proposes to go on and illustrate in like manner the other writings of Irving—refers to *Rip Van Winkle*.

We have here four plates—1. *Rip* escaping with his gun into the woods, from a scolding; 2. His meeting with the spirit of Hendrick Hudson; 3. His awaking; 4. His return to his village. They are very well done.

THE AMERICAN IN ENGLAND, by "the author of A Year in Spain." 2 vols. New York, HARPER & BROTHERS.—It may be some indication of the character of these volumes to say, that we read them through at a sitting—and as we are not omnivorous and are somewhat critical, we conclude to our own satisfaction, from this fact, that the book is a good one. Having begun at the beginning, by which we mean the preface, we expected no more than it is there set down we were to expect "a faithful narrative of whatever the author saw during a visit of a few weeks to England"—and that in the uninviting months of November and December. This narrative is given with grace, spirit, and originality. The writer sees with his own eyes, and judges with his own judgment, and here, in alone, we apprehend, in this imitative world, is a great merit. There is nothing even attempted in these pages, of politics, statistics, nor other grave and important, and, for the most part, uninteresting topics connected with history and government—but simply a succession of impressions made upon an observing and reflecting man, as he journeyed hastily through a land of strangers—who yet, by reason of common origin and language, were not all strangers. We had intended to give some detached sketches—but our limits forbid—to-day at least. Meantime our readers will hardly fail of amusement, if they read the book for themselves.

[The rest of the Weekly Review is unavoidably shut out.]

The Committee of 125 held an important meeting on Thursday evening at the Mayor's office, at which the following among other proceedings were had. The Mayor presented the following letter from Senator VAN SCHAIK:—

"Mr. Van Schaick will be safe in advising the Citizens of New York that the Commissioners of the Canal fund are desirous to do whatever may be within their power and consistent with their duty, to relieve the citizens of New York from the consequences of the late calamity by fire, and that if they can have an assurance that a premium of 8 per cent will be offered, they will immediately advertise \$300,000 Chenango Canal Loan, bearing an interest at 5 per cent and redeemable at the pleasure of the Commissioners after the year 1845; and in case the loan should be taken by one or more Banks in New York, (having a capital of double the amount to be deposited,) the Commissioners will deposit the money with such Banks at an interest of 4-1-2 per cent payable quarterly, until the money shall be required in the progress of the Canal. Always however reserving to the Commissioners the right to draw at pleasure in case they shall deem the deposit unsafe.

Laid on the table.

Mr. Graham from the Committee on Insurance, made the following Report:

New-York, Dec. 31st, 1835.

Sir—The undersigned being a Committee appointed at a meeting of the General Committee of Citizens on the 21st inst., "to confer with the Insolvent Fire Insurance Companies, and to ascertain the bearing of the law and equity on claims upon them for losses incurred by the late fire and on the undetermined risks, and to endeavor to establish uniform principles of action by the said Companies," respectfully Report.

That in pursuance of their Trust, they have met the delegates from the Insolvent Companies, and those which apprehended they might be so, and have diligently and deliberately considered the questions which have been discussed and the difficulties which have been stated, and have given legal opinions on several of the points raised, with a view of aiding the Companies in the adjustment of their concerns.

We have likewise prepared and now report two several Bills which we are of opinion ought to be submitted without delay to the Legislature. They appear to us to be well calculated to afford relief to all parties concerned, without impairing the obligation of Contracts or the existing vested rights of any of them. The one Bill is intended to facilitate the adjustment of losses and the relief to which Creditors of the Insolvent Companies may be entitled. The other Bill is intended to revive and restore to their original vigor and action those Companies whose Capitals may have been absorbed in the calamity, as well as those Companies whose Capitals have been impaired and reduced.

That the Bills will meet the wishes entirely of any persons concerned in Insurance Contracts or in Insurance Capital, is hardly to be expected. There is intrinsic difficulty in affording relief to sufferers as Holders of Stock, and preserve unimpaired the rights of Creditors as holders of Policies. It was indispensable that nothing should be done to touch those rights, and it was most desirable that every proper means should be devised to afford prompt, easy, and economical relief to the Insurance Creditors, so far as legal provisions could afford it. So it has been deemed a matter of the utmost importance to the Commerce and Business of the city, that the Fire Insurance Companies should have the means of reviving their Capitals under better auspices than heretofore, and that some encouragement might thereby be afforded to suffering Stockholders.

Under these impressions the undersigned have prepared and agreed to the two Bills which they now have the honor to present. They have gone as far in the provisions as their sense of duty, and the legal rights of all parties in interest would permit them,

We have the honor to be
with great respect,
yours, &c.

JAMES KENT,
DAVID B. OGDEN,
P. A. JAY,
DANIEL LORD, Jr.
JOHN LORIMORE GRAHAM.

To the Hon. Cornelius W. Lawrence, Chairman.
Mr. Disoway, from the Committee on losses, made the following Report:

The Committee appointed to ascertain the amount of losses by the fire on the 16th and 17th of December, submit the following Report, as the result of their investigations.

At the commencement of their labors, they published a notice requesting those who were interested to present statements of their respective damages from the fire. This course of enquiry they were obliged to adopt, as all private exertions on the subject became entirely useless, from the vastness of the undertaking. From the numerous accounts that were accordingly submitted, the Committee have learned of losses and insurance as follows:

	Buildings destroyed.	Stock destroyed.	Insurance on Stock and Buildings.
South street,	\$ 65,500	\$ 786,360	\$ 900,700
Front street,	105,500	542,160	661,700
Water street,	90,000	230,311	241,300
Pearl street,	232,200	2,615,000	3,334,000
William street,	100,500	904,725	1,194,000
Exchange place and Old slip,	120,000	1,621,000	1,015,000
Merchant street,	175,000	333,600	336,000
Hanover square			

and Stone street,	8,000	100,000	255,450
Coenties slip,	7,000	8,300	11,900
March's Exchange,	150,000		
Garden st. church,	60,000		30,000
	\$1,179,700	\$6,557,846	\$7,989,150

The value of 129 of the buildings destroyed, according to the above statement, is \$1,179,700

And of stock, 6,557,846

Making the total loss reported to the Committee, \$7,737,546

Upon this amount, those interested, also show insurance effected to the sum of \$7,969,150

These statements were made by 276 firms and owners of real estate; which latter class, however, form but a small part. From a vast majority of owners of buildings, no accounts have been presented.

The Committee have thus stated, in the foregoing particulars, all the facts which have come to their knowledge, during the investigation committed to their charge. As it regards the total destruction of property by the terrible conflagration that visited our city, we are compelled to make our calculations from the data now before us, and such other aid, as the Committee can place reliance upon.

The whole number of buildings destroyed, is ascertained to be 527, exclusive of the Exchange and the South Dutch Church, and may be fairly valued at \$4,000,000, which is a fraction over \$7,000 each, and is generally considered a correct estimate. As far as the Committee can ascertain, less than one half only of the mercantile houses have reported their loss in goods by the late fire. By duplicating this amount, (6,557,846) we have

\$13,115,892

As the probable total sum destroyed in Merchandise of all descriptions. Add to this, the estimated value in buildings,

\$4,000,000

And the whole loss may be calculated at \$17,115,892.

Judging from the property destroyed in stores upon the different streets, and the business of those who occupied them, there has been consumed, as reported, in Groceries, Foreign and Domestic Produce,

\$1,596,000

In Imported and Domestic Dry Goods, including an inconsiderable item of Hardware and

\$4,961,615

Crockery,

\$1,179,700

And in Real Estate,

The Committee are of opinion that the above calculations are in no respect exaggerated. And great as the loss has been, they cannot conclude their report, without expressing their hope, that our city, from the various plans of relief, now proposed, will, ere long, Phenix like, arise from the ashes of her late misfortune, to her usual commanding, uninterrupted and prosperous business.

GABRIEL P. DISOWAY, Chairman.

Nathaniel Weed, B. L. Woolley, Walter R. Jones.

The Committee to whom was referred the duty of devising some means for the relief of the widows, orphans, and others, who lose by fire insurance stocks—reported a plan, calling on the State to ask from the General Government a loan of six millions, at 3 per cent., which it should invest in the bonds and mortgages of the Companies, and with the difference of interest received, and that paid, to constitute a fund, out of which the losses of stockholders should be defrayed. This report was, after discussion, laid on the table.

A proposition, by Mr. P. L. Miles, for a loan from the State of fifteen millions to the Banks in this city, was lost.

On motion of Mr. W. B. Lawrence, it was resolved, That the Chairman memorialize the Legislature for the repeal of the law taxing foreign capital vested in bonds and mortgages.

SUDDEN REVERSE—The Easton *Agus* relates the death, at Stonewater village, of a young lady, Miss Winslow—by being overthrown in a sleigh on going home from a wedding party. She was taken up senseless and carried back to the bridal circle, she had but a few minutes before left—and shortly died.

ROCHESTER EDGE-TOOLS.—Among the various branches of business now in successful operation in the city of Rochester, none are more deserving of attention than the manufacture of Edge-Tools. To such perfection is this carried, that nearly all descriptions of the article can be furnished from our manufactories with a *finish* and, at a *price* which are rapidly giving them a preference over the wares of Sheffield and Brummagem. Mechanics and others who use such articles have a deep interest in encouraging our own manufactories—as thereby they can have tools warranted of the first quality, while the encouragement bestowed on our own artizans promotes our domestic welfare, and aids in insuring an excellent supply at reasonable prices from our own workshops.

The Edge-Tools fabricated by Messrs. *Barton & Babcock*, are creditable to themselves and to the character of our mechanic arts. All who have used them concur in their praise. The manufactory is in the stone building at the southwest corner of the main bridge across the river. They employ about twenty-five hands, on an average—consume from 12 to 14 tons of iron, 8,000 lbs. cast steel, 500 lb. of borax, 30,000 bushels of charcoal, &c. Judging from the success of the experiment which they have already made, their business will soon be greatly extended, as the excellence of their manufactures becomes as generally known as it deserves to be.

We can bear willing testimony to the correctness of the encomium passed by "*Rho*," on the gentlemen and articles referred to in the above notice. We speak from personal observation and inspection—and would recommend them to the patronage of the public.—[Ed. M. M.]

THE LABORING CLASSES IN EUROPE.—The North American Review for October, commences a discussion of this subject, which, if the conclusion equals the present portion, ought to be circulated by thousands, as a tract, throughout the land.

The writer of the interesting article to which we have just referred, notices the condition of the laboring classes in Europe, in respect "to the rate of wages, the burden of taxation, the means of subsistence, the facilities of acquiring education, and the share, if any, which these classes have in the government." The facts, in regard to each of these particulars, ought to make those hang their heads with shame, who, in this community, talk of the oppression of the laboring classes by the rich, and of the withholding of rights from the common people.

In Norway, "the ordinary food of the peasantry is bread and gruel, both prepared of oatmeal, with an occasional intermixture of dried fish. Meat is a luxury which they rarely enjoy."

In Sweden, the dress of the peasantry is prescribed by law. "Their food con-

sists of hard bread, dried fish and gruel, without meat."

In Denmark, the peasantry are still held in bondage, and are bought and sold together with the land on which they labor."

In Russia, "the bondage of the peasantry is even more complete than it is in Denmark." The nobles own all the land in the empire, and the peasantry, who reside upon it, are transferred with the estate.

"A great majority have only cottages, one portion of which is occupied by the family, while the other is appropriated to domestic animals. Few, if any, have beds, but they sleep upon bare boards, or upon parts of the immense stoves by which their houses are warmed. Their food consists of black bread, cabbage, and other vegetables, without any addition of butter."

In Poland, "the nobles are the proprietors of the land, and the peasants are slaves." A recent traveller says, "I travelled in every direction, and never saw a wheaten loaf to the eastward of the Rhine, in any part of Northern Germany, Poland, or Denmark. The common food of the peasantry of Poland, 'the working men, is cabbage, potatoes, sometimes, but not generally, peas, black bread and soup, or rather gruel, without the addition of butter or meat.'"

In Austria, "the nobles are the proprietors of the land, and the peasants are compelled to work for their masters during every day of the week, excepting Sunday. The cultivators of the soil are in a state of bondage."

In Hungary their state is, if possible, still worse. The nobles own the land, do no work, and pay no taxes. The laboring classes are obliged to repair all the highways and bridges, are liable at any time to have soldiers quartered upon them, and are compelled to pay one-tenth of the produce of their labor to the church, and one-ninth to the lord whose land they occupy.

Of the people of France, "seven and a half millions do not eat meat, or wheaten bread. They live upon barley, rye, buckwheat, chesnuts, and a few potatoes." [We saw it stated, the other day, that some workmen, we forget in what part of New-England, had a turn-out because their employers would not furnish them with tea and coffee at dinner!]

The common wages of a hard laborer, in France, is \$37 50 for a man, and \$18 75 for a woman, annually. "The taxes upon the land are equal to one-fifth of its nett products."

In 1791, there were 700,000 houses in Ireland. Of these, 113,000 were occupied by paupers—and more than 500,000 had only one hearth. The average wages of a laborer is from nine and a half to eleven cents a day.

Among the laboring classes of the industrious Scotch, "meat, except on Sundays, is rarely used."

In England, the price of labor varies. "The Nottingham stocking-weavers, as stated by them in a public address, after working from fourteen to sixteen hours in a day, only earned from four to seven shillings a week, and were obliged to subsist upon bread and water, or potatoes and salt!"

The American Quarterly Review will be published hereafter by Mr. Adam Waldie, favourably known as the proprietor of the Select Circulating Library. George M. Wharton, Esq., of the Philadelphia Bar, has been associated with it as co-proprietor and co-editor. Mr. Wharton has been a distinguished contributor heretofore to its pages.

FROM THE SOUTH.—The steam packet *Columbia*, brings Charleston papers to Saturday last. The news of the great fire in New York had reached Charleston, and created a strong feeling of sympathy for the sufferers. It was suggested that a general meeting of merchants should be held, to unite with the citizens of Philadelphia and other places, in urging upon congress to adopt some measure of relief for the New York merchants.

Seminole Indians.—The Southern Patriot of Saturday, contains the following paragraph:—

"We learn from a passenger arrived this forenoon in the schooner *Medium*, from Musquito, E. F., that the Seminoles had embodied themselves at Alachway, about the time our informant left, which was on the 15th inst., to the number of 1500 strong, and that a party of wood cutters, twenty-five in number, had been fired on by them and driven away last Saturday. They had chartered a vessel and sailed for Attakapas."

"All the females of Musquito county had been removed to St. Augustine, for safety, and the men about Alachway were sleeping in Log Houses, for greater security. The alarm of the inhabitants in the vicinity is represented, as may be supposed, to be very great."

NEW-ORLEANS, Dec. 15.

Latest from Texas.

Our previous accounts from San Antonio were to the 25th. By an arrival yesterday, we have information two days later from the seat of War in Texas.

Our informant states that a detachment of Gen. Cos' Cavalry, out procuring grain for the horses, were attacked on the 27th ult. by a party of Texans and by them defeated with the loss of thirty-five horses, and suffering in killed and wounded, to the number of fifty men. The loss of the Texans, three men—slightly wounded. Cos' detachment of Cavalry consisted of about 150 men, which, before the engagement was concluded, were re-inforced by 190 infantry; the party of Texans employed in the assault amounting to about the same number.

GEN. MEHER DEFEATED AT TAMPICO.—Intelligence was received in town last evening by a member of Gen. Meher's corps, who came passenger in the schr. *Halcyon*, that the schooner *Mary Jane* (which took Gen. M. and his company to Tampico) was lost on the Bar, in attempting to get in. The crew and company arrived safe on shore. The General then marched to the fort at Tampico, which he took possession of without opposition, and attacked the town at night, but was repulsed with the loss of several killed and twenty-two taken prisoner—the remainder, including Gen. Meher, escaped, and took passage on board a vessel for Brazoria, where they safely arrived—many of whom are waiting an opportunity to return to this city.

The following incident is related without a word of comment, in the Louisville Journal! as though it was a mere matter of course thus to shoot a man-nacled and unarmed man:—

A few weeks ago, one D. W. Crenshaw, a member of the Murel gang and a notorious horse-thief and negro-stealer, was confined, for crime, in the jail at Woodville, Mississippi. Before his imprisonment, he was heard to make remarks, which excited a suspicion, that he intended to take the life of Dr. Webb, a respectable physician, and the principal witness against one of Crenshaw's accomplices. Dr. W., never having seen Crenshaw, called at the prison for that purpose. His name, however, was no sooner announced by the Jailer, than the prisoner, who was of Herculean stature and strength, started up and rushed furiously upon him, with the intent, it is supposed, of killing him with his handcuffs. The Doctor, with admirable presence of mind, instantly drew a pistol and shot his assailant, who died a day or two afterwards.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 7 WALL STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, DECEMBER 26, 1835.

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AMERICAN RAILROAD JOURNAL.

NEW YORK, DECEMBER 26, 1835.

☞ Subscribers to the RAILROAD JOURNAL residing out of the city of New-York, are respectfully requested to remit by mail, Five Dollars, the amount of subscription for the ensuing year. Circumstances require prompt action in relation to it, by those who desire to have it continued.

I again pledge myself that it shall be continued another year, to those who are willing to aid it, by paying in advance.

After the close of volume IV., it will not be sent to those who are now indebted for it, until arrearages are paid. Justice to the patrons of the Journal requires me to say that the number who have not paid is small, yet the amount now due, for past volumes, would very much aid me, if it should be promptly remitted, in making the Journal what it should be.

CHAMPLAIN AND ST. LAWRENCE RAILROAD.—We find in the Montreal Courier, of December 17th, the proceedings of the half yearly meeting, of the stockholders of the above named railroad, accompanied by the Report of the Committee of Management, and the Chief Engineer. From the Report of the Committee, we make an extract, and publish the Report of the Engineer, Mr.

Casey, with the proceedings of the meeting entire, together with some appropriate remarks of the Editor of the Courier.

The remarks of the Engineer and of the Editor, in relation to the benefit which the people will derive, from the expenditure of so much money amongst them, are equally applicable to most other works of the kind.

The plan of doing the work by days, and not by contract, is not common on such works. It may be, however, and we are inclined to think it is, where the people of the vicinity upon whom reliance can be placed, will engage in the work, a matter of economy.

By this report it will be seen that the spirit of improvement is spreading northward as well as southward—who can tell where it will stop?

[This Report is crowded out by the Governor's Message—it will appear next week.]

We give the Governor's Message entire in this number of the Journal.

We give at length the proceedings of the opening of the New-Jersey Railroad to Rahway, for which we are indebted to the Jersey City Gazette.

We are indebted to Professor Renwick for an interesting article, which will be found in this number, upon *Soluble Glass*, as a preservative against fire.

The Convention will assemble at Albany on Monday, the 11th January. It is much to be hoped that there will be a full attendance from all parts of the State.

FIRES IN NEW BRUNSWICK.—About 5 o'clock on Saturday morning last, a fire broke out in the currying shop of the extensive tannery of Mr. John W. Stout, lying at the junction of the Trenton Turnpike with New

street, New Brunswick, which destroyed the upper lofts of the building, together with a large quantity of leather contained therein. Loss estimated at \$9000—of which \$3500 was covered by insurance in the New Brunswick office.

About 6 o'clock the same evening another fire broke out in a building owned by Mr. George King, on Commerce square, which was extinguished with but trifling damage.

On the same day, and between the periods of the occurrence of these two fires—as we learn from the Times—a meeting of the citizens was held in the court house; to consider the propriety of petitioning the legislature to confer upon the corporation the necessary power to lay a tax for the purpose of more effectually preventing the ravages of fire, by providing an adequate supply of water. After a stormy debate, it was decided that it was inexpedient to make the application.

A writer in the New Brunswick Times, upon the difficulties attending the further grant by the Legislature of the privilege to make a rail road to New York, to compete with that of the joint companies, after stating the case pretty fairly, proposes as follows:—

“And now for the remedy. It is this—to require from the joint companies that they should make a rail road from New Brunswick to Trenton, by the shortest and most practicable route, to connect with the present East Jersey rail road Company and rail road from Morrisville to Philadelphia. To compensate the joint companies for this expenditure, give them right to charge \$4 each passenger from New York to Philadelphia, and relieve them from the necessity and expense, of making the branch from New Brunswick to Spottswood. Of this additional sum of one dollar to the fare, oblige the company to pay to the State the sum of twenty five cents for each passenger. And regulate the fare of way passengers in such manner, that the citizens of the State will be secure from all impositions.”

IMPROVED LINE OF RAILWAY.—By the following Report, it will be perceived that an important improvement is about to be made in the Railroad from Philadelphia to Columbia.

It is by many deemed important to avoid Inclined Planes on Railroads, and for this purpose a new line, called West Philadelphia Railroad, has been surveyed and located, by which the Inclined Plane on the present route will be avoided.

The statement in relation to the power of Mr. BALDWIN'S Engine, is very satisfactory to those who take pride in the progress of American manufactures.

To the President and Managers of the West Philadelphia Railroad Company:

Gentlemen,—I have the honor to report, that the line of the West Philadelphia Railroad has been located (in conformity with instructions received from the Board.) The ground over which it is traced is well adapted to the construction and grade of the Road. The excavations and embankments are generally light, and are by no means of an expensive character. But few small streams are crossed, and consequently but few culverts or bridges will be required, which will be built of stone, in the most permanent and durable manner. In the location of the route, particular care has been taken to avoid curves, and no curves have been made upon a less radius than four thousand feet. The maximum rise of the graded surface of the Road is 46 feet per mile, which is only one foot per mile more than the maximum grade of the main line of the Columbia and Philadelphia Railroad. A small portion of the line is level, and about one and a half miles are graded at 38 feet per mile. The average grade is 43.5-10 feet per mile; its length being 7½ miles, and total rise 325 feet. From its junction with the Columbia Railroad, a short distance below the Buck Tavern, the route is nearly straight to the Market Street Permanent Bridge over the Schuylkill River, and more direct than the main line of the Columbia Railroad. By its completion, a new outlet will be opened to the travel and transportation of the Columbia Railroad, and the inclined plane at Belmont will be avoided. The distance from the city of Philadelphia to the head of the inclined plane is about four miles—the nearest point to which the locomotives can approach the city. By the West Philadelphia Railroad locomotives can carry their trains to the line of the city proper, at Market Street Permanent Bridge, and to the tide water of the Schuylkill opposite the city. Trains of cars by this route propelled by locomotive engines will gain one hour in advance of those which pass over the inclined plane, by the main route of the Columbia Railroad. This circumstance is alone a sufficient inducement to divert the travel and a large portion of the transportation from that Railroad. Statements have been made in the public papers, since the commencement of the West Philadelphia Railroad, that the construction of a line was contemplated by the Canal Commissioners of the State, by which the inclined plane is to be avoided without exceeding a grade of 25 feet per mile, and an increased distance of two miles. It is due to the stockholders of the West Philadelphia Railroad, and to the public to state, that no such route exists, and that the name of the engineer, given [as] authority upon

which that statement was made, was used without his consent. It is also a fact susceptible of the clearest proof, that no route exists, by which the inclined plane of the Columbia Railroad can be avoided, embracing so many advantages as the route of the West Philadelphia Railroad.

The importance of avoiding inclined planes upon Roads constructed for the accommodation of passenger travelling, is beginning to be justly appreciated. By reference to the recent Report of the Baltimore and Ohio Railroad Company, it will be found that measures have been taken by them to abandon those parts of their Road upon which inclined planes are constructed, and to construct new lines, on which locomotive engines can ascend without the aid of stationary power.

By experiments made on the Columbia Railroad, with locomotive engines, the question was settled, that 45 feet per mile is an inclination upon which that species of power can be applied with more advantage than any other. The fact that the original design was abandoned, of adopting stationary engine power on the Rainhill and Sutton inclined planes, of 55 feet per mile, on the Liverpool and Manchester Railroad in England, to the more advantageous use of locomotive engines, might also be adduced as an evidence that even steeper grades may be safely adopted.

The locomotive engines on the Columbia Railroad, which were manufactured by M. W. Baldwin, of Philadelphia, carry trains of twenty and twenty-four cars, containing each three tons of merchandise, up forty-five feet grades, at from ten to twelve miles per hour; while engines of English construction, from the works of Robert Stephenson, Esq., the celebrated Engineer, carry, upon the same Road, only fourteen cars at the same rate and speed. This great difference is produced by the superior arrangement and mechanical application of power to Mr. Baldwin's engine, and not from any difference in the weight and adhesive power of the respective machines.

It has been clearly ascertained that Mr. Baldwin's engines under all circumstances, are able to generate more steam than is adequate to overcome the adhesion of the wheels upon the surface of the rails, while those of English construction are unable to keep up a sufficient supply. These facts are mentioned as evidence of the progressive improvements in the science and construction of locomotive engines, and of the perfection to which their manufacture has arrived in our own country. The durability of these engines and the amount of annual repairs, are not less striking than the result of their effective force.

Enough, it is presumed, has been said to prove conclusively, the superiority of the route of the West Philadelphia Railroad, over that portion of the Columbia Railroad which it is destined to rival. With regard to the comparative distance of the two lines the former is about half a mile shorter than the latter, from the intersection of Broad and Market streets. The whole cost of the West Philadelphia Railroad, including a double track of edge rails, laid on foundations of locust timber, will be \$250,000.—The work is all under contract and rapidly progressing to completion.

The grading will be finished by the first of June, 1836, and the rails will be laid ready for travel, by the first of September following. Contracts have been made for iron edge rails of a pattern similar to those of the Camden and Amboy Railroad, to weigh sixty pounds per lineal yard, and also for all

the materials necessary to complete the work, which are to be delivered in all the month of April next. The Board have every reason to be satisfied with the progress of the work under the respective contracts. The prices are generally fair, and no obstacles exist to the completion of the road, within the time specified in the contract.

H. R. CAMPBELL,
Engineer West Philadelphia Railroad.
Philadelphia, Oct. 15th, 1835.

From the Jersey City Gazette.

RAILROAD EXCURSION.

We noticed in our Saturday's paper, that an experimental excursion had been made on Thursday, from Newark to Rahway, by the locomotive on the New-Jersey rail road. The Newark Daily Advertiser of Saturday, contains an account of the excursion, of which we avail ourselves. The company invited consisted of the selectmen of Jersey City, the town council of Newark, the mayor and aldermen of Elizabethtown, and many other distinguished citizens of the state; who were accompanied by the directors and officers of the rail road company. The distance from Newark to Rahway, eleven and a half miles, was traversed by the locomotive with a train of cars, in from 25 to 30 minutes. On its approach to Rahway, the party were generously saluted by the discharge of artillery, and the acclamations of a large body of citizens assembled to receive them. The enthusiasm of the occasion was fitly represented, by the stars and stripes" floating over the entrance of the road into the town, significantly proclaiming in striking capitals the progress of "THE PEOPLE'S RAIL ROAD."

A handsome entertainment had been provided by the liberality of the citizens at Freeman's Hotel, where the congratulations of the parties were cordially reciprocated. The company was received in behalf of the citizens of Rahway by E. Y. Rogers, Esq., who addressed the President in a neat and appropriate speech, of which we give a general sketch. Mr. Rogers said—

Mr. President and Gentlemen—The hour in which the New-Jersey rail road was conceived was an eventful era in the history of our state. The day which dawned upon its partial completion and witnessed its operation at our sister town, Newark, was hailed with pleasing emotions. But a few days have passed since the citizens of Elizabeth greeted the arrival of the locomotive within their precincts, and now upon the eve of the new year, it has advanced into our borders, and gives sure evidence of the speedy consummation of hope long and devoutly cherished.

Placed as she is by the hand of nature between two other states, which have become populous and wealthy, New-Jersey has labored under serious disadvantages. To her has been the servile part of ministering to the profits of others, whilst her claims to their observation have been unheeded; and not of this alone has she to complain; but the finger of derision has been pointed at her, and the bitter tongue of prejudice has been busy with her name. And why was this? Why, but they who judged her, knew her not? They knew not her internal worth, and this they knew not because they never beheld it.

Our state has ever been the great highway for travellers from every part of the Union; but through what parts of it have they passed? Ever through its poorest and most unseemly portions. Where is the traveller

who, in his journeying through our state by the accustomed public route, has ever been favorably impressed with its aspect? What did he see of it? Nothing, save the marshy low lands, which alone were to be seen as he passed along its shores, or the lonely waste through which he was hurried in the stage coach; and though in later times he has found the locomotive in operation, yet, as by design would it seem, is he still carried through the veriest barren that can be found, search the state throughout. From this cause have the minds of strangers become set against us, the blighting influence of which upon our increase has long been felt by our citizens.

But, sir, New-Jersey has some bright and sunny spots. The genius of improvement, in his onward march, has not passed us by unnoticed, and we trust there is that spirit abroad which will "do the state some service."

To keep pace with the improvement of the age, to build up her towns and villages, and to take her merited rank among the other branches of the Union, it has long been seen, that the avenue of intercourse with her neighbors must be changed. Such is the great and praiseworthy object of the New-Jersey rail road and transportation company.

Sir, when we look upon it, and see the kind of communication which is preparing for us; when we behold that mighty invention, the steam engine, forsaking, as it were, its native element, and stalking boldly on the land, who can withhold his admiration? When, we are at once led to ask, will the improvements upon this mighty power reach their limits? Who is there, that, but a few years since, would have believed that man could have ever so far outstripped the flights of time? Who could have believed that by any human power, remote and distant places could have been brought into near vicinity?

Time, sir, will not permit, neither is there need for me to enumerate the many advantages which this road opens to our reach. The benefits to the state and to the nation, in times of peace, and when the loud alarms of war are sounded, (should ever again such discordant notes be heard in our land,) are obvious. The ready market which is thus afforded for every kind of produce, and for all the varieties of manufacture, is easily to be seen.

But, sir, there is another benefit which to my mind the people of this great nation will soon be led to acknowledge, as the greatest good which rail road communication will afford. It is one which far surpasses any sectional feeling or local advantage which the citizens of one town or of one state may experience. It points to our country, and silences the little feelings of self-interest.

We have a vast extent of territory, an infinite variety of soil and produce, and hence a variety of interests must of course pervade our country. These, as might naturally be expected, have already created jealousies, and a diversity of sentiment on questions of national import. This feeling, fanned and kept alive by prejudice, which in this, as in most cases where it exists, results from a want of proper information, will, it seems to me, be checked by a spirit of forbearance and mutual respect, when the inhabitants of the different states become better acquainted. The north and the south, the east and the west, have been too much estranged from each other; too little conversant with each other's feelings and interests for the preservation of harmony and uninterrupted unanimity; but now, by the happy mediation of the locomotive, they will be brought into frequent and easy intercourse, to the ready exchange of sentiment; they will see each

other face to face, and thus found the basis of secure and abiding friendship. Old prejudices will thus be extinguished, and our bond of union be firmly and indissolubly cemented. Our extended boundaries will then no longer stand as a barrier to that unanimity of feeling which should pervade the people of one nation.

Permit me, sir, on behalf of the citizens of Rahway and its vicinity, to express our heartfelt satisfaction at the progress which your great work is making, and to welcome the arrival of the first car this day within our borders. Yes, sir, we hail the rumbling of the locomotive as the glad omen of future prosperity; we have no misgivings as to the issue, nor do we believe that the most sanguine advocate has ever yet imagined the probable benefits of the construction of this road. Fully assured, sir, of its entire success, and impatient to behold its completion, in conclusion, I give you—

Railways—Nullifying distance, yet preserving the Union.

Gen. DARCY, as President of the company, handsomely responded to the congratulations in nearly the following terms:—

Permit me, Mr. President, in behalf of the directors and stockholders of the New Jersey rail road and transportation company, to express to you and to the enterprising citizens of Rahway whom you represent, our acknowledgments for the warm-hearted and kind reception we have received on this occasion.

We can most cheerfully reciprocate all your expressions of gratification in the completion of our road to this place, and do most confidently hope that it will prove a source of great advantage to your already prosperous community.

That public works of this character have in other states contributed largely to the prosperity of their towns and villages, is not to be controverted. It is well known to us, that this place has long been manufacturing largely for the southern market, notwithstanding its remoteness from the great commercial emporium, and the ordinary track of the southern merchant. If under such adverse circumstances, your business has been sustained, what may we not anticipate when this shall become the great thoroughfare from the south and west, bringing to your very doors thousands in pursuit of the fabrics of the east and north? It cannot be controverted, that the principal towns on this route between New-York and Philadelphia, require only a fair participation in rail road communication, to insure to each and all of them a new era, in relation to their business and prosperity.

While we are thus briefly contemplating what may be done to extend our towns and villages, we are not unmindful of the effects to be produced upon the more numerous, and equally respectable and important portion of our fellow citizens engaged in agriculture. The prosperity of the farmer even in the distant, but productive counties, of Sussex and Warren, is closely allied to the prosperity of these very towns. In proportion as these towns are augmented, and business increased, is every acre of those lands made more valuable, and so vice versa. If the improvements of the age are withheld from us, and extended to all the principal towns in the adjacent states, the prosperity of the farmer, as well as the mechanic and merchant, in this state, will rest on a very doubtful basis. Why do the intelligent farmers of the great states of New-York and Pennsylvania, cautiously direct all their roads, canals and pecuniary facilities, so as to sustain and build up their principal towns and cities? Is it for the particular benefit

of those places? Have they not an eye to interests which should be better understood by the farmers of New-Jersey? The farmers of this state know well the natural barriers of free access to the markets of New-York and Philadelphia. Let them nobly sustain the interests of their own towns, and the reaction must be beneficial to themselves. Are the farmers of New-Jersey aware of the penny-wise policy pursued by their Legislature—that for every sixpence saved from taxation, they lose a dollar, by the policy of keeping in a state of depression almost every town and village on this most important route?

The agriculturalists of this state have the power of controlling its legislation, and we have too much confidence in their intelligence to suppose that they will long neglect a subject so vitally important to themselves, their towns and their villages. Some of the interior counties and towns are awake to the improvements of the day, and are procuring for themselves the great advantages of rail road communication. In one year from this day, a rail road will be in operation from Newark to Morris; and a most liberal charter is now in the possession of the citizens of Sussex, which will enable them to extend a rail road from Morristown to Carpenter's Point, where the New-York state line strikes the Delaware river—a point from which the great Erie rail road, now in the course of construction, cannot depart. They will find their fellow citizens of Essex ever ready to unite with them in obtaining so desirable and perfectly feasible an object. Other local improvements, for the benefit of Monmouth, Somerset, Hunterdon and Warren, are either in contemplation, or fast approaching maturity. I do confidently hope, that the day is not far distant, when the citizens of every county in this state will be enabled to travel from their county towns by rail road communication with each other, and with a main line on the most direct route to Trenton, our seat of government. The citizens of New-Jersey, as sagacious and intelligent as those of any other state, will, I hope, without doing injustice to any one, abandon any course of policy, (adopted by improvident legislation,) which may interfere with the accomplishment of so desirable an object.

From the effects already produced upon the town of Newark, by the construction and use of our rail road, we have a right to infer that your citizens will be greatly benefited, and we have the pleasure of assuring you, that its extension to New-Brunswick will be perfected in the early part of the next season. We will then have consummated a very desirable object, fully in accordance with the provisions of our charter, without a single application to the Legislature for any modification or amendment.

In the progress of our work we have had some difficulties to surmount, and much vexation in procuring title to lands or right of way, upon what we consider fair terms. We acknowledge many honorable exceptions, and avail ourselves of this opportunity of expressing our gratitude to the citizens of Rahway for their liberality on that subject.

Allow me, Mr. Chairman, to conclude with a sentiment:—

The citizens of Rahway—Distinguished for their enterprise and hospitality.

After this exchange of hospitalities, a number of sentiments were given by gentlemen present, among which were the following:—

Hon. Aaron Ogden—*A straight line of Rail Road through New-Jersey*—A link in the chain of rail way destined to be constructed from Maine to Louisiana.
J. J. Chetwood, Esq. of Elizabeth—Public opinion;

like steam; it may be compressed for a while, but sooner or later it must have vent.

Smith Scudder, Esq.—*A Rail Road from Trenton to New Brunswick*—while it confers on the people of New Jersey their just rights, it likewise provides them with facilities for easy access to their seat of government.

Adam Lee, Esq. of Rahway—*Monopolies and exclusive privileges*—always wrong. May the state resume all she has granted, as soon as possible, and grant no more. But in good faith, abide by all its contracts, from which an honest court of conscience will not release it.

Mr. Thorp of Rahway—*Home Manufactures*—Worthy of protection when useful to the people; but deserving opposition when of monopoly texture.

Mr. Thomas A. Green—*The People's Rail Road* made to be rode over, but not to ride "the People."

By a Citizen of Middlesex—*The extension of the New-Jersey Rail Road into Middlesex*—Another link in the chain, designed to bind down the monster monopoly, which has so long lorded it over the people.

Gen. John S. Darcy—*The State of New-Jersey*—May she imitate the wise policy of Pennsylvania and New-York, in extending legislative favors to her large cities and towns, so that by facilitating their intercourse and means of business with her agricultural districts, all may rapidly advance in growth and prosperity.

John P. Jackson, Esq.—*The State of New-Jersey*—Rich in revolutionary renown and internal wealth. May she ever guard with patriotic care her liberties and her resources.

On the return of the train to Newark, an accident occurred, which we have heard spoken of with some degree of exaggeration, as appears from a statement in the Daily, which says, the accident, we learn from the officers of the company, was occasioned by the following cause:—The lever and fastenings for changing and securing the turnout in Elizabethtown, not being completed for use, as there was no necessity for passing on it, the chief engineer ordered the switch to be firmly fastened with *strong bolts*, which the mechanic charged with the service did not attend to, but substituted a *mere spike*, which, by bending from the pressure of the train, moved the switch so as to pass a part of the cars between the rails. The train consisted of four passenger cars and three baggage cars. One passenger car, and one dirt car only sustained material injury, and we are happy to learn that no bones were broken, nor any lasting injuries occasioned to the passengers. All the cars but the two injured proceeded to Newark, and performed another trip to Rahway and back again with passengers. Yesterday, the locomotive passed ten times over the road between Newark and Rahway, carrying about one thousand passengers with entire security and comfort. The above accident, it will be perceived, was from a cause which in no way affects the general safety of rail road travelling, and like the occurrence of all untoward events, will induce greater caution in future.

The locomotive, with a train of cars, will for the present make three trips per day, to and from Newark and Rahway.

Our contemplated Railroad to Wheeling and Pittsburg, says a Baltimore paper, will be but a link in the great chain that will hereafter be extended westward from the waters of the Ohio. The following article from the Wheeling Gazette shows that the people of Ohio are already beginning to regard Wheeling as only a point on the route between Baltimore and the far west. The same considerations which, during the era of turnpikes, led to the construction of the Cumberland Road as a great central national avenue between the east and west, are just as weighty and forcible at the present time—nay, much more so—in favor of the Railroad.

RAILROAD FROM WHEELING TO ZANESVILLE.—A meeting of the citizens of Zanesville was held on the 16th inst., (A. Harper chairman, A. Peters Secretary,) at which it was resolved—

That the project of a railroad from Zanesville to Wheeling is practicable.

That as a continuation of the great Baltimore and Ohio railroad, it embraces more of State interest and national importance than any other proposed route within the State.

That it is an object of the greatest and most vital importance to the inhabitants of this section of the State, and as such we will use our best efforts to promote it.

That the chairman appoint a committee of twenty to correspond with citizens of other portions of the State who may feel interested; to apply for a charter during the present session of the Legislature; to call meetings of the citizens, and take such other steps in furtherance of the objects of this meeting as they may deem expedient; and that said committee have authority to fill all vacancies that may occur. The following gentlemen compose the committee:—George Reeve, John Hamm, C. B. Godard, David Chambers, R. Stillwell, J. D. Fracker, J. Raguet, J. D. Wheeler, B. Van Horne, C. G. Wilson, G. A. Hall, S. A. Barker, George James, John Burwell, J. A. Turner, James Taylor, jr., W. Blocksom, H. J. Cox, J. S. Copeland, Solomon Sturges.

We look upon this movement as but the first step towards a railroad from Wheeling to St. Louis. Cannot the National Government be induced to make the western section at once, instead of appropriating money from year to year, in extending the national road? Should the latter be finished, and a parallel railroad be made by individual enterprise, it is clear that the post office department would be at the mercy of the railroad companies, and mail contracts monopolized at their own price.

The Company of the Iron Railroad from Paris to St. Germain has obtained from the military authorities permission to occupy troops on that undertaking.

The survey for the establishment of the Iron Railroad from Paris to Lille has been confided by the Administration of Bridges and Highways to M. Vallee. The plan is to make a communication between Paris and the Channel, at the ports of Calais, Boulogne, and Dunkirk; between Paris and Lille, Paris and Belgium, or Valenciennes; the Channel and Belgium, or between the ports of Calais, Boulogne, Dunkirk, and Valenciennes.—[London Courier.]

THE BRUSSELS AND ANTWERP RAILROAD.

This is, perhaps, the Railroad of all others which has been constructed at the smallest expense; for the intervening country is almost a dead level; and it is at the same time amongst the most successful. For some time it has been completed from the capital to Malines, which is considerably more than half way, and was far advanced towards the Scheldt, when an order was received, forbidding its further progress, upon the ground that approaching, as it would,

so near the citadel of Antwerp, it might compromise the defences of that place. It now appears that the suggestion of this danger was first made by General Hano, of the French engineers.—[Ibid.]

From the following statement it will be seen that in 12 out of 13 Companies, Railroad Stocks are at a premium.

It will be so in this country.

PRICES OF RAILROAD SHARES, Nov. 7.

Liverpool and Manchester Railway,	£100 0	£209 0
London and Greenwich Railway,	20 0	27 6
London and Birmingham Railway,	45 0	81 0
Brighton Railway,	5 0	8 10
New ditto (Gibbs)		1 5
Great Western Railway,	5 0	19 15
London and Croydon Rail.	2 0	2 10
North Midland Railway,	5 0	8 15
London and Blackwell Rail.		4 0
Northern and Eastern,		3 5
London and Southampton,	10 0	8 0
London and Gravesend,	1 0	1 0
Hull and Selby Railway,	1 0	2 10

THAMES TUNNEL.—We find in the London Mechanics' Magazine, for October, the following article in relation to this important work. We do not, however, learn from it the precise condition of the work, nor the prospect of its early completion, yet it contains other information in relation to the mode of performing the work, which may be of use to our readers, therefore we give it at length.

THAMES TUNNEL.

Mr. Editor,—A correspondent of yours, G. L. S., in No. 632 of the Mechanics' Magazine—a well-wisher evidently to the success of this great enterprise, condemning with justice the angry feelings expressed by some of your contributors against it, as attributable to personal motives, gladly and liberally offers a suggestion for the greater security of the work while in progress.

He says, that "to sustain the pressure of the superincumbent earth, during the excavation, he would drive 18 inches apart, horizontally, before the shield, and in a line with the top of the brickwork, iron rods, 1 inch thick and 8 feet long, and that a sheet of iron one quarter of an inch thick should then be laid over every two of the rods; thus he would form over the shield a covering (or ceiling,) which would be moved forward when a yard of tunnel is finished."

Prompted, as he is, by a friendly disposition, it is presumed that he will be gratified by learning what the provisions of the engineer actually are for sustaining the pressure of the superincumbent earth, while the excavation is being made. He should first know, however, what the scale of the operation is.

The excavation made for the Thames Tunnel is about 38 feet in width, and 22 feet 6 inches in height, presenting, therefore, an opening exceeding 850 feet. The whole of this excavation, including its two sides, which may be computed at 400 feet, is secured by means of a powerful apparatus designated the shield, as is also the roof of it, which measures 350 feet. At

full tide the weight of both earth and water, which constitute the *superincumbent pressure*, is not less than 700 tons. This is the portion that has formed the subject of your correspondent's solicitude.

The *ceiling* of the shield consists of 24 or 26 pieces of cast-iron, denominated staves, closely adjusted; and as they are sometimes made to relieve each other, and therefore subjected to an increased load, they are for greater strength made like inverted troughs of cast-iron; their breadth is 18 inches, the depth of their sides 7 inches, and their length 9 feet, independently of a tail of wrought-iron which overlays the brickwork. The edges in front are made sharp for entering the ground, and the external surfaces of the staves are planed very true. Similar staves are laid against the sides of the shield, all planed and equally well adjusted; each stave can be impelled singly as sheet piles are. Upon the whole the shield may be viewed as a coffer-dam, which, instead of being moved in a perpendicular direction, is placed and is impelled horizontally. The standing part of the shield consists of 12 parallel frames, all independent of each other.

The front of this vast excavation is protected in a different manner from that of the sides. It is panelled all over with small boards, each of which is 3 feet long and 6 inches wide. There are, therefore, upwards of 500 of these boards, technically called *polings*, for covering the whole face of the excavation. Every one of these polings is held in place, and secured by means of two hand-jacks or screws, abutting against the frames. There are, therefore, upwards of one thousand of these jacks in action for securing the face of the excavation, or, rather, for pressing against the ground with sufficient power to prevent any disruption of its various strata; for were the ground to be at all deranged, the pressure against the sides and front of the shield might soon increase to 2,500 or 3,000 tons, independently of that of the superincumbent pressure.

It is further to be remarked, that every successive side, which at its full head is 76 feet above the foot of the excavation, causes an incessant variation in that pressure tending to strain the hard strata, and to soften or knead the intervening soft ones; a fact quite unnoticed by projectors of plans, but which proved fatal to those who attempted the drift-way under the Thames in 1808. The pressure exerted against the front of the excavation by the agency of the shield, must therefore be uniformly kept at a maximum. The shield is advanced only 9 inches at a time, while the brick structure proceeds simultaneously.

Your correspondent, influenced as he is by the best motives, will have great satisfaction in learning, that the new shield is now being made without the necessity for modifying any law of hydraulics, or changing the nature of the ground, as has been too much the case with the various projectors who have sought to labor in the same field with the engineer of the Thames Tunnel.

Those who, without considering what must first be done under-ground, conceive that every difficulty would be obviated by

some particular covering laid on the bed of the river over the tunnel, such as timber-flooring, rafts, planking, roofing, plates of metal of any kind, tarpaulings, sails, leather, &c., loaded over with some great weight or not loaded at all, should further consider that they have, we are assured, upwards of 300 competitors for the same expedient, besides about 90 who, from motives of caution, have reserved the disclosure of their respective plans, until some remuneration should previously be provided.

It would be well if those who feel disposed to enter the List of Competitors, were first to consult the report of those miners who directed the attempts that were made and carried on with so much perseverance, between the years 1803 and 1808, with the ultimate object of opening a roadway under the Thames at Rotherhithe. These were miners (Cornishmen), engineers in that branch of the art, and, consequently, eminently qualified for the task in every respect; they were as sanguine, too, as any of the projectors of this day; and their excavation was limited, in the first place, to a simple driftway, the height of which was only 5 feet, the breadth 2 feet 6 inches at the top, and 3 feet at the bottom, forming, therefore, an excavation that was sixty times smaller than the excavation which has been made for the Thames Tunnel.—Diminutive, however, as this hole was when contrasted with that of the tunnel, the ground in the roof, though supported by substantial planking, gave way once in a fluid state, leaving an unsupported cavity over the roof of the driftway; still it held itself up; but a second accident of the same nature having occurred under a very high tide, the river broke the ground and entered the drift. In both cases it was the loose ground that forced its way first into the drift, and the river afterwards. The miners succeeded in filling the hole and in re-entering the drift, but the men could not continue the working; they were, according to the engineer's report, *driven out of it by the frequent bursts of sand and of water*, and it was acknowledged by him to be quite impracticable to proceed farther; so, after having probed the ground from underneath in many places, he concluded and reported that it was impossible to make an excavation of any size under the Thames. It never entered the head of this engineer, Mr. Trevethick, a remarkably ingenious and enterprising man, who conducted the operation to its final abandonment, that any covering, spread over the bottom of the river, would prevent the river filling his drift or a tunnel, at every tide, any more than it does the wells situated at many hundred yards from the river.

But he resorted to one expedient which he conceived would answer the emergency—one which, at any rate, demonstrates the intrepidity of this engineer. That is, in order to clear or pass through the place which had been filled up in closing the hole made by the breaking in of the river, he reduced the height of his drift from 5 feet to 3 feet. The men and the engineers, too, had therefore to work on their knees. Awful enough for such a task! Thus reduced, the area of the excavation of this

drift hardly exceeded the one hundredth part of that of the Thames Tunnel under corresponding circumstances.

Any one can form an idea of a hole three feet square by looking at some garret window; but not so easily of a hole of a greater sectional area—for example, than the old House of Commons was.

It is no absurdity, Mr. Editor, to have succeeded in cutting out a hole of larger area than that hall, under a head of water as high as the Custom-house. The engineer who has made it never, however, professed being a miner, and never excluded miners, or any person interested professionally, from a sight of his works.

Let us farther notice here what Mr. Vazie said, who was not only the colleague of Mr. Trevethick, but the directing engineer, so far at least as the first 392 feet of that drift. In his letter, by way of appeal, to the proprietors, dated the 7th of December, 1807, relying, as he somewhat emphatically assumed it, "*on his professional information in the art of mining*," he stated, "*I am bold to say, that the only material difficulties with which we have had to contend have arisen from not having had the 50 horse steam-engine*," which had actually been purchased at his suggestion, and for which a 14-horse power had been substituted. He then adverts to "such an enterprise as that of working underneath a river so deep and so rapid as the Thames;" and boasts of having, nevertheless, "*succeeded in defiance of difficulties pronounced insurmountable by several engineers*." In another part of his letter he adds, "*I have been repeatedly, laboriously employed through the night, without taking any refreshment; and it was by no means unusual for me to remain 40 hours without rest; and for upwards of four years and a half I DID NOT SLEEP ONE NIGHT FROM THE WORKS—I am proud to state this, &c.*"

And all these arguments were from practical miners, who had but one miner and one carpenter to direct for making a shaft, begun on a diameter of 11 feet and completed at 8 feet; then carrying a driftway 5 feet in height, wherein not a single brick had been used.

Well may it be said, in respect to these great efforts towards making "convenient carriage-ways" quite water-proof.

"Parturiens mona, nascitur ridiculus mus!"

And now not a vestige can be traced of these vast labors.

But of the Thames Tunnel there is to be seen that which demonstrates the practicability of the plan of Mr. Brunel; and knowing that it has withstood the shock of two irruptions of the river, we have a sufficient security of the strength of the structure to assure us, that when completed it will endure—a lasting monument to national enterprise and zeal in promoting practical science. We may at this period repeat what his Grace the Duke of Wellington said of it in 1829, viz. "There is no work upon which the public interest of foreign nations has been more excited than it has been upon this tunnel;" and for a confirmation of the interest felt in our own country, we may refer your readers to the transactions in the House of Lords on the

2d of July, 1830, or of the House of Commons on the 24th of August last.

The reports of the former attempts and proceedings were published in 1809 by the Directors of the Company, when they made a public appeal for plans, offering a liberal reward for that which should be adopted. Fifty-three plans were obtained upon this appeal. The practical and scientific men, to whom they were referred for examination, concurred in opinion that none would answer for effecting the object on a proper scale. All farther attempt was in consequence given up by the Company. A subsequent one, by working from above the river, proved equally unsuccessful.

Had your correspondent, Mr. Editor, in No. 605, been as solicitous for correctness as he is familiar with censure, he would not have felt himself called on to reprobate the Lords of the Treasury for having granted 250,000*l.* for the completion of an enterprise, as far completed as it is, which had received the fullest and most unequivocal approbation of his Grace the Duke of Wellington; no mean authority in such matters, more particularly when he had made himself familiar with those facts and circumstances already stated, but which is attempted to be denied by your correspondent. Nor is it other than natural that the late First Lord of the Treasury, Lord Althorp, should have been influenced in his decision by such sentiments as those publicly expressed by his Grace; as, for instance, "that the novelty of the work, the difficulty of ascertaining the nature of the bed of the river, and the accidents to which such a work was liable, tended to increase the expense of this great undertaking, yet that the work itself had cost only 120,000*l.*," that is, at the period alluded to by his Grace, viz. the 11th of June, 1828, which included, however, the expense of the first eruption and part of that of the second. But up to the 31st of December, 1828, when the works were entirely suspended and were closed, the cost of the works of the tunnel, including the shield, the steam-engine, and a powerful pumping-apparatus, was not more than 126,740*l.*, including both accidents, instead of 240,000*l.*, as your correspondent asserts it. Adverting farther to the benefit which will result from the work by uniting populous districts, his Grace added, that "*men cannot but see the great political, military, and commercial benefits that will be derived from the example of such a work, in this and in other countries; that the accidents which have occurred have demonstrated the practicability of the enterprise, and the genius and the ability of the engineer who has conducted it; they have also proved this, that the work of itself is excellent,*" &c.

This same correspondent remarks, that if the engineer had gone deeper with his tunnel, he would have avoided all difficulties and accidents. Now were he to refer to the reports of those engineers already alluded to, who operated between the years 1803 and 1808, he would find that they could not venture lower than 76 feet—which fact he will find to be confirmed by well-sinkers, who have opened wells near the river on the south side; and further, he may be informed, that eminent geologists

have warned Mr. Brunel of the probable effects of the 50 feet bed of blowing sand existing below that depth, and that they recommended him to keep as near as possible to the river as, perhaps, the enemy least to be dreaded.

Notwithstanding the public acknowledgment by the Duke of Wellington of the utility of the undertaking, and of the national honor which is attached to its completion, and notwithstanding the confidence which even the most disastrous accidents have inspired in the plan, by which one half, or nearly, of the undertaking has been realised and carried to the deepest part of the river, another correspondent or contributor of yours in No. 626, subscribing himself *Fanqui*, excited evidently by some grievous disappointment, protests against the enterprise, premising with an eulogical preface on the present member for Berkshire for his manly exposure in the House of Commons, of the pretended *manœuvres of the patrons of the Thames Tunnel in obtaining 270,000*l.* from the Government*. This critic unhesitatingly affirms, that the work, "*if ever finished, will only be a monument of folly and absurdity, because no vehicles of any description will ever use it as a means of transit.*" And he concludes by asking, "*who were the three most eminent engineers who had examined the plans of that scientific engineer, Mr. Brunel?*"

The charge of folly and stupidity certainly possesses some novelty to those who have been taught to value the benefit of good communications across a large navigable river, as the Thames is all the way from London Bridge to its mouth, where a permanent land communication cannot possibly be obtained. But to his question. It may be replied, that the Duke of Wellington was the first eminent engineer who, as far back as the year 1820, had examined the plan, and who from that time to the present has continued to manifest great interest in its application. The late Dr. Wollaston may be considered the second who expressed himself most favorable to the plan, and, it may be added, that the name of Wollaston stands the first in the enterprise, and most prominent, not only in the list of subscribers, but of proprietors to this day. In Mr. Donkin may be found the third, a gentleman who, from his practical knowledge of machinery, was fully competent to judge as to the efficiency of the shield after he had examined it.

I cannot but give a specific denial to the assertion, that the speculation was one of those which take their date from the eventful years of 1825 and 1826, because the first meeting, convened by the friends of the enterprise for organizing a company, took place in December, 1823, and the subscriptions were made up at a General Meeting in February, 1824. Should your correspondent not be satisfied with the testimonies already adduced, we may refer him to a leading article in the *Times*, at that period conducted by the present member for Berkshire. The article in question is dated 4th July, 1828; consequently, after the two eruptions of the river. It is therein said, that "the Thames Tunnel is an undertaking of the highest national importance and credit, and such as ought to meet with the

most ample public support in extricating it from its difficulties, and rendering it a proud monument of national utility and honor."

We may conclude, by informing your numerous readers and the public, that this national undertaking is in progress towards that anticipated achievement; and we may, on the best authority, add, that the front of the excavation has been worked and advanced several feet, and the ceiling of it raised in equal proportion; the whole having been done with perfect safety; and, moreover, that a considerable part of the old shield has been removed, and some portion of the new one has been put up. †.

For the Railroad Journal.

ON THE MANUFACTURE AND USE OF SOLUBLE GLASS.

Translated from "*Traité de Chimie appliquée aux Arts*," par Mr. Dumas," by JAMES RENWICK, L. L. D., Prof. of Nat. Exp. Philosophy and Chemistry in Columbia College, New-York.

Soluble glass is a simple silicate of potassa or soda, which unites perfect solubility in boiling water to some of the general properties of common glass: besides, although the uses to which soluble glass is applied are very different from those of common glass, the study of it will furnish such exact and close analogies to other descriptions of glass, that we are compelled to include it in the groupe of chemical compounds which they form.

The discovery of soluble glass and of its uses, is due to a distinguished German chemist, from whom we derive all we have to say in relation to it. This glass, when dissolved in water, forms a liquid which may be applied to cloth or wood, for the purpose of rendering them incombustible. In fact, by the evaporation of the water in which it is dissolved, a layer of a substance capable of fusing when heated, is deposited on these bodies, which is capable of protecting them from the contact of air necessary for their combustion.

Preparation.—Soluble glass may be obtained by dissolving pure silica, obtained by precipitation, in a boiling solution of caustic potassa; but, this process being both inconvenient and costly, cannot be practised upon a large scale.

When sand and carbonate of potassa are heated together, the carbonic acid is never wholly driven off, except when the sand is in excess; but the whole of the carbonic acid may be expelled by adding powdered charcoal to the mixture, in such proportion that the carbonic acid of that part of the carbonate which is not decomposed may meet with a sufficient quantity of carbon to convert it into carbonic oxide. In this way the silica first forms a silicate in the proportions contained in common glass, and drives off the appropriate equivalent of carbonic acid; then, at a high heat the rest of the carbonate of potassa is decomposed by the carbon, the carbonic oxide escapes, and the potassa thus freed, either sublimes, or combines with the glass already formed.

In order to obtain soluble glass of good and uniform quality, certain precautions are necessary. The carbonate of potassa employed, must be purified.* If it contain much

* Pearlash being the purest form, we shall use its name in the practical part.

chloride of potassium, the product will not be entirely soluble in water, and a glutinous residuum will be left. In addition, the glass will be liable to effloresce. Sulphate of potassa does not produce any bad effect, because it is decomposed by the carbon, when the matter continues sufficiently long in fusion, but without this precaution the glass will contain sulphuret of potassium, which also has a tendency to efflorescence.

The sand must be pure, or at any rate must not contain any notable proportion of lime or alumina, for these earths render a part of the glass insoluble. A small portion of oxide of iron has no influence on the qualities of the glass.

The sand and carbonate of potassa (pearlash) are taken in the proportion of two of the latter to three of the former, and to 10 parts of pearlash and 15 of sand, 4 parts of charcoal are added; a less portion of charcoal must not be taken; on the contrary, if the form of potash employed be not sufficiently pure, a larger proportion of charcoal may be advantageously employed. This substance accelerates the fusion of the glass, and separates from it all the carbonic acid, of which there would otherwise remain a small quantity, which would have an injurious effect.

In other respects, the same precautions that are employed in the manufacture of common glass, are to be observed. The materials must be first well mixed, then fritted, and finally melted in a glass pot, until the mass becomes liquid and homogeneous. The melted matter is taken out of the pot with an iron ladle, and the pot is then filled with fresh *frit*.

Thirty pounds of pearlash, 45 of sand, and 12 lbs. of powdered charcoal may be taken for a charge; with this quantity the heat must be continued for 5 or 6 hours.

The crude glass thus obtained is usually full of air bubbles; it is as hard as common glass, of a blackish gray color, and transparent at the edges; sometimes it has a color approaching to whiteness, and at others is yellowish or reddish; these are indications that the quantity of charcoal has not been sufficient.

If it be exposed for some weeks to the air, it undergoes slight changes, which rather tend to improve, than injure its qualities. It attracts a little moisture from the air which slowly penetrates its mass, without changing its aggregation or its appearance; it merely cracks, and a slight efflorescence appears at its surface. If it be exposed to heat, after it have undergone this change, it swells up, owing to the escape of the aqueous matter it has absorbed.

In order to prepare it for solution in boiling water, it must be reduced to powder by stampers; if this were not done, it would dissolve too slowly. One part of glass requires from 4 to 5 of water for its solution.

The water is first heated to ebullition in an open boiler, the powdered glass is then added by degrees, and must be continually stirred, to prevent it from adhering to the bottom. The ebullition must be continued three or four hours, until no more glass is dissolved: the liquor will then have acquired the proper degree of concentration. If the

ebullition be checked before this state is attained, carbonic acid will be absorbed by the potassa from the air, which will produce an injurious effect; for the same reason, too great a quantity of water must not be employed, for during the long evaporation which will then become necessary, the carbonic acid of the water will readily combine with the potassa, and cause a precipitation of the silica.

When the liquor becomes too thick, before the whole of the glass is dissolved, boiling water must be added.

When the solution has acquired the consistency of syrop, and a density of 1.24 to 1.25, it is sufficiently concentrated and fit for use. It is then permitted to rest, in order that the insoluble parts may be deposited; while it is cooling, a coriaceous pellicle forms upon the surface, which after a time disappears of itself, or may be redissolved by depressing it in the liquor. This pellicle begins to appear during the ebullition, as the liquor approaches a state of concentration, and may even serve to indicate this state.

When the crude glass is of a proper composition, contains but few saline impurities, and no sulphuret of potassium, it may be treated in the way we have described. But if it contain any notable proportion of these substances, they must be separated before it is dissolved; this separation may be effected in the following manner. The powdered glass is exposed to the action of the air for three or four weeks, during which time it must be frequently stirred; if it run into lumps, which will happen in moist weather, they must be broken up. The glass, as we have stated, attracts moisture from the air, and the foreign substances either separate or effloresce. It then becomes easy to remove them from the glass. It is sprinkled with water, and frequently stirred. At the end of three hours the liquor is removed, it will then contain a part of all the saline impurities, and a little of the silicate of potassa; the powder is again to be washed with fresh water. Soluble glass thus treated, readily dissolves in boiling water, and the solution leaves nothing to be desired.

As soluble glass is employed in the liquid form alone, it is kept in this state for use. To preserve it, no particular care is necessary, as even after a long space of time it undergoes no perceptible change, if the solution have been properly prepared. The only precaution is not to allow air too free an access to it.

A similar product may be obtained by using a carbonate of soda instead of one of potassa. In this case, two parts of the soda of the shops is required for one of silica. This glass has the same properties as the other, but is more valuable in its uses. The solutions of these two kinds of glass may be mixed in any proportion whatever, and this mixture is more serviceable in some cases, than either of them separately.

Properties.—Soluble glass forms a viscid solution, which when concentrated becomes turbid and opalescent; it has an alkaline taste and reaction. The solution mixes in all proportions with water. When the density of the solution is 1.25, it contains nearly 28 per cent. of glass; if the

concentration be carried beyond this point, it becomes so viscid that it may be drawn out in threads like molten glass. Finally the liquor passes to the state of a vitreous mass, whose fracture is conchoidal; it then resembles common glass, except in hardness. When the solution is applied to other bodies, it dries rapidly at common temperatures, and forms a coat like a varnish.

Soluble glass when dried, does not undergo any perceptible change when exposed to the air, and attracts from it neither moisture nor carbonic acid; neither has the carbonic acid of the atmosphere any well marked action on the concentrated solution; but when a current of carbonic acid is passed through the solution, the glass is decomposed, and hydrate of silica deposited. But a weak solution becomes turbid on exposure to the air, and is after a time decomposed wholly. When the glass is impure, an efflorescence is formed after a while, which may be produced either by the carbonate and hyposulphite of potassa, or by chloride of potassium.

Soluble glass dissolves gradually without residuum in boiling water; but in cold water the solution is so slow as to have led to a belief that it does not dissolve at all. It however never becomes entirely insoluble, except when it contains a much larger proportion of silica, or when it is mixed with other bodies, such as the earths, metallic oxides, &c. with which double or triple salts are formed, as is the case in the common glasses.

Soluble glass which has been exposed to the air, and is afterwards submitted to the action of heat, swells and cracks at first, and melts with difficulty. It then loses about 12 per cent. of its weight. It therefore contains, even when solid, a considerable quantity of water, which it does not lose when simply dried by exposure to the air.

Alcohol precipitates it unaltered from its solution in water. When the solution is concentrated, but little alcohol is required for precipitation, and it need not be highly rectified. Pure soluble glass may therefore be easily obtained from an impure solution by the use of alcohol. The alcohol being added, the gelatinous precipitate is permitted to settle; the supernatant liquor is decanted, the precipitate collected, rapidly stirred after the addition of a little cold water, and subjected to pressure. In truth, however, this process is attended with some loss, for even cold water will rapidly dissolve the precipitated glass, in consequence of its minute division.

The acids decompose the solution of glass. They also act upon it when solid, separating the silica in the form of powder.

Uses.—The properties of soluble glass fit it for numerous and varied applications. It has been used in the theatre of Munich as a means of safety from fire.

All sorts of vegetable matter, wood, cotton, hemp, linen, paper, &c. are, as is well known, combustible; but in order that they shall burn, two conditions are requisite, an elevated temperature, and free contact of air, to furnish the oxygen necessary for their transformation into water and carbonic

acid. When once set on fire, their own combustion develops the heat necessary to keep up the chemical action, provided they be in contact with air. If deprived of such contact, and made red hot, they will, it is true, yield inflammable volatile products, but the carbon which is left will not burn, as it is deprived of air, and thus the combustion will stop of itself. Such is the part which all the fixed fusible salts are capable of performing, if they be in addition composed of substances incapable of yielding their oxygen at a low red heat, to either carbon or hydrogen. These salts melt as the vegetable matter becomes heated; they form upon it a coat impenetrable to the air, and either prevent altogether, or limit its combustion. The phosphate and borate of ammonia have such a character, but they are so readily soluble in cold water, as to be liable to objections which cannot be urged against soluble glass.

Although soluble glass is of itself a good preservative from fire, it fulfills the object better when it is mixed with another combustible body in powder. In this case the solution of glass acts in the same manner as the oil of painters. The several coats have more body, become more solid, and more durable, and if the substance which is added be of proper quality, coagulate by the action of fire into a strongly adhesive crust. Clay, whiting, calcined bones, powdered glass, &c. may all be employed for this purpose; but we cannot yet say with certainty which of them is to be preferred. A mixture of clay and whiting, appears to be better than either used separately. Calcined bones form with soluble glass a very solid and adhesive mass. Litharge, which, with the glass, makes an easily fusible mixture, does not give a product fitted for coating wood, as the mixture contracts in drying; it therefore cracks, and is easily separated. Flint glass, and crude soluble glass, are excellent additions. The latter ought to be exposed to the air after it is pulverized, in order to attract moisture.—If it be mixed with the solution, and be then applied to any body whatever, it in a short time forms a coating as hard as stone, which if the glass be of good quality, is unalterable by exposure, and resists fire admirably.

The scoræ of iron and lead, felspar, fluor, may all be employed with soluble glass; but experience alone can decide which of these substances is best, and in what proportion they are to be employed. We should advise that the first coat should always be a simple solution of the glass; and that a similar solution be applied over coats composed of its mixture with other substances, particularly when such a coat is uneven, and rough.

The last named substances form a solid and durable coating, which suffers no change by exposure to the air, does not involve any great expense, and is readily applied. But in order that it may not fail, particular care is to be taken both in preparing and employing it.

In order to cover wood and other bodies with it, the solution must be made of a pure glass, for otherwise it would effloresce and finally fall off. However, a small degree of impurity is not injurious, although

after a few days a slight efflorescence will appear; this may be washed off by water, and will not show itself a second time.—When a durable covering is to be applied to wood, too strong a solution must not be employed at first, for in this case it will not be absorbed, will not displace the air from the pores, and in consequence will not adhere strongly. It is a good plan to rub the brush several times over the same place, and not to spread the coating too lightly. For the last coats a more concentrated solution may be employed, still it must not be too thick, and must be spread as evenly as possible. Each coat must be thoroughly dry before another is applied; and this will take in warm and dry weather at least 24 hours. After 2 hours the coat appears to be dry, but is still in a state to be softened by laying on another. The same inconvenience will then arise, which occurs when a thick coat of a concentrated solution is applied; the coat will crack, and does not adhere. This however is only the case when potassa is the base of the glass, for that formed from soda does not appear to crack.

In applying soluble glass to the woodwork of the theatre at Munich, 10 per cent. of yellow clay (*ochre*?) was added. After six months, the coat had suffered but little change; it was damaged only in a few places, where it had need of some repair. This arose from a short time only having been allowed for the preparation and application of the glass, and they were therefore done without proper attention.

When this mode is employed for preserving a theatre from fire, it is not enough to cover the woodwork, it is also necessary to preserve the scenery, which is still more exposed to danger. None of the methods yet proposed for this purpose appears as advantageous as soluble glass, for it does not act on vegetable matter, and completely fills up the spaces between the thread; it fixes itself in the web, in such a way that it cannot be separated, and increases the durability of the fabric. The firmness which it gives to stuffs does not injure them for use as curtains, because it does not prevent them from being easily rolled. So far as the painting of scenes is concerned, the glass forms a good ground for the colors. To prevent the changes which some colors, Prussian blue and lake for instance, might undergo from the alkaline matter, it will be necessary before painting to apply a coat of alum, and then one of whiting.

There is no great difficulty in applying soluble glass to cloths, still this operation is not so easy as might at first be imagined. It is not sufficient to coat or dip them in the solution; they still require after this operation to be subjected to pressure. This object might perhaps be best attained by passing them between rollers plunged in the solution. When a cloth which is only coated with soluble glass, is put into the fire, it will remain incandescent after it is taken out. This is not the case when it has been properly impregnated with the solution. A still better purpose is answered in this case, when litharge has been added to the solution. The stuff in drying yields

to the shrinking of the mixture, and becomes inseparable from it, which is the reverse of what happens when it is applied to wood. A single part of litharge in fine powder is sufficient for 14 parts of concentrated liquor.

Soluble glass is capable of many other applications, and particularly as a cement; for this use it is superior to all those which have hitherto been employed, for uniting broken glass, porcelain, &c.

It may be used in place of glue or isinglass in applying colors, although when employed by itself, it does not make a varnish which will preserve its transparency when in contact with air.

EXTRAORDINARY INVENTION OF M. SUDRE.—On Wednesday evening, M. Sudre delivered a lecture at the *Mechanics' Institution*, Liverpool, upon his system of universal musical language. The lecture room was crowded to excess. In order to remove all suspicion of collusion, the pupil was placed in the apparatus room of the Institution, and the door closed. A short phrase or sentence, in English or French, was then successively written by a number of ladies and gentlemen in different parts of the room, and placed on the lecture table, so as to be seen by the lecturer, and him only. M. Sudre having tuned his instrument, a fine toned violin, drew his bow sharply across it, so as to produce a chord, the signal of commencement, and then played, as it were, the sentence before him on the violin. This was no sooner done than the pupil brought from the adjoining room a black board, and M. Sudre having written in chalk upon the black diagram board of the Institution the sentence communicated, the boards were compared, and found to correspond. As M. Sudre keeps the method by which he is enabled to make this communication a secret, under the expectation of Government patronage, we can only speculate upon it. The sounds upon the violin seemed to be comprised within a scale of two octaves, and one sound appeared to be longer sustained than another. Though in this manner a musical alphabet might be composed, this cannot be the only means by which the sentence was conveyed, as we perceived (especially in the French) that the number of sounds were not equal to the number of letters. From this we are led to imagine that the system of M. Sudre must be a species of musical stenography, in which the vowels are occasionally omitted, and a simple sound used for a whole syllable or word.—[*Liverpool Mercury*.]

The President has recognized Paul Joaquim Figueira as Vice Consul of Portugal for the port of New York, and the ports of Connecticut, of New York, and of East Jersey. He has also recognized D ego Chalaron as Vice Consul of Portugal for the port of New Orleans and the State of Louisiana.

THE WEATHER is peculiar for the season. It has been mild and open, with a strong North East wind, blowing for two days. Last night it blew a gale. The zinc covering of the new building on the corner of Broad and Pearl streets, was, by the force of the wind, stripped from the roof and scattered about the streets.

SUSPENSION BRIDGE AT FRIBOURG.—The following account of the bridge at Fribourg, in Switzerland, was recently communicated to the French Academy by M. Arago:

Fribourg is built upon the left bank of the river Sarri. This little river has very steep banks on both sides. Their height above the bed is about 200 feet (French). Travellers, in going from Berne to Fribourg, were obliged to descend a hill of 200 feet, in order to reach a little wooden bridge thrown over the river, and immediately afterwards to ascend another hill of the same height, in order to reach the middle of the town. The passage through Fribourg, therefore, in a carriage, took up nearly an hour. These delays and difficulties seemed the necessary result of its position, when some enterprising individuals conceived the possibility of executing a suspension bridge which might unite the summits of the two high hills, between which the Sarri flows. The bridge was to pass over a great part of the town. The project seemed perfectly Utopian; nevertheless, the zeal of the citizens and magistrates induced them to submit the project to the attention of engineers in every country. The Cantonal Government gave the preference to the plan of M. Challey, of Lyons, and it has been executed under his immediate direction. The gates, by which we enter the bridge, are of the Doric order, and sixty feet high; the elevation of the arch is thirteen metres, the opening six metres; the breadth of the masonry fourteen metres, its thickness six metres. Although immense blocks of hard limestone rock from the Jura have alone been used, it has been deemed necessary to unite them by strong metallic cramps; 25,000 kilogrammes of iron have been used for this purpose. The breadth of the valley of the Sarri, at the spot where the bridge has been made, or the distance between the two interior faces of the gates thus raised upon both sides, or, in other words, the whole length of the bridge, is 817½ feet (French). It will easily be conceived there was some hesitation in attempting to pass this whole distance at one single cast or span, and the idea naturally suggested itself to M. Challey, of endeavoring to support it in the centre. But the difficulty of fixing solid piles at the height of 200 feet, especially in alluvial soil, made him relinquish it. The bridge, therefore, has only one span—a span of 265 metres. It is suspended according to principles, now generally acted upon, of four iron cables passing over the upper part of the two gates, each cable being composed of 1,200 iron wires, about three millimetres in diameter, and 347½ metres in length. As it would have been difficult to manage and to stretch these cables collectively, they were worked in separate parts. Their union was effected in the open air, the workmen being suspended, and, happily, without any accident having occurred. The four cables have been calculated to support 3,000,000 kilogrammes, equal to 60,000 ancient quintals. They are fastened, on the two banks, to the bottom of four pits excavated in the rock. In each pit, they are crossed by a vertical cylindrical shaft, which unites three massive superincumbent arches, and which are connected with infinite care with the surrounding rock. Lower down, they are let into very hard blocks of stone, of two cubic metres each. These cables, therefore, can only give way by tearing down the enormous weight of these several buildings, strengthened as they are, in every way, by adhesion to the rock. M. Challey began his work in 1832, assisted only by a person whom he brought with him from France, and employing merely the la-

borers of the country, men without experience, and who had never seen a suspension bridge. On the 15th October, 1834, fifteen pieces of artillery, drawn by forty-four horses, and surrounded by three hundred persons, passed the bridge, and went in a body, both to the middle and to the ends, without the least perceptible effect upon the efficiency of the bridge; and some days after, a procession, composed of the whole population of Fribourg and of the neighborhood, passed over with equal facility and confidence, although there never could have been less than eight hundred persons, many of them on foot, on the bridge at the same time. Since that, travellers and merchants have come in numbers to see this stupendous work. It is the intention of the engineer this month, (October, 1835,) to try the powers of the bridge by a weight of 100 kilogrammes to every square metre, and it may then be said, the Bridge of Fribourg has been executed in two years and a half.—The whole expense has been about 600,000 francs, or 25,000*l.* sterling. The only bridge which, for its dimensions, can be compared with that of M. Challey, is the Menai Bridge, built by the late Mr. Telford, and which joins the Isle of Anglesey to England. The largest ships can pass under this bridge at full sail. But the breadth of the Menai Bridge is only 167½ metres, 516 feet—consequently 301 feet less than that of Fribourg. The surface of Mr. Telford's bridge is about 32½ metres, or 100 feet above the level of the sea at high water. That of M. Challey is 51 metres, or 156 feet above the bed of the Sarri. M. Candolle has taken the city of Paris as a standard, by which to convey an idea of the magnitude of M. Challey's bridge. He supposes a bridge of only one single span, the length of which shall be equal to the railing of the Carousel, or to the distance between the two corresponding carriage entrances of the two galleries, the level of this bridge being somewhat lower than the height of the towers of Notre Dame, or eight metres higher than the column of the Place Vendôme, and you may thus have some notion of the height and length of the bridge at Fribourg.—[London Courier.]

NEW LIQUOR GAUGE.—A gauge, upon a very simple and excellent principle, which has just been introduced in the new gin palaces, has been invented by Mr. Fage, the hydrometer manufacturer, to show the quantity of liquor, in inches, contained in a cask or vat at any time. The gauge is a vertical glass tube of the same altitude as the cask or vat, and about the size of a large barometer tube, open at both ends. The lower end is securely let into a brass tube about 6 inches long, at right angles, with a valve, or stop-cock; this tube is fixed into the lower part of the side of the cask, as near the bottom as can be, similar to a cock. The glass tube is attached to a brass index about two inches wide, and of the same height as the glass tube, which is divided into inches; and the number of inches is engraved in figures reading from the bottom to the top. It is evident, when the valve at the foot of the glass tube is open, the liquor in the vat or cask will rise to the same height in the tube as it is in the vat; and, by means of the brass index, that it will show the number of inches of liquor in depth as there are in the vat or cask. It saves considerable labor and trouble to the excise officers; as, by calculating the quantity there is in each inch in depth in the cask when the gauge is first fixed, they can make their entries without the trouble of the gauging rule.—[Architectural Mag.]

AGRICULTURE, &c.

From the Farmers' Register.

ON THE USE OF LIME AS A MANURE.

By M. PUVIS.

Translated for the Farmers' Register from the *Annales de l'Agriculture Française*, of 1835.

(Continued.)

Surface Liming.

18. In Germany, where liming and marling, like most other agricultural improvements, have recently made great advances, besides the ordinary modes of application, lime is used as a surface dressing. They sprinkle over the rye, in the spring, a compost containing 8 to 10 hectolitres of lime to the hectare, fifteen days after having sown clover. Also on the clover of the preceding year, they apply lime in powder, which had been slaked in the water of the dunghill, the dose being less by one-half: the effect upon the clover and the following crop of wheat is very advantageous.

In Flanders, where they use lime mixed with ashes, it is particularly for the meadows, natural or artificial, and the application is then made on the surface.

Burning Lime.

19. The burning lime is done with wood, with pit coal, or with peat; in temporary kilns, or furnaces, in permanent, or in perpetual kilns. It is burned in many places most economically with coal, but it is not so good a manure as the lime burned with wood, because, as it seems, of the potash contained in the latter case. There are but few places in which peat is used for this purpose; however, in Prussia, they succeed with three-fourths peat, and one-fourth wood. It is, doubtless, a very economical process, and the *Societe d'Encouragement* has given in its transactions plans of peat kilns; but I know not whether the operators who received prizes for their use, have continued the practice.

The temporary kilns admit of the burning of a great quantity of lime; but the permanent kilns burn it with most economy of fuel. In the first, 5 quintals of wood, burn 4 quintals, or 1 ton, or 2½ hectolitres of lime—and in the others, the same quantity of wood will suffice for 6 quintals, or 3½ hectolitres. But in the permanent kilns such is the expense of construction and repairs, that they cannot be justified except when kept in frequent use. Coal burns from three to four times its bulk of lime—the shape of the kiln, the kind of limestone, and that of the coal, making the difference. Hydraulic lime is calcined more easily than the common [chaux grasse.] The egg-shaped kilns for coal seem to be preferable to the conical, which are more generally met with.

Precautions to be used in Liming.

20. Whatever may be the method adopted for using lime, it is essential that, as with all calcareous manures, it should be applied in powder, and not in a state like mortar—and upon the earth when not wet. Until the lime is covered up finally, all rain upon it ought to be avoided, which reduces it to paste, or to clots: and this injures its effect greatly, and even more than reasoning can explain. It ought not to be placed but upon soil, the surface mould of which drains itself naturally [by permitting the water to pass through.] On a marshy soil, unless the upper layer has been well dried, or in a very moist soil, from which the surface water does not sink or pass off easily, the properties of lime remain as locked up, and do not make themselves seen, until by new operations, the vegetable mould has been drained and put in healthy condition,

On an argillaceous and very humid soil, the use of marl, which is applied in great quantities, is preferable to that of lime, because that it can have a more powerful effect in giving the deficient health to the surface mould. On soil of this kind, a deep ploughing is a preliminary condition, essential to the success of either liming or marling: because in increasing the depth of the tilled soil, we increase also the means of putting the surface into healthy condition.

21. To secure the effect of lime on the first crop, it ought to be mixed with the soil some time before the sowing of the crop: however, if it is used in compost, it is sufficient that the compost may have been made a long time previously.

Lime, whether alone, or in compost, spread dry upon the soil, ought to be covered by a very shallow first ploughing, preceded by a slight harrowing, in order that the lime, in the course of tillage, may remain always, as much as possible, placed in the midst of the vegetable mould.

Lime, reduced to the smallest particles, tends to sink into the soil. It glides between small particles of sand and of clay, and descends below the sphere of the nutrition of plants, and stops under the ploughed layer of soil: and when there in abundance, it forms by its combinations a kind of floor, which arrests the sinking water, and greatly injures the crops. This is an inconvenience of lime applied in heavy doses, and is hastened by deep ploughing.

[To be continued.] -4

TO THE LOVERS OF HONEY.—The following directions in relation to the cultivation of bees, are given by Francis Kelsey, in his treatise on the "Description, Cultivation, and Management of the Honey Bee." Some of our readers will probably recollect Mr. Kelsey and his beautiful specimens of honey, at the Fair of the American Institute.

From this work, it will be seen that honey may be cultivated in a city, as elsewhere, and we have no doubt of it, to a considerable extent—by those who are not subjected to the inconvenience of moving annually. A suitable room may be prepared in the garret—so arranged as to afford space for the bees to increase, yet not to require them to swarm at all, and the honey taken out without disturbing them.

THE CULTIVATION OF BEES.

The cultivation of bees is by no means confined to the country, as many imagine; for they will find honey even in a paved city. They will search every yard, drain, garden, fruit tree, sugar and molasses cask, and it is but trifling for them to fly three or four miles, which they often do. It is probable they would cross water that far, if necessary; they would do well no doubt, if there was fifty to where there is but one. Every farmer might keep them; every citizen that has a small yard, might keep them; they can be kept in an upper room or loft by keeping the windows open; the roof of a building is not a bad place to keep them, in this case they need a short board on the top of each hive, with a stone or brick to keep it on, to keep the sun and water from the top of the hive. Several bushes should be erected upon the roof, or fastened to the sides of the window if they are kept in a room, for them to light upon when they swarm,

Directions for those that are unacquainted with bee-keeping. To purchase a hive of bees, place it where they are designed to stand, (this I would recommend to be done in the spring,) select a hive well stocked with bees, a two year old swarm would be advisable, little or no attention will be necessary until they begin to show indications of swarming, which will be in June, by laying out, i. e. in great clusters, outside of the hive, which they generally do ten or fifteen days before they swarm; when this is discovered, hives are to be prepared, such, if you please, as will hereafter be described as being the most advantageous. The bees are to be watched from 10 o'clock, A. M., until 3 P. M., which is the usual time in the day for them to swarm; when they swarm, they come out of the old hive with admirable and astonishing speed; they always light upon something, a bush, a bough, a tree, a post, a fence, a weed, or a plant, and sometimes, if it is windy, even upon a turf on the ground in a body; oftentimes as large as a water pail. If they are on the ground, set the hive over them, and they will soon go into it; if they are on a bush or a bough, cut it off carefully, holding it steady, carry it where you want the hive to stand, lay it upon the bottom board in front of the hive, they will go in speedily if the front be raised an inch; or if they light upon a fence or post, or the trunk of a tree, the hive may either be placed just above them, and they routed with a stick, or the hive placed beneath them bottom upwards, and they brushed off into it with a wing or broom, and then place it upright upon the bottom board, and as soon as the bees get settled, the hive should be let down to the bottom board, and placed where they are to stand, immediately before they go out to work; they ought not to be placed too near the old hive; swarms ought to be four feet apart. The second swarm may be expected in twelve days after the first; the third and fourth, if they swarm so much, within fifteen days, they sometimes swarm twice in one day, in consequence of hatching many young queens. The first swarm gives no previous symptoms, only by laying out; but after the first, you may have knowledge a day or two previous to their swarming, by listening in the evening near the hive; for there always may be heard, two and sometimes three days before swarming, a sharp, shrill sound, above, and entirely different from the humming of the common bees: this must be the young queens', of which the second and third swarms have a number; but the first swarm never has but one.

A DESCRIPTION OF PECULIAR HIVES.

As to hives, they ought to be so constructed that an addition can be put to them when it may be thought best. The plan I would recommend, both for profit and convenience, is this: have the hives all made of a breadth and square, say fifteen inches inside, and five or six in height; the common top board, which every hive is to have, must be fifteen inches square, and put within and flush with the top of the side boards; each is to have sixteen holes bored through it at equal distance from each other, i. e. four in a row each way, and not smaller than 3-4 nor larger than 5-4 of an inch, in one side, which is for the front; let, again, be cut in the bottom of each hive, for the bees to pass through, half an inch in depth and three inches in length, let two sticks the size of a man's thumb, be crowded or sprung in crossing each other from corner to corner; these are calculated to be set one up-

on the other, &c., as occasion may require; the top one must always have a top board eighteen or nineteen inches square fastened upon it with a large screw well tallowed to prevent rust. After a swarm is put into one of these hives, and has it nearly full, an additional hive is to be put beneath them without a top, except the one with holes through it. I do not recommend adding before the middle of July: an addition generally prevents their swarming for that reason, and I think they had better not swarm later, for it weakens the old stock too much. When they have got three such apartments full, or nearly full, the top may be taken off in the spring or fall with safety; in such cases it is most generally destitute of bees, but if it is not, puff a little smoke under it as you raise it, which will make them flee in a hurry. A top is to be screwed on in the place of it, or, if you choose, place another hive in the room of it, or otherwise you can put four small boxes in place of it, (which had better be covered with another hive.) They may be of wood or glass, or, if you choose, glass globes, bottles, bowls, jars, tumblers, &c.; they may be taken off at any time when they are full, and empty ones put on, or the holes covered.

GREAT PRODUCTS IN OHIO.

Scioto Valley against the World.—N. W. Thatcher, Esq., Secretary of the Agricultural Society, has handed us the following statement. It contains striking illustrations of the fertility of our soil, under skillful culture:

"One hundred and fifty-four bushels of corn, actual liberal measure, was produced the present season on one measured acre of ground, selected from a field of twelve acres, all equally as good, on the farm of Mr. George Renick of this vicinity. Mr. Felix Renick produced eighty-five and a half bushels of oats on an acre of ground; the seed of which he recently brought from England. The oats weigh about twelve pounds to the bushel more than the common oats of this country. Mr. Daniel Madeira of this place, raised in his garden, Cauliflowers of most extraordinary size, measuring from 29 to 33 inches in circumference, and weighing three pounds ten ounces in one solid head. And a stalk of corn, in the garden of Mr. Peter Douglass, produced eight good ears of corn!"—[Chillicothe Adv.]

"Premium Corn."—The premium was awarded to Mr. Asabel Renick, by the Agricultural Society of Pickaway county, on Monday last, for the best acre of corn. "One hundred and fifty-seven bushels and one peck!" Let those who can, beat that. We learn from the President of the Society, that the corn was planted in hills, a little more than three feet asunder, and received no more than the ordinary cultivation. So much for Darby Creek bottoms. We were gratified to observe an increased interest in the Society, manifested on the part of the farmers of the county."—[Circleville Herald.]

Estimating the cost of culture at \$15 per acre, and the price of corn at fifty cents per bushel, the growers of the above corn crops realized a nett profit of \$62 per acre. We are not sure that the valley of the Hudson can compete with the valleys of the Scioto and Darby Creek, but we are sure that eighty bushels of corn per acre can be raised here, on proper corn ground, without extra expense; and this, at present prices, affords a profit of \$65 per acre.—[Cultivator.]

GOVERNOR'S MESSAGE.

TO THE SENATE AND ASSEMBLY.

Fellow Citizens—

You are entrusted with the legislative authority of the people of this state, at an auspicious period in their affairs. Whatever is essential to the full enjoyment of civil and political rights, is placed within their reach by the free principles of their government. In the dealings of a kind Providence with them, they are permitted at this time to enjoy, in a liberal measure, the blessings which contribute to individual comfort and public prosperity. To our admirable form of government, to the wisdom of past legislation, and especially to the favorable regards of the Sovereign Ruler of Nations, ought we, in humble gratitude to Him, to ascribe our happy condition.

Until within a few days, wherever we directed our view throughout this flourishing commonwealth, we saw only gratifying evidences of unexampled prosperity; but we have now to lament that a portion of our constituents have been recently visited by a severe calamity. A conflagration, unprecedented in the history of this continent, and rarely exceeded in the past ages of the world, has consumed many millions of property, and laid in ruins an extensive district of our commercial metropolis. Destructive as this calamity has been to the fortunes of individuals, and extensive as its influence may be upon the general prosperity of the State, let us not yield to the desponding belief that we shall not soon recover from its effects. Though the sufferers have lost their property, they have not lost every thing. Their enterprising spirit and irrepressible energies still remain: their business relations are suspended, but not dissolved: their character as honorable merchants, and their capacity for business, fortunately are possessions beyond the reach of the devouring element. With these possessions, aided by the advantages which it is reasonable to expect will be liberally offered to them, they will soon resume their wonted pursuits under favorable auspices, and in a short time, it is believed, repair their losses.

Notwithstanding the disaster which has befallen this portion of your constituents, you enter on your legislative duties when the general condition of the state is unusually prosperous; but these duties are not, in my opinion, thereby rendered less responsible or less difficult to be performed. A high state of prosperity, is not generally less fruitful than a season of adversity, in developments which deserve the attention of the legislature. Many defects in existing laws and institutions are then disclosed, which it requires the profoundest wisdom to correct. Such a conjuncture as the present, seems to be a peculiarly appropriate time for reviewing the course of past legislation, and making needful reforms; for looking forward, and preparing our systems for the future exigencies of the state. Relieved, as you are, from the labor of guarding against external dangers, or repressing civil commotions, your minds are left free to mark the progress, & consider the tendency, of our present establishments: to check the operation of evil principles before they have produced their bitter fruits, and to give a right direction and efficient action to principles of an opposite character.

It is to be feared that the constitutional provisions relative to our judiciary system, will not permit it to be so expanded as to meet the public wants. The vast increase of business in our higher courts has demonstrated their inadequacy, under their present organization, to discharge the onerous duties devolved on them; and something must therefore be done for the public relief. If this relief cannot be obtained by the modification of the existing courts, or an enlargement of the system on the present basis, then your attention should be directed towards procuring an amendment of the constitution. The importance of providing for a speedy administration of the laws, and the urgent demands for a system every way competent to this object, will, I trust, ensure some decided action on this subject at the present session of the legislature.

In a government like ours, which emanates from the people, where the entire administration in all its various branches is conducted for their benefit and subject to their constant supervision and control, and where the safety and the perpetuity of all its political institutions depend upon their virtue and intelligence, no other subject can be equal in importance to that of public instruction, and none should so earnestly engage the attention of the legislature. Ignorance, with all the moral evils of which it is the prolific source, brings with it also numerous political evils, dangerous to the welfare of the state. It should be the anxious care of the legislature to eradicate these evils by removing the causes of them. This can be done effectually only by diffusing instruction generally among the people. Although much remains here to be done in this respect, the past efforts of legislation upon the subject merit high commendation. Much has been already accomplished for the cause of popular education. A large fund has been dedicated to this object, and our common school system is established on right principles. But this is one of those subjects for which all cannot be done that is required, without a powerful co-operation on the part of the people in their individual capacity. The providing

of funds for education, is an indispensable means for attaining the end; but it is not education. The wisest system that can be devised, cannot be executed without human agency. The difficulty in the case arises, I fear, from the fact that the benefits of general education can only be fully appreciated by those who are educated themselves. Those parents who are so unfortunate as not to be properly educated, and those whose condition requires them to employ their time and their efforts to gain the means of subsistence, do not, in many instances, sufficiently value the importance of education. Yet it is for their children, in common with all others, that the common school system is designed; and until its blessings are made to reach them, it will not be what it ought to be. If parents generally were sensible of the inestimable advantages they were procuring for their children by educating them, I am sure the efforts and contributions which are required to give full efficiency to our present system, would not be withheld. If I have rightly apprehended the indications of public opinion on this subject, a more auspicious season is approaching.

At this time, a much larger number of individuals than heretofore, are exerting their energies and contributing their means to impress the public mind with the importance of making our system of popular instruction effective in diffusing its benefits to all the children in the state. I anticipate much good from the prevalence of the sentiment, that the efforts of individuals must co-operate with the public authorities, to ensure success to any system of general education.

The press, that powerful engine in moving and controlling public opinion, is at this time, and more so than formerly, directed to this subject, and it will undoubtedly have a salutary influence in advancing the cause of popular instruction.

The difficulty of supplying the district schools with competent teachers, has presented the greatest obstacle to the complete success of our system. A beginning has been made with a view to the removal of this obstacle. A separate department for the instruction of common school teachers has been established in one of the principal academies in each of the eight senate districts of the state, and public funds have been appropriated towards the support of these departments. That this measure cannot be otherwise than highly beneficial to the common schools, may be confidently anticipated.

The law of the last session of the legislature, authorizing the inhabitants of each school district to impose a very light tax upon themselves for the purpose of providing a district library, is a measure well calculated to aid the cause of public instruction. I have not the means of knowing to what extent the districts have acted under it, but I sincerely hope that they are generally disposed to avail themselves of its wholesome provisions, and to commence establishments from which it is reasonable to expect beneficial results. Although this matter is left at the option of the several districts, yet the usefulness of such libraries, is sufficiently obvious to induce a belief that the law will have nearly the same effect as if it had been made obligatory on them to use the powers it confers.

Reports have been received for the year, 1834, by the Superintendent of Common Schools, from all the towns and the wards in the State. The number of school districts therein is ten thousand one hundred and thirty two. And the number of children five hundred and forty-three thousand and eighty-five, of whom five hundred and forty-one thousand four hundred and one have received instruction in the common schools. The public monies distributed to these schools amount to three hundred and twelve thousand one hundred and eighty-one dollars and twenty cents, including the one hundred thousand dollars derived from the income of the common school fund, and eighteen thousand six hundred and twenty dollars and ninety-two cents from local funds belonging to particular towns. The residue was raised by taxation on the property of the several towns and cities. A further sum of about four hundred and twenty thousand dollars was also paid by the inhabitants of the several districts. The aggregate amount of these sums, seven hundred and thirty-two thousand one hundred and eighty-one dollars and twenty cents (except a few thousand dollars expended in the city of New York upon school houses), was paid for teachers' wages. The whole amount of expenditures on account of common schools in this state for the year 1834, was at least one million three hundred thousand dollars.

Our academies and seminaries of learning are objects of great public interest, and worthy of the fostering care of Government; particularly so in regard to their agency in supplying to some extent the demand for common school teachers. There are many of high character and extensive usefulness, that are not under the supervision of the regents of the University, and consequently receive no aid from the literature fund. I have not the means of ascertaining their number or their particular condition. There are sixty-eight academies subject to the visitation of the regents, and all but five of them made reports to the regents last year. The whole number of students receiving instruction in them at the date of these reports, was five thousand two hundred and ninety-six; the amount of tuition paid by them in 1834, was seventy-three thousand four

hundred and seventy-two dollars; and the real and personal property owned by these academies, including philosophical apparatus and libraries, amounted to five hundred and seventy-one thousand four hundred and seventy dollars.

There are seven colleges in this state, including the two medical institutions. Hamilton and Geneva colleges have had to struggle with difficulties for want of a more liberal endowment. The plan of the University of the city of New York, is, in many respects, similar to that of the most extensive universities on the continent of Europe, and contains arrangements for imparting instruction on many other subjects than those usually embraced in the ordinary collegiate course. This institution is in its infancy, and many parts of its plan are not yet put in execution. It is, however, reasonable to hope that it will in due time fulfil the expectations of its founders. Columbia and Union colleges are both in a very flourishing condition.

Our penitentiaries continue to present very favorable results. The number of convicts in the Auburn prison is a very little larger than that of the last year. The number in the Mount Pleasant Prison has been very much reduced. On the thirtieth day of September last, it was forty-five less than on that day in the previous year, and the number received in 1835, from the counties that are required to send their convicts to this prison, was also forty-five less than was sent from the same counties in 1834. The whole number of convicts in both prisons on the first of December last, was one thousand four hundred and fifty-one.

The earnings and profits of the Auburn prison, during the last fiscal year, exceeds the expenses for general support and ordinary repairs, seven thousand three hundred and eighty-eight dollars and thirty eight cents. Of this sum, there have been expended on buildings and for machinery, in payment of fees to sheriffs for transporting convicts, under the act in relation to the State Prisons, passed at the last session, and for expenditures on a few other unusual objects, five thousand six hundred and fifty-six dollars and ten cents. The officers of the Auburn prison estimate the sheriff's fees, which by that law are to be paid from the earnings of the convicts, at more than seven thousand dollars, and they are apprehensive that this additional charge upon, and the diminution of, the income, which will result from that law, will make an appropriation from the treasury to some extent necessary to defray its expenses.

Creditable as this statement is to those who have managed this institution, the prison at Mount Pleasant presents still more successful results. The moneys received for the earnings of the convicts in this establishment, including ten thousand dollars for work done for the State, for which payment has not been required, amount to eighty-five thousand one hundred and sixty-four dollars and forty-two cents, and the expenses for general support have been only fifty-six thousand three hundred and sixty-one dollars and six cents. It should be recollected that this prison defrays the expense of supporting the female convicts. After deducting the sum paid for this object, and for building materials, which together amount to five thousand five hundred and ninety-six dollars and twenty nine cents, the surplus earnings of this prison for the past year are twenty-three thousand two hundred and seven dollars and seven cents.

When the old contracts shall have expired, the new direction which the law of the last legislature gives to the labor of the convicts, will undoubtedly cause a considerable reduction in the amount of their earnings. The officers of these prisons have, as by this law they are required to do, given their attention to the subject of introducing the manufacture of silk, but not much has yet been done towards effecting it. The expense attending the introduction of this kind of manufacture, will be so great, that I fear it cannot be done in a manner to ensure its success, without an appropriation for this object from the treasury. In relation to the Auburn prison, such an appropriation will be indispensable. The officers of both prisons have, pursuant to the late law, begun to cultivate the mulberry, and have already about fifteen hundred trees growing on the state property adjacent to the prisons.

With the exception of the varioloid, which prevailed among the prisoners at Mount Pleasant for a short time last spring, the inmates of both prisons have enjoyed more than a usual degree of health, and have conducted themselves in an orderly manner.

I am fully persuaded that if better means were provided for punishing petty offenders in a proper manner, the number of crimes which are punishable by labor and confinement in the state prisons, would be greatly diminished; and with a view to effect this desirable object, I have repeatedly called the attention of the Legislature to the condition of our county jails. Referring you to the remarks in my former messages on this subject, I again present it as worthy of your favorable consideration.

In the course of the present year, the laws making most of the appropriations to the two institutions for instructing the Deaf and Dumb, will expire. The charter of the asylum located in the city of N. York, will also expire in 1837, and that of the Central Asylum in a few years thereafter. I presume that it will not be within the views of the legislature to withdraw

the public patronage from this unfortunate class of our fellow citizens, or to suffer these valuable institutions to go out of existence. They have both fulfilled public expectation. The New York Institution is, in all respects, one of the best in the country. The approaching events to which I have alluded, render it necessary for you to give your attention to this subject at the present session. The policy of consolidating them, and making a single institution, adequate to the wants of the whole state, is respectfully submitted to your consideration.

With the fullest conviction that it is the duty of the government, to give to the insane, and especially to the insane poor, for whom as yet comparatively little has been done, the benefit of a proper institution, I most earnestly call your attention to the subject. In my annual message of 1834, I presented my views of the strong claims which this forlorn class of our fellow beings have upon the legislature for its assistance, and the great public and individual advantages which would result from a well regulated institution of this kind. To these views I refer you, with an urgent request that you will not suffer this session to pass, without satisfying a claim supported by so many and such powerful considerations.

It is now ten years since the discontinuance of the State tax. The General Fund then accumulated, with an inconsiderable income from other sources, besides paying two hundred and ninety four thousand one hundred and eleven dollars and sixty-nine cents for the support of the lateral canals, and many large appropriations for other objects, has sustained the ordinary expenses of the government far beyond the period anticipated when the state tax was discontinued. This fund is now not only exhausted, but the state at the end of the last fiscal year, was in debt to other funds for the current expenses of the treasury, four hundred and six thousand and sixty-eight dollars & ninety seven cents.

In consequence of the recent amendment of the constitution, the income from auction and salt duties, after July next, will be paid into the treasury of the state to the use of the General Fund. If this fund were relieved from the support of the lateral canals, the receipts of the present year, in the opinion of the Comptroller, would be nearly adequate to the ordinary expenses of the government. The amount required for those canals, increased as it will be by the Chenango canal, will, I hope, be provided by some system of finance applicable to internal improvements generally; but if it should not be, I trust the ability of the treasury to meet these demands will not be supplied by the generally and justly condemned policy of borrowing money for that purpose, without, at the same time, providing a revenue sufficient ultimately to pay both the interest and principal of the debt.

The productive capital of the Common School Fund is one million eight hundred and seventy-five thousand one hundred and ninety-one dollars and seventy-one cents. Its income during the last fiscal year was one hundred and thirty-four thousand dollars. This income exceeds the estimated amount about twenty-six thousand dollars, and is considerably larger than it will be in future years. It will not, however, fall in any year much short of one hundred and ten thousand dollars. The distribution to the common schools may therefore be permanently raised to one hundred and ten thousand dollars annually, as soon as an apportionment can be made under the census recently taken.

The Literature Fund is two hundred and sixty-five thousand three hundred and forty-two dollars and eighty-seven cents, and produced an income last year of fifteen thousand seven hundred and thirty-six dollars and twenty-five cents.

The Bank Fund at the close of the fiscal year, was four hundred and seven thousand and ninety-four dollars and ninety-nine cents, and the payment due on the first instant will add to it one hundred and thirty thousand dollars.

The great importance of internal improvements is conceded by all; and the claims of the several parts of the state to participate in them, so far as they afford capabilities and offer advantages, cannot in justice and fairness be contested. I have repeatedly expressed my anxious desire to have the state progress in the career which has been so honorable and advantageous to it.—I have described the character of such works as, in my opinion, should be executed by the state, and directed the attention of your immediate predecessors to those particular undertakings which seem to be most earnestly desired by our constituents. For a full exposition of my views on all these points, I take the liberty to refer you to my previous communications to the legislature. I have not been without apprehensions, and I still entertain them, that internal improvements cannot be long prosecuted on an extensive scale, unless sustained by a wise system of finance. No new work can be executed without using the public credit, and however high that credit is at this time, it cannot be liberally used and long upheld without some financial arrangement that will inspire confidence at home and abroad. If we look at the works undertaken in this State since the commencement of the Erie and Champlain canals, or at those in other States, as furnishing the means of an enlightened judgment, we ought not to conclude that any great enterprise of this kind now in contemplation, will, at its completion, or within any short period there-

after, yield a sufficient revenue to defray the expenses of its maintenance, and pay the interest on the debt contracted on its account; nor is it necessary, according to the views I have heretofore presented on this subject, that such a result should be anticipated from any proposed public work to warrant your favorable action upon it. But a work that does not produce such a result will impose a burden which must be sooner or later discharged. To suppose that your constituents require you to engage in the construction of any public work, and at the same time decline to bear that portion of the burden of it which fairly belongs to them, is not doing justice to their good sense and intelligence.

I have heretofore expressed, and I deem it appropriate now to repeat, my regret that we have departed from the wise system in relation to finance under which our first public works were commenced, to the evident detriment of the general cause of internal improvements. The improvident practice of borrowing money without providing available funds for paying the interest, has already been carried to a point beyond which it cannot be pushed without producing serious mischief. That this practice has not yet impaired our public credit, is to be ascribed to the fact that heretofore the treasury has been in a situation to meet the demand for the interest without relying, to any considerable extent, on loans for that purpose; but that can be done no longer. On a part of the debt already contracted for internal improvements, the interest can only be paid by new loans, unless you resort to taxes of some kind; and such will most certainly be the case in relation to any additional debt you may create. The surplus revenues of the Erie and Champlain canals cannot be applied to this object within nine years, and after the expiration of that period only to a limited amount, if at all, for several years thereafter. These revenues are by the constitutional pledge, placed wholly beyond your reach until the year 1843, and all but the annual sum of three hundred thousand dollars is already appropriated during twelve years at least, for the enlargement of the Erie and Champlain canals.

This condition of things is not presented for the purpose of discouraging your efforts in the cause of internal improvement, but because it is a difficulty that inseparably belongs to the subject, and if not removed, will greatly impede our onward course.

The suggestion, that we are to discontinue this system, will not, I confidently trust, be heard from any quarter. Yet very few, I should hope, would advocate the reckless policy of contracting a debt, even for such an object, and constantly and rapidly accumulating it by loans to pay the interest. I am sure our credit would ere long sink under such a policy. If at a period of unusual prosperity, with resources most abundant and unincumbered, with no demand for extraordinary expenditures on objects which can never be productive, the people are unwilling to submit to any burden whatever for the purpose of providing even for the interest on the debt they are creating for substantial and enduring improvements, conferring on themselves direct and incidental advantages, what good reason can be given to those who have capital to loan, to induce them to believe, that our successors will promptly pay, not only what is properly left for them to pay, but also that which in justice and good faith should have been paid by us?—Can we with propriety ask capitalists to put faith in our contracts on the ground that the people in some future age will do what we decline to do, burden their resources to pay the interest which in our time we suffered to accumulate on the debt we had contracted?—Can we claim the continuance of public confidence on the assumption that a future generation will take better care of public credit than we are willing to do?

There is another point of view in which this policy appears to me to be extremely objectionable. It violates the great principle of justice in regard to future generations. I must not be understood to maintain the position that the people of the present day should furnish the means of reimbursing the loans that they may make for the purpose of internal improvements. These improvements will be left for the benefit of future ages, and I see no injustice in transmitting to them the obligation to contribute a fair proportion towards the expenses. But we also derive great and immediate benefits from such works; and a portion of these expenses, should, therefore, be paid by us. If we borrow the money to defray them, and also borrow to pay the interest on the debt, we take the benefits without the burden. On the supposition that a public work does not for 15 years produce an income more than sufficient to keep it in repair, the debt contracted for its construction will at the end of that period be doubled, if it be increased by loans to pay the interest. Those who at that time have the benefit of such an improvement, will take it encumbered with a debt amounting to twice the sum that it would cost them to make it for themselves. We should reflect, that if we prosecute public works with vigor, we shall not accomplish all that is to be done. Each successive age will doubtless be an age of improvement in this respect, and the people of each will be required to contribute from their means to such objects. I fear we are not sufficiently conscious of the peculiar felicity of our own times, if we indulge in anticipations that those which are to succeed will, like the present, be wholly exempted from the foreign wars and domestic troubles which wither the energies and impair the resources of nations; that Providence will

be as liberal in its bounties to our successors as it has been to us; and that our civil and political institutions will, at all times hereafter, exert the same benign influence as they do now upon the public welfare. We cannot reasonably expect that any future generation will be more willing or more able than we are to bear public burdens, an I can conceive of no reasons that can justify us in transferring to them any part of the share of such burdens that should be borne by us.

If you concur in these views, you will regard it as your duty to provide a certain revenue that will at least be sufficient to pay the interest on the public debt already created, for which no provision is now made, and also on any additional debt you may authorize to be contracted. This can be done by augmenting the receipts into the treasury, so as to leave a surplus, after paying the ordinary expenses of the government and other appropriations, fully equal to the amount that may be required to pay the deficit of interest on the public debt; or by an explicit and effective appropriation of the future surplus revenues of the Erie and Champlain canals. The occasion seems now to require you to determine the grave question, whether the surplus revenues of these canals shall or shall not be appropriated to the support of other works of internal improvement. The Oswego, Cayuga and Seneca, the Crooked Lake, and Chemung canals, are all in full operation; and we have already drawn from the public treasury for their support, two hundred and ninety-four thousand one hundred and eleven dollars and sixty-nine cents, beyond the income received from them.—The Chenango canal will much increase the amount required from the treasury for the support of the lateral canals. The treasury is entirely exhausted, and you are therefore required to provide for the support of these canals, and to pay the interest on the debt contracted on their account for the present year, more than one hundred thousand dollars. If you do not, and I trust that you will not, provide for the payment of this sum by a further loan, and thereby increase the existing debt without pledging a revenue sufficient to pay it, you will then have only the alternative of levying a tax of some description to raise a sufficient revenue for this purpose, or of borrowing on the specific pledge of the surplus revenue from the Erie and Champlain canals. If the sum of three hundred thousand dollars of the surplus revenue from these canals, reserved by the law providing for the enlargement of the Erie canal, is left without such a pledge, there will be no certainty that it will be applied to pay the debt, which must, without taxation, be accumulated to support the other canals. It therefore seems to be necessary that you should determine, at this present session, the question of appropriating the surplus revenues of the Erie and Champlain canals to sustain and carry forward other works of internal improvement.

It is estimated by the Commissioners of the Canal Fund, that the deficit in the revenues of the lateral canals, will be one hundred and twelve thousand three hundred and twenty-eight dollars and thirty-seven cents for the present year. The same state of things will exist in subsequent years, and the amount of the deficit will be increased with the increase of debt for new works. I am persuaded that the dictates of an enlightened policy will urge the establishment of a distinct system of finance applicable to this subject, whereby a fund will be provided adequate in amount at least to satisfy the demands for interest on the debts that are and may be created, and all other expenses, except the reimbursement of the principal borrowed for the construction of public works. I particularly recommend the adoption of such a system, because I am convinced it will have a salutary influence on the general cause of internal improvement.

I have received a communication from the president of the Board of Directors of the New York and Erie Railroad Company, together with other documents relative to the extensive and useful enterprise they have undertaken. As the principal documents have been heretofore printed, I presume they are in the possession of the members of the legislature; and I have not therefore transmitted them with the accompanying letter of the president, to which I refer you for information respecting the proceedings and views of this company. It appears by the communications I have received, that the subscriptions to the stock already obtained amount to two millions three hundred and eighty-two thousand one hundred dollars; and that more than twenty-seven thousand dollars had been expended, principally for surveys, previous to the first of October last. Since that time, forty and a half miles have been put under contracts about fourteen per cent below the estimated expense, and the company entertain a confident opinion that the whole work will be executed and put in operation for six millions of dollars. The magnitude of the undertaking, the public benefits it will confer, and the deep interest felt by the inhabitants of the section of the state through which this extensive line of communication is to pass, will induce the company again to ask the aid of the legislature. The mode and amount of the assistance which the state ought to contribute towards the accomplishment of this work, will deserve your mature consideration, uninfluenced by any other views than such as are inspired by a comprehensive regard for the public good.

The canals continue to increase in productiveness. The total amount of tolls collected on them during the

year ending the 30th of September, was one million four hundred eighty-five thousand seven hundred and seventy-five dollars and nine cents. The income from the tolls and all other sources of revenue during the year, was one million nine hundred and sixty-two thousand five hundred and twenty-three dollars and twelve cents. The disbursements for repairs and collection of tolls for the same time, were five hundred and five thousand seven hundred and eighty-eight dollars and seventy-eight cents, and the entire expenses on all accounts, including the interest of the canal debts, amounted to eight hundred and thirty thousand three hundred and fifty-three dollars and sixteen cents.

In January, 1833, the debt created for the construction of the Erie and Champlain canals, was a little more than seven millions, a part of which was reimbursable at the pleasure of the government after July, 1837, and the residue after July, 1845. At that time the Commissioners of the Canal Fund began to purchase and cancel the stock of this debt. On the 30th of September last they had paid out for this purpose, nearly three millions of dollars, and yet had a surplus of the fund on hand amounting to three millions four hundred and six thousand eight hundred and nine dollars and seventy-two cents. By the first day of July next, the surplus will be quite sufficient to extinguish that debt, which is now four millions three hundred and forty-nine thousand six hundred and thirty-four dollars and eighty-five cents. If such should be the case, the income derived from auction and salt duties, will then be transferred by the recent amendment of the Constitution, from the Canal fund to the treasury for general purposes.

Pursuant to the directions of the law, passed at the late session of the legislature, the Canal Board has settled the plan for enlarging the Erie canal. According to this plan, the canal is to be made seven feet deep and seventy feet wide on the surface of the water. All improvements now required on the line of this canal, will be made with reference to its enlargement. Measures have already been taken to change the location of the aqueduct across the Genesee River at Rochester, and to construct the new one on this principle.—When this canal is enlarged according to the proposed plan, it is presumed that boats carrying one hundred tons of freight will pass on it with facility. No very accurate estimate has yet been made of the expense of this work; but it will probably exceed twelve millions of dollars, including damages for individual property which must be taken for that purpose.

The amount of the appropriation for this work will not probably much exceed one million dollars annually; it will not, therefore, be completed in less than twelve years.

Notwithstanding the business has increased on the Oswego, Cayuga and Seneca, Crooked Lake and Chenango canals, the tolls have not been sufficient to defray the expenses of collection and repairs, and pay the interest on the debts contracted for their construction. For the year ending on the 30th September, the deficiency in the revenue to meet these expenses, was forty-four thousand four hundred and sixty-four dollars and thirty-nine cents, which has been paid out of the treasury.

Unforeseen difficulties have retarded the work on the line of the Chenango canal, and apprehensions are entertained that it will not be entirely completed during the next season. Great care has been taken to construct this work so as to give it permanence, and the expense of it will probably exceed the present appropriations, which amount to one million eight hundred and sixty thousand dollars. No fund whatever, except the premium on the loans, has been provided for the payment of interest on this debt, that can be available till after July, 1845. The premium on the first loan of one million of dollars has been already exhausted, and that which may be received on the loan of eight hundred and sixty thousand dollars, will not probably be sufficient to pay the interest on that portion of the debt for more than two years. You ought, therefore, to make provision for paying the interest on the million loan, and eventually on that of eight hundred and sixty thousand dollars. It is now anticipated that after the canal is completed and in full operation, the necessity of such a provision will be superseded.

Goods usually arrive through the Canal at Buffalo in the spring, destined for the country farther west, several days before the lower part of Lake Erie is clear of ice. This occasions delay in forwarding them on, and has a tendency to divert the trade to the west from our channel of communication. It is worthy of your consideration, whether the inconvenience and injury arising from this cause is not of sufficient magnitude to make it a measure of good policy to extend our present line of internal communication from Buffalo to some point on the shore of Lake Erie, where the lake would be likely to be free from ice as early in the spring as the navigation of the canal may be opened.

I have heretofore expressed my decided opinion against the policy of legislating on subjects that needlessly interfere with the ordinary pursuits of our fellow citizens. These pursuits should be left wholly unembarrassed by any regulations whatsoever, except such as are obviously required to prevent abuses and promote some manifest public good. I recommend that you should entirely abstain from granting charter privileges, to be used in transacting such kinds of business as are

prosecuted by individuals, and which can be conducted as well by them as by incorporated companies.—The association of capital for such objects with corporate privileges, subjects individuals engaged in the same or similar pursuits, to an unfair and injurious competition.

In regard to incorporations of a more general character, the public necessities and the public interest will indicate your duties, and beyond what these considerations demand, you will not, I presume, feel any inclination to multiply them.

In my last annual message, I communicated my views in relation to corporations which have a connection with, and an influence on, our currency, and so far as those views apply to the present condition of the state, I wish to be considered as presenting them again to the legislature. You will be solicited to add an immense amount to the banking capital of the state, at the present session. Notices have been already published of intended applications for ninety-three new banks, with capitals, including the increase to those of the existing banks, to the amount of more than fifty-seven millions of dollars. It is said, and I doubt not, generally believed, that the present banks are unable to afford the necessary accommodations which the increased and rapidly increasing commerce and business of the country demand. Before you undertake to supply this want of capital by legislation, you will doubtless satisfy yourselves of its actual extent, and investigate its real causes. If it shall be found, as I think it will, to arise, in a great measure, from a state of things that cannot probably long endure, and ought not to be upheld by you, so far, at least, you will be bound to withhold the proposed aid. There can be no mistake as to the fact, and it should not pass unnoticed, that an unregulated spirit of speculation has within the last year prevailed to an unprecedented extent. Our citizens, who have been influenced by this spirit, have not confined their operations to objects within our own state. They have made large investments in other sections of the Union. These operations have required something more than the use of our circulating credits. The amount of capital that has been thus transferred from this state, to others, cannot be ascertained with any degree of accuracy, but it must be very great. These transactions, large as they have been, bear no comparison to the enormous speculations in stocks, and in real property, within our own state.

The vacant land in and about several of our cities and villages, have risen in many instances, several hundred per cent. and large quantities of them have been sold at prices which seem to me to have been produced more by the competition of speculation, than any real demand resulting from the increase of our population and actual prosperity. That the sudden rise in the price of these lands, is ascribed to the true cause, is evident from the conceded fact, that most of them have been purchased, not for the purpose of being occupied by the buyers, but to be again put in market, and sold at still higher prices. No estimate can be made of the amount of these transactions; but a conjecture may be formed as to the extent of the sales, from the fact that a single auctioneer in the city of New York sold real estate during the year ending on the 30th September last, to the amount of more than twenty millions of dollars; and the character of these sales is indicated by the further fact that about eleven millions of this property was sold on the bid made by or for the owners. It is proper that I should remark, that the speculations in real property in this state, have not been confined to city and village lots, but have extended to farms and wild lands.

I presume it will not be denied that a very considerable portion of capital has been devoted to these speculations in lands and stocks. I have deemed it necessary to allude to these transactions, with a view to lay open the true causes of the alleged deficiency of capital to subserve the purposes of commerce, manufactures, and the other pursuits of the productive classes of our fellow citizens, deeming it very important that these causes should be well considered before you attempt to apply a remedy—particularly such a remedy as is asked for—an unexampled extension of our credit system.

It cannot, I think, be denied that a large amount of capital has been sent out of the State to subserve the purposes of foreign speculation. This is undoubtedly one cause of the want of sufficient capital to transact our ordinary business. It is not less true, I apprehend, that the existing banks have, to some extent at least, lessened their ability to accommodate persons employed in regular business pursuits, by affording assistance to those who are embarked in these speculations.—This is another cause of the present want of banking facilities. But the main cause of this want, which now presses so severely on our fellow citizens, is less obvious, but not the less entitled to your consideration. The passion for speculation pervades to an extent heretofore unknown, not only among capitalists, but among merchants and traders. The funds of these capitalists have been withdrawn to some extent from situations in which they afforded accommodations to business men, and they have consequently been obliged to press upon the banks to supply this deficiency in their means. Merchants and others, have abstracted from their business a portion of their capital, and devoted it to speculations in stocks and lands, and have then resorted to the banks for increased accommoda-

tion. To these causes I ascribe most of the embarrassment now felt for the want of sufficient bank facilities to conduct successfully our ordinary business concerns. The proposed remedy, judging from the applications, is to double the present number of banks, and nearly to treble the amount of banking capital. Before you apply this remedy, in whole or in part, you ought to be well satisfied that it will remove the difficulty, and that the use of it will not leave us in a worse condition than we are at present.

If the passion for speculation has engrossed the pecuniary resources of the state to such an extent as to interfere with the strong claims that commerce and trade have upon them, is it not to be apprehended that it will appropriate to itself a large portion of any additional accommodations you may provide for those and other branches of business? If I rightly apprehend its character, it will not be likely to abate while it can find means for its gratification. I am well aware that this spirit of speculation cannot be restrained by direct legislation; but you should be careful to avoid encouraging or sustaining it even incidentally by any measures you may deem it expedient to adopt for the purpose of repairing the injuries it has done to the business concerns of the state.

I do not doubt that the increase of commerce and manufactures among us has rendered more bank accommodations desirable, and that this cause has had very considerable influence in producing the numerous applications about to be presented to you; but I cannot give my assent to the proposition which the advocates for banks will urge as the rule for your action on this subject, that the increase of banks should be in proportion to the increase of business. This proposition assumes that whatever be the situation of the country as to the quantity of actual capital, the agency of banks is equally necessary, and the amount of accommodations required from them must be in proportion to its business transactions. It certainly cannot be true that a large capital, requires the same accommodations from banks as one doing an equal amount of business with little or no capital.

What is true in relation to individuals, thus differently situated, must be true as to the whole community at distinct periods, when circumstances have made a like difference in its conditions. When banks were first established in this state, and for some time thereafter, the amount of monied capital was small compared with the quantity of business that required the use of it. Banks were then chartered, not merely for performing the ordinary functions of such institutions—to furnish the public with a proper medium of circulation convertible into specie—safe places for deposits—facilities in transmitting funds to concentrate the floating capital at home, invite its introduction from abroad, and place it in a situation where it could be used more efficiently for the purposes of trade. Since that period we have had a long course of prosperity, our wealth has rapidly increased, and a capital has flowed in upon us from other countries. I cannot, therefore, adopt the conclusion, that there is at this day the same disproportion between the amount of monied capital and the quantity of business, that existed when the policy of the banking system was first adopted, and for some time thereafter. The conclusion would, in my judgment, be somewhat derogatory to the capacity of our citizens for business, and present their condition as much less prosperous than it is confidently believed to be. But if fortunately this conclusion be correct—if we have not in fact the amount of capital that our apparent condition implies—if our gigantic business concerns are principally sustained and carried on by a system of credit, and the system is wholly dependant for its stability upon our banking institutions, you will act on this subject under a fearful responsibility. A material error on your part would probably lead to results fatal to our general prosperity. All measures which you may adopt, affecting the currency or public credit, should regard particular interests as far only as they are subservient to the general good; they should be such as not merely to afford accommodations and facilities in prosperous times, but to secure confidence in our monied institutions in the most trying season of adversity, and enable them to withstand the rude shocks of pressure and panic. It is true that our present institutions have been severely tried, and they sustained themselves in a most alarming crisis; but, if their number had been much larger than it was, and credit and circulation proportionably extended, it is by no means certain that such would have been the result.

We have had too much and too recent experience of the sensitiveness of public credit and public confidence in monied affairs, not to have learned many useful lessons on this subject, and it is the part of wisdom to profit by them. We know how many and what slight causes affect them. The credit which sustains our paper currency rests on the belief that the banks have the ability to redeem in specie their bills in circulation, whenever payments are demanded. On the other hand, the banks must have confidence in the borrowers to make prompt payment, or they will withhold their usual accommodations, and a derangement in business will be the necessary consequence. Their ability as debtors depends on their security as creditors. In times of prosperity, there is a mutual confidence; there will then be a demand for large accommodations, and banks will grant them to the full extent allowed by their charters. A

change of times, or even what appears a capriciousness in public opinion, brings with it a mutual suspicion, and its concomitant evil, a pecuniary pressure. Overtrading at home and abroad; an unusual expansion of our credit system; over issues of paper currency; extravagant speculations, and extensive gambling in stocks—speedily followed by reactions; a derangement in our circulating medium; embarrassment in trade; and numerous bankruptcies, are the inevitable consequences.—The impulse and accelerated movements given to our business in the first stages of this progress, are a very inadequate compensation for the many evils which attend its termination.

We do not want more banks to supply us with a paper currency, for we have enough of that already; more would not make it better, and might make it worse. It can scarcely be said we want an increase of them for places of deposit; for we have now all that are required for that purpose. New banks do not of themselves, in any case, create capital; and under our present circumstances, they would not, as I apprehend, be the means of introducing any considerable amount of foreign capital. I therefore consider the multiplication of them to be a measure of very questionable policy, in regard to the general and permanent welfare of the state.

After a due consideration of the views I have now presented, and those in my former messages, as well as others that your own reflections will suggest, adverse to the multiplication of banks, and a large increase of banking capital, if you should come to the conclusion that these objections are outweighed or overruled by arguments of a different character, and that the public interest requires you to give your sanction to any of the numerous applications for new banks, or the increase of the capital of those now chartered, I indulge the hope that the number will be very small. I cannot believe that you will give heed to any of these applications, so far as they are supported only by the expected advantages to be conferred on individuals in the distribution of the stock, or by the accommodations they may afford to carry on new speculations, and sustain the factitious state of things, resulting from past transactions of this character. Nor will you look, I presume, with much more favor on those applications which are urged, not so much on the ground of a want of facilities to conduct the present business, as on account of the agency it is assumed such institutions will have in creating new business.

These considerations being laid aside, if the actual demands of business—I mean only such business as banking facilities are most appropriately designed to subserve—shall prevail with you to extend these accommodations, you will, I trust, be careful to dispense them only to places where these demands are most imperious.

I perceive, among the numerous applications of this nature to be presented to you, several from the banks of the city of New York for an increase of their capital. In addition to the common and more general considerations which will apply with more or less force to all the applications for augmenting the amount of banking capital, a somewhat peculiar reason will be urged in favor of those emanating from these institutions. The branch of the U. S. Bank, in the city of New York, will cease its operations as a bank, on the fourth March next, and there will be due to it eight or nine millions of dollars. If the payment of this large sum should be immediately exacted, it would undoubtedly produce very considerable embarrassment. The banks in New York are so extended that they will not be in a situation to afford such accommodations to the debtors of the branch, as will counteract the effects of a sudden call on them for the payment of this large debt. If the evils which may ensue from this emergency are likely to be of such a character as to require any action from you to mitigate them, one, more suited to the circumstances of the case would be preferable to the permanent increase of the capital of these institutions. If the Bank of the United States should be disposed to do with the branch in the city of New York, what it has done in relation to most of its branches—transfer the debt; such banks as may unite together to purchase this debt, or such as should take any portion of it, might have their ability temporarily enlarged so as to enable them to do so, and gradually call it in, without withdrawing any considerable part of the accommodations which they now extend to their customers.

I am aware that a considerable increase of banking capital is contemplated by many as among the means of alleviating the distress resulting from the calamitous visitation which has recently befallen the city of New York. It is due, alike to the numerous sufferers upon whom this visitation has fallen with severity, and to the citizens of the whole State, whose interests are more or less affected by it, that you should act promptly and efficiently in administering relief, and I do not doubt you will do it in the largest measure and most effectual way

you can devise; but this is an event which I trust will produce only temporary embarrassments, and it should not therefore, be permitted to change, in an essential manner, a general system of policy in relation to our currency. So far as I am made acquainted with the views of the inhabitants of that city, they mean to rely in this great and pressing emergency mainly on their own resources—resources, which in themselves exceed those of almost any State in our confederacy. The real and personal property in the city of New York, according to the valuation of last year, exceeds two hundred and eighteen millions of dollars; it is more than double what it was in 1825, and more than two-thirds of the amount of the valuation of all the taxable property of the whole State, including that city, ten years ago. This immense wealth must give the city of N. York undoubted credit wherever and whenever she may choose to use it; yet if the objects to be attained by resorting to it in the present crisis, could be more effectually accomplished, or, in any respect, accelerated by adding to it the credit of the State, this should be done without hesitation.—When the individual resources of a large number of our fellow citizens are impaired by a sudden devastation, or exposed to imminent peril by a strangely adverse course of events, to such a degree as to threaten injurious consequences to the general welfare, it is unquestionably the duty of the Government to put in requisition the resources of the State to sustain them. The great losses which have fallen on the Insurance Companies in that city, have suspended the operations of most of them, and new incorporations of this description will probably be wanted. The public interest requires that their capitals should be large, their risks widely distributed, and their proceedings subjected to an occasional examination by persons to be selected by the court of chancery, or commissioners appointed by the legislature.

The act passed at the last session of the Legislature, prohibiting the circulation of small bills, has begun to operate on the currency, and promises to produce all the beneficial results that were anticipated. This law was intended to effect a substitution of specie for the bills to be withdrawn from circulation. It was distinctly foreseen, that, in the process of coming to this result, a public inconvenience would be felt before it could be completely effected, and that the specie required for this desirable purpose would be principally drawn from the banks. It was also foreseen that the banks would be curtailed in their profits, by being deprived of the privilege of furnishing the public with a medium of circulation composed almost entirely of their paper. If these effects had not been produced, the law would not have operated as it was expected; and yet these effects have, I believe, called forth some opposition to it. If the state of our currency required, as I am convinced it did, the application of such a measure to establish it on a firm basis, it is very unreasonable to complain of the inconvenience necessarily resulting from it. This inconvenience, so far as it is felt by the public, will soon pass away. The notion that the public will be subjected to a permanent embarrassment by the suppression of small bills, derives no support from reason or experience. The circulation of bank bills below the denomination of five dollars, has been for a long time, prohibited in several of the States, and, as I believe, without any considerable inconvenience. There is no country in the world where such a circulation would be more desirable than in England, and none where more mature consideration has been given to its currency; and there it has been deemed wise to suppress the circulation of all bank paper below a note of five pounds, which is more than twenty-two dollars of our currency. As I do not anticipate that any proposition to repeal or modify this law will be favorably received by you, I do not consider it my duty to enlarge upon its merits on this occasion.

As somewhat connected with the currency and the business transactions of the State, I deem it to be my imperative duty to invite your attention to a practice, which, carried to the excess it lately has been, is, in my opinion, very pernicious to the well being of the State. Dealing in stocks, so far as it assumes the character of stock-jobbing, is a species of gambling, and produces most of the evils, public and private, which usually result from the indulgence of that unfortunate propensity. If this kind of speculation has not recently been conducted in a manner altogether new, it certainly has been carried to an extent altogether unprecedented. Immense quantities of stock have been sold by those

who had it not, under a contract to be fulfilled at some future period, and purchased by those who did not expect a delivery of it. The results of these transactions are adjusted without the delivery of the stock, and the loss and gain ascertained by its market value on the day stipulated for performing the contract. This is no more nor less than a wager upon the price of particular stocks on a specified future day. It is worse than wagers upon ordinary contingencies, because the event may be controlled by artifice and management, and the persons concerned are too strongly tempted to resort to them to subserve their interest. It is true, our present laws regard these transactions with disfavor. Such contracts are not only declared void, but the persons who have gained by them may be compelled to refund to the losing party or his representatives; yet they are constantly made, and in most instances faithfully executed. The extent to which this species of gambling has been lately carried, and its injurious effects upon many individuals who have embarked in it, have given it the character and consequences of a public evil; and your official situation imposes on you, in my opinion, the duty to suppress it. I recommend to you to lay this practice under a strong legal interdiction—an interdiction that shall be rendered effective by pains and penalties.

I am informed, that in some instances, companies incorporated by the authority of other States, have established offices in the city of New York, at which deposits are received, and notes or bills are discounted. This, in my opinion, is in contravention of the laws of this State. I invite your attention to the subject, and if there can be any reasonable doubt as to the adequacy of the existing laws to suppress this proceeding, I recommend that you should make such further provisions in relation to it as the case may require.

The law passed at the last session of the Legislature, relative to unclaimed dividends and deposits, operates unfavorably, it is believed, on the savings banks. The inconveniences and hazards to which the publications required by that law will expose these institutions, have induced some of them to defer a compliance with it until the subject could be again brought before the legislature, with a view to procure some modification of that part of it which relates to them. I have received a communication from the trustees of the Bank of Savings in the city of New York, (which I herewith transmit to you,) showing what they apprehend would be the consequences to that institution, of making the publication required of them. The views therein presented, appear to be well worthy of your consideration; and I recommend a revision of this law, and such modification of it in relation to savings banks as will remove the injurious effects resulting from its provisions.

I regret that the constant violation of the law to suppress the sale of lottery tickets in this State, requires me again to remind the Legislature that it is a duty imposed on them by the constitution to suppress this traffic. The evils resulting from it, as well as the constitutional injunction, urge this subject upon your attention, and I hope some additional means will be devised to give complete efficiency to the existing law against this species of gambling.

The result of the enumeration of the people of this State, taken during the last year, will be soon presented to you by the Secretary of State.—Although this result is not accurately known, enough however is known to assure us that our population has greatly increased. The constitution enjoins upon you, as a duty to be performed at this session, the reorganization of the senate districts, making them, in regard to the number of inhabitants contained in each, as nearly equal as may be. You are also required, by the same authority, to apportion, at this session, the members of Assembly among the several counties of the State, according to their population.

The last Legislature directed the Secretary of State to prepare and submit to you, a plan for the geological survey of this State. His report will be laid before you at an early day. I am persuaded that a careful geological examination of this State will not only open new sources of wealth, and accelerate the development of those already known to exist, but, by these means, will greatly augment the productive industry of our citizens. In several of the States, surveys of this description have been already made, and in others they are in progress. From the partial examinations which have been made of this State, there is reason to believe

that it is at least equal to any other in the Union, in the richness and variety of its resources.

The development of these resources would be more or less beneficial to the various interests of the State, but it would be more directly advantageous to that interest which I doubt not you will feel a peculiar desire to advance—the interest of agriculture—by ascertaining the mineralogical composition of soils in different sections of our territory, and thereby causing such an improvement in the mode of cultivating them, as will best reward the labors of husbandry. In addition to further discoveries in relation to salt springs, beds of gypsum, and quarries of marble and stone fitted for architectural purposes, it may be ascertained by a critical and scientific examination, that the coal formations discovered in the neighboring districts of Pennsylvania, which have contributed so much to the wealth of that enterprising State, extend within our own boundaries. In the progress of these researches in a field greatly diversified in its geological character, and heretofore but imperfectly explored, science will doubtless receive acquisitions of no ordinary value. Under whatever aspect the subject is viewed, it deserves your attention; and I feel confident that such an undertaking would amply repay all the expenses incurred in its execution.

The events of the past year, here and elsewhere, have continued to exhibit the importance of a well organized militia, both for the defence of public liberty and for the protection of private rights. During the recent disastrous fire in the city of New-York, its patriotic militia voluntarily placed themselves under the civil authorities, and rendered, as on many former occasions, the most essential services to their fellow citizens.

A new edition of the act relating to the militia and public defence, including the amendments of the last session, has been published during the past year, and the principal part distributed, pursuant to the directions of the Legislature.

The provisions of the law passed at the last session, to secure a more faithful performance of duty, on the part of general officers and their staffs, have resulted, generally, in the beneficial consequences, which were anticipated. In several brigades, owing to this and other causes, an increased degree of discipline and military knowledge has been exhibited, and the most commendable exertions have been made, not without success, to maintain the respectability and efficiency of the present system. Experience, however, constantly admonishes us of the inutility, if not of the impracticability, of attempting to sustain, in a proper manner, an organization suited to the exigencies of the country nearly half a century ago. The great change that has since taken place in its external relations and internal condition, has rendered the system ther adopted unnecessarily burdensome. Satisfied of this fact, I have constantly indulged the hope that Congress would take measures to adapt the system to the present circumstances of the country. I

have now the pleasure to state, that the President of the U. S. and the Secretary of War have recently presented such views to Congress on this subject, as warrant the belief that the desired modification will be effected at the present session of that body.

The annual report of the Adjutant-General, which will shortly be laid before the Legislature, exhibits the present numerical force of the militia of this State, at one hundred and ninety-three thousand five hundred and seventy-two.

At the request of the President of the United States, I submit to you the proposition to cede to the general government the possessory right to so much of the land belonging to the State of New-York upon Staten Island, and heretofore used for military purposes, as may be necessary to construct and maintain proper defences for the protection of the harbor of New-York. I recommend that you should authorize the sale to the United States of so much as they may desire to possess for the proposed object, and cede to them such a concurrent jurisdiction over it, as is usually granted in like cases.

Having concluded my remarks on the subjects in which our constituents have an immediate and exclusive interest, my sense of duty will not permit me to abstain from presenting to you, at this time, some considerations arising from our federal relations.

This State is a member of a community of republics, subject in many things to one general government, and bound together in political ties that must not be sundered. This relation gives us rights essential to our well-being, and imposes upon us duties equally essential to the well being of our

sister States. As we value the immense advantages that spring from this Union, so we should cultivate the feelings and interests that give it strength, and abstain from all practices that tend to its dissolution. A few individuals in the middle and eastern States, acting on mistaken motives of moral and religious duty, or some less justifiable principle, and disregarding the obligations which they owe to their respective governments, have embarked in an enterprise for abolishing domestic slavery in the southern and southwestern States. Their proceedings have caused much mischief in those States, and have not been entirely harmless in our own. They have acquired too much importance, by the evils which have already resulted from them, and by the magnitude and number of those which are likely to follow if they are further persisted in, to justify me in passing them without notice. These proceedings have not only found no favor with a vast majority of our constituents, but they have been generally reprobated. The public indignation which they have awakened, has broken over the restraints of law, and led to dangerous tumults and commotions, which, I regret to say, were not in all instances suppressed without the interposition of the military power. If we consider the excitement which already exists among our fellow citizens on this subject, and their increasing repugnance to the abolition cause, we have great reason to fear that further efforts to sustain it will be attended, even in our own State, with still more dangerous disturbances of the public peace.

In our commercial metropolis, the abolitionists have established one of their principal magazines, from which they have sent their missiles of annoyance into the slave holding States. The impression produced in those States, that this proceeding was encouraged by a portion of the business men of the city of New-York, or at least was not sufficiently discountenanced by them, threatened injurious consequences to our commerce. A proposition was made for an extensive voluntary association in the south, to suspend business intercourse with our citizens. A regard for the character of our State, for the public interest, for the preservation of peace among our citizens, as well as a due respect for the obligations created by our political institutions and relations, calls upon us to do what may be done, consistently with the great principles of civil liberty, to put an end to the evils which the abolitionists are bringing upon us and the whole country. With whatever disfavor we may view the institution of domestic slavery, we ought not to overlook the very formidable difficulties of abolishing it, or give countenance to any scheme for accomplishing this object, in violation of the solemn guarantees we are under not to interfere with this institution as it exists in other States.

Domestic slavery existed in almost every State when the federal union was formed. Its character was as well understood then as it is now. The men who founded the general government had as much philanthropy, and as just an appreciation of moral and religious duty, and knew as well what was due to the cause of human rights as the present generation; yet so great did they regard the difficulties of abolishing slavery, and so disastrous to the public welfare would be, as they apprehended, any intermeddling with it in the respective States, except by the citizens and civil authorities thereof, that they delegated to Congress no power to act on this subject, further than to prohibit the importation of slaves after the year 1807; but they recognized the right of the several States to continue slavery, without interference, by obliging them to deliver up to each other all fugitive slaves.—They left the right to abolish slavery where only it could be safely left—with the respective States wherein slavery existed.

The State of New-York had this right, and although the difficulties and dangers of exercising it, by reason of the small number of slaves in proportion to the whole population, were trivial compared with those which would attend the exercise of it in the Southern States, where this number is proportionably large; yet slavery was not finally abolished here until 1827. We were left to come to this result in our own time and manner, without any molestation or interference from any other State. I am very sure that any intermeddling with us in this matter, by the citizens of other States, would not have accelerated our measures, and might have proved mischievous. Such services, if they had been tendered, would have been rejected as useless, and regarded as an invasion of our rights.

If we view the labors of the abolitionists in the calm light of reason, undisturbed by any morbid sympathy, and uninfluenced by the spirit of fanaticism—if we look at their object, connected as it must be with the means they are using to attain it—if we regard the utter improbability of their ever reaching the end by the use of these means, and the certain consequences which must result from pushing forward their efforts in the present direction, we must, I think, characterize their schemes as visionary and pernicious.

Their avowed object is to abolish slavery in the southern and southwestern States; and their means thus far have been confined to the organization of societies among us, and to publications of various kinds on the subject of slavery, which are regarded throughout these States as libels on their citizens, and provocatives to insurrection among their slaves. So far as their proceedings are designed to operate upon this State, we may inquire what end or object they have in view. It cannot be to abolish slavery here, for it does not exist among us. Is it to convince the people of this State that slavery is an evil? Such is now the universal sentiment, and no man can be found among us who entertains a thought of returning to our former condition in this respect. If the abolitionists design to enlist our passions in their cause, such a course would be worse than useless, unless it had reference to some subsequent action. If it is expected in this manner to influence the action of Congress, then they are aiming at an usurpation of power. Legislation by Congress would be a violation of the Constitution by which that body exists, and to support which every member of it is bound by the solemn sanction of an oath. The powers of Congress cannot be enlarged so as to bring the subject of slavery within its cognizance, without the consent of the slave holding States. The proceedings of the abolitionists have rendered their object in this respect absolutely unattainable. They have already excited such a feeling in all those States, that a proposition so to enlarge the powers of Congress, would be instantly rejected by each with indignation. If their operations here are to inflame the fanatical zeal of emissaries, and instigate them to go on missions to the slave holding States, there to distribute abolition publications and to promulgate abolition doctrines, their success in this enterprise is foretold by the fate of the deluded men who have preceded them. The moment they pass the borders of those States, and begin their labors, they violate the laws of the jurisdiction they have invaded, and incur the penalty of death or other ignominious punishment. I can conceive no other object that the abolitionists can have in view, so far as they propose to operate here, but to embark the people of this State, under the sanction of the civil authority, or with its connivance, in a crusade against the slave holding States, for the purpose of forcing abolition upon them by violence and bloodshed. If such a mad project as this could be contemplated for a single moment as a possible thing, every one must see that the first step towards its accomplishment, would be the end of our confederacy, and the beginning of a civil war.

So far, therefore, as it respects the people of this State, or any action that can emanate from them, I can discover no one good that has resulted, or can be reasonably expected to result, from the proceedings of the abolitionists; but the train of evils which must necessarily attend their onward movements, is in number and magnitude most appalling.

Those devastations which in the course of Providence are sometimes permitted to visit populous and opulent cities, suddenly prostrating monuments of art and sweeping away the vast accumulations of years of patient and well directed industry—great and severe as we now feel them to be—are small indeed compared with the ruin and desolation which would attend the subversion of our federal government, and the progress of a civil and a servile war, spreading its ravages through half the States of this confederacy. Such are the fatal issues to which, in the judgment of our Southern brethren, the abolition efforts tend; and the recent indications of insurrectionary movements among the colored population of the slave holding States, show that these fears are not entirely imaginary.

As all the schemes of the abolitionists are professedly prosecuted with particular reference to results to be produced in the slave holding States, it is proper that we should inquire into the manner in which they design to bring about these results. Is it expected to operate on the slave population, and by their own immediate agency to effect their

emancipation? This can only be done by violence. The very first act in this scheme of abolition, which is carried on under the guise of religion, morality, and love for mankind, would open with insurrection, massacre, and a servile war, in which, if the slaves triumph, their masters must be the victims. Throughout those States, such is generally believed to be the deliberate design of the abolitionists. That their measures tend to such disastrous results, cannot, I think, be denied; but that the authors of them clearly foresee these results, and recklessly push on to them, willing to participate in such crimes, and to meet the fearful responsibility they would incur, I am not prepared to believe. So far as reason prevails among these deluded men, they will undoubtedly deny that this mode of effecting their object is embraced within their plan of operation. It is more charitable to presume that they mean to stop short of this bloody catastrophe; that they are willing to spread dire alarm among the white population of those States, with a view to make them feel that life, property and all human comforts are insecure where domestic slavery prevails, and by these means so to aggravate its evils, that they will be led by the mere pressure of them to emancipate their slaves. Such a mode of attempting to effect this object, is characterized alike by folly and wickedness. To suppose that such means will conduce to such an end, betrays a lamentable ignorance of the universal laws of human action. If the slave owners ever concur in any plan for the abolition of slavery, it must arise from a better motive than fear. They will secure themselves from danger by acting on the objects from which it is apprehended—not by emancipation, but by multiplying safeguards, by increasing restraints, by preventing intercourse as far as practicable among the slave population, by withholding from them all moral and religious instruction, and by every conceivable means of making them harmless machines. To satisfy ourselves that such will be the consequences of exciting alarms, we have only to look at what they have already done and are preparing to do. Manumission is discouraged, and measures are about to be adopted to expel all free persons of color from the slave-holding States. Instead of an increasing disposition to co-operate in any plan of emancipation, there is now exhibited a more fixed determination than heretofore to maintain the institution of slavery.

The great engine which the abolitionists profess to wield, and by the operations of which they hope to bring their object within their reach, is free discussion. By the potency of abolition arguments, the slaveholders are to be instructed in their duty; to be taught lessons of humanity, of moral obligation and civil liberty; and to be induced to strip the bonds from their slaves, and receive them into social and political fellowship. After all that has been done to accomplish this end, it may not be unprofitable to look at the results. If we believe the concurring testimony of the citizens of the slaveholding states, not one convert has been made among them: On the contrary, their passions are aroused; a deep sense of indignation at unprovoked wrongs and a mischievous intermeddling with their domestic concerns, excites and agitates the entire mass of the white population. The abolitionists, and all their works, are loudly and universally denounced as seditious, incendiary and wicked; and the bonds of amity and concord which unite us to the people of the south, are threatened with severance because we tolerate within our borders these disturbers of their peace and violators of their laws. Such, we are assured, is the progress which the arguments of the abolitionists have made in bringing the slaveholders to a concurrence in their views.

When we consider the matter and manner of these appeals, and the character of the people to whom they are made, we ought not to be surprised that they have been indignantly rejected. In all that regards the civilities of life, in high intellectual cultivation and endowments, in moral conduct and character, in comprehension of the principles of civil and political liberty, in ability to give these principles a practical application, in love of country and devotion to its best interests, the people of the south have furnished as many eminent examples as any other section of the Union. When an attempt from any quarter, or under any pretence, is made to disparage them, if we forebore to vindicate their character, we might seem to be ungrateful of what is due to them for the distinguished part they have acted in all the trials and conflicts through which our country has

passed, from the earliest stages of the revolution down to the present time. In all the views I have been able to take of the labors of the abolitionists, I have not discovered that they have produced a single benefit; but every step in their movements, thus far, has been attended with evil consequences. I will not undertake to describe the calamities which, in all probability, would result from their further progress, not only to the people of the several States, but to the whole human race, so far as the cause of civil liberty is concerned, because I indulge the hope that they have already reached the last stage of their onward career. I willingly turn from this view of the subject, to direct your attention to what has been done, and what may be required, to prevent further evils from this cause.

The people of this state continue to cherish an unabated attachment to the federal compact. The many signal advantages they have derived from it, and the many they still look for, bind them to a course of fraternal conduct towards their sister states, and lay them under the highest and most sacred obligations to fulfil in good faith, and to the utmost extent of its requirements, all the duties it imposes on them, and to abstain from all practices incompatible with these duties, or contrary to the spirit of any of its provisions.

Acting upon these principles, our fellow citizens very generally feel it to be their solemn duty, whatever they may think of slavery in the abstract, or in its actual condition in any section of the union, to leave its treatment, as it was left in their case, entirely and forever to the people of the States in which it exists. These States are not only entitled to the exclusive control of the subject, but, as they are immediately affected by it, they, and they only, best understand the proper mode of treating it; and it requires but a small share of good feeling towards them, and of diffidence in ourselves, to satisfy us that the matter may be safely left in the wisdom and humanity of those to whom it exclusively belongs.

If this State could be brought to think that the advantages it derives from the federal constitution, are not a sufficient compensation for the restraints imposed by that instrument; if, for the sake of displaying a morbid and fanatical spirit of false philanthropy, even at the risk of encountering the danger and incurring the responsibility of an attempt to reform the institutions of other States, it should be willing to give up these advantages, honor and duty would require it, before entering on such an experiment, to call upon the other States to release it from the solemn engagements it contracted in becoming a member of the Union; but so long as the people of this State cling to the advantage which this compact secures to them; so long as they profess to regard it as the source of their highest earthly good, and the object of their most cherished aspirations, they will, I trust, ever regard it as due alike to duty, to consistency, & to honor, to fulfil in its spirit every injunction it imposes, and to respect and observe with the utmost fidelity, all the great principles on which it is founded.

Under the influence of the foregoing considerations, and others of a kindred nature, our constituents have expressed their enlightened and deliberate judgment upon the subject under consideration. With an earnestness and unanimity never before witnessed among us, they have, without distinction of sect or party, in their primary assemblies, and in various other ways, expressed their attachment to the constitution of the federal government; their determination to maintain its guarantees; their disapprobation of the whole system of operations set on foot by the abolitionists; their affection for their brethren of the South; and their fixed purpose to do all that in them lies, consistently with law and justice, to render these sentiments effectual. It is not to be believed that these manifestations of public sentiment have been or will be disregarded by those who have engaged in, or given countenance to the abolition proceedings.

I am fully persuaded that the powerful energies of public opinion, as it has been called forth throughout the whole State, have already produced most salutary effects, in disabusing many persons who had inconsiderately concurred in the visionary schemes of the abolitionists.

When the very small number that still adhere to this cause, see that the immense majority of the people of this State, including certainly a proportionate amount of intelligence and worth, and embracing men of all sects in religion, and of all parties in politics, are utterly and irreconcilably

opposed to them; and that their measures are regarded with the deepest repugnance by all who affectionately cherish the Union and harmony of the States; including among them philanthropists at least as enlightened and sincere as any of themselves; they will, it is confidently hoped, be induced to pause in their career, and to sacrifice on the altar of their common country, the opinions and motives which have hitherto prompted them to exertions regarded with so much abhorrence by so great a majority of their fellow citizens.

When, to the just influence which may reasonably be anticipated from the sentiments of the people, so unitedly and powerfully expressed, and rendered still more efficacious, as I think they might and should be, by the opinions and views of their assembled representatives, is added the overwhelming weight of the arguments addressed to the reason and consciences of those who yet adhere to the abolition cause, it would be imputing to them a deplorable degree of mental blindness and fanatical delusion, not to expect a general abandonment of their wild schemes. All but those who are confirmed in fanaticism or reckless of consequences, it is believed, will be constrained by the decided and constantly increasing force of public opinion, to give up their dangerous attempts to act on the institutions of other states. Those who may not be thus reclaimed or controlled, will be too few in number and in influence, I am persuaded, to excite apprehension.

Relying on the influence of a sound and enlightened public opinion to restrain and control the misconduct of the citizens of a free government, especially when directed, as it has been in this case, with unexampled energy and unanimity to the particular evils under consideration, and perceiving that its operations have been thus far salutary, I entertain the best hopes that this remedy, of itself, will entirely remove these evils, or render them comparatively harmless. But if these reasonable expectations should, unhappily, be disappointed; if, in the face of numerous and striking exhibitions of public reprobation, elicited from our constituents by a just fear of the fatal issues in which the unceasing efforts of the abolitionists may ultimately end, any considerable portion of these misguided men should persist in pushing them forward to disastrous consequences, then a question, new to our confederacy, will necessarily arise, and must be met. It must then be determined how far the several States can provide, within the proper exercise of their constitutional powers, and how far in fulfillment of the obligations resulting from their federal relations, they ought to provide, by their own laws, for the trial and punishment by their own judicatures, of residents within their limits, guilty of acts therein, which are calculated and intended to excite insurrection and rebellion in a sister State. Without the power to pass such laws, the States would not possess all the necessary means for preserving their external relations of peace among themselves, and would be without the ability to fulfil in all instances, the sacred obligations which they owe to each other as members of the Federal Union. Such a power is the acknowledged attribute of sovereignty, and the exercise of it is often necessary to prevent the embroiling of neighboring nations. The General Government is at this time exercising that power to suppress such acts of the citizens of the United States, done within its jurisdiction, in relation to the belligerent authorities of Mexico and Texas, as are inconsistent with the relations of peace and amity we sustain towards those States. Such a power, therefore, belonged to the sovereignty of each of the States, before the formation of the Union, and as far as regards their relations to each other, it was not delegated to the General Government. It still remains unimpaired, and the obligations to exercise it have acquired additional force from the nature and objects of the Federal Compact. I cannot doubt that the Legislature possesses the power to pass such penal laws as will have the effect of preventing the citizens of this State and residents within it, from violating themselves, with impunity, of the protection of its sovereignty and laws, while they are actually employed in exciting insurrection and sedition in a sister State, or engaged in treasonable enterprises, intended to be executed therein.

I have recently received from the Governor of the State of South Carolina, a copy of a report and resolutions, in relation to the proceedings of the abolitionists, adopted by the Legislature of that State; and I herewith transmit them to you, in compliance with the request therein contained.

I have also received from the Governor of Alabama, a regulation to deliver up to that State, a person residing in the state of New-York, charged with the crime of distributing and publishing in the state of Alabama, a seditious paper designing and intending to incite the slave population of that state to insurrection and rebellion. The accused was not an actual fugitive from justice, and it did not appear that he had any other participation in the alleged crime than what arose from acts done within this state. I was therefore, convinced that neither the constitution or laws of the United States, nor of this state, imposed on me the duty, or conferred the right, to surrender him, and I declined to do so. A difference of opinion between the chief executive officers of the two states, in relation to an official obligation, due to one from the other, is much to be regretted; and the friendly relations subsisting between them render it proper that I should communicate the fact to you, together with that view of the Governor of Alabama, in support of the claim he has made on behalf of that state. I herewith transmit the documents and correspondence relative to this case.

In discharging the various and responsible duties, devolved on you as legislative guardians of this state, I shall give you my cheerful co-operation, in the confident hope that your labors will subvert the best interests and advance the general welfare of our constituents.

Albany, January 5, 1850. W. L. MARCY.



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT NO. 13 NASSAU STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.]

SATURDAY, JANUARY 2, 1836.

[VOLUME IV.—No. 52.]

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AMERICAN RAILROAD JOURNAL.

NEW YORK, JANUARY 2, 1836.

Subscribers to the Journal who desire to obtain missing numbers, will please let us know as early as possible, that we may supply such as we may be able, from the few saved from the fire. A statement of the missing numbers should accompany the subscription for the fifth volume in advance.

With this number, it will be perceived that the Railroad Journal completes its 4th volume.

The work was undertaken at a period when very little, comparatively, was known in this country, except to a few Engineers, in relation to Railroads. The project was deemed, by most persons, as entirely visionary, and the idea of a Journal devoted to Railroads, was ridiculed by many. It was, however, believed by its projector, that the period was at hand, when the people of this country would view the subject of Internal Improvement, and especially of Railroads, in a more favorable light than at that period—and therefore a work of the kind would, most certainly, be useful to the country, and probably afford, at least, a return of the necessary investment to get it into circulation. Under this impression, the work was commenced January 1st, 1832, and has been continued regularly, until the present period, four years, with the exception of the delay caused by the late con-

flagration; and (although the subscription list has never yet come up to a thousand,) fifteen hundred copies of it have been regularly published, that the work complete, might be within the reach of those who desired to have it.

The publication of an edition so much larger than the subscription list, caused the expenditures, for the first three years, materially to exceed its income; but it was believed that the investment was at least a safe, if not an immediately profitable one; and so it would certainly have proved, as can be shown by the sale of back volumes, during the last year, but for the unparalleled calamity, which so many, in common with the proprietor of this Journal, will long have cause to remember. By that calamity, however, it has proved almost a total loss, as nearly the whole edition remaining on hand, or 400 complete sets, were entirely destroyed by the fire, leaving probably, not to exceed forty complete sets of the work unsold, and those mainly, scattered about the country, in the hands of agents—which are to be collected, before complete sets can be supplied.

In consequence of the inadequacy of the price, to meet its expenses, it was, after due deliberation and consultation, deemed advisable to increase the price to \$5 per annum, and then to make the work equal to the price, in preference to reducing the size to 8 pages, as was at one time contemplated. In accordance with that decision, the Journal will hereafter be charged at FIVE DOLLARS per year, instead of three dollars, as heretofore.

Such, indeed, have been my losses by the fire, that it is now highly essential to the continuance of the Journal, that the subscription for the ensuing year at least, should be paid in advance—and that all arrearages should be promptly paid.

The present number is to be considered a specimen of the work as it is to appear during the ensuing year, and as such it is sent to those who are, and to some few who are not, now subscribers to it, with the request that each gentleman who receives it, and who is willing to aid me in regaining, by my own exertions, what I have lost by the conflagration, will do something to extend its circulation.

The work must and will be continued, and as I have relinquished the publication of the NEW-YORK AMERICAN, with which I was connected over ten years, with a view of devoting myself exclusively to my periodicals, I shall be able to render them, and especially this Journal, more worthy of patronage, therefore every friend of Internal Improvement is requested to aid in its circulation, and support. D. K. MINOR.

New-York, January, 1836.

Editors of newspapers, who will call attention to the Journal, or publish the prospectus on the last page, and if they please, send their paper, may rely upon receiving the Journal hereafter in exchange.

SYRACUSE, COURTLAND, AND BINGHAMTON RAILROAD.—We find in the "Onondaga Chief," of the 6th inst., published at Syracuse, and publish, omitting the names, an account of the proceedings of the Convention held at COURTLAND VILLAGE, on the 24th of December, in relation to the contemplated Railroad from the Erie Canal at Syracuse, to the New-York and Erie Railroad at Binghamton. This Convention was, as might have been anticipated, and as we know from the list of names published, attended by a large number of the most respectable inhabitants of the counties of Onondaga, Cortland, and Broome—together with many others equally respectable from other counties adjoining.

This route is not only one of the most

feasible, but also one of the most important lateral Railroads in the State. It will not only pass through one of the most fertile, but also one of the levellest (save in one place) routes in the State. It is also the natural route for the exchange between New-York and Pennsylvania, of salt and gypsum on the one part, and coal on the other. It is also the most direct, and will eventually become the common route between a large portion of the interior and the Commercial Emporium of the State; and it is only surprising to us that the intelligent, and enterprising inhabitants, of the country through which it will pass, have so long slept upon so important an enterprise. It only shows the want of correct information, in relation to the importance, and superiority, over other modes of travel and transportation, of Railroads. There can be no doubt in the minds of those who are familiar with their advantages, that they are destined to produce as great, and even greater, changes in the mode of doing business on land, as the application of steam to navigation has on the water. Indeed, the time is not distant when all the great thoroughfares of this country will be traversed by Railroads; and it will be as common for a man of business to travel *two hundred and fifty or three hundred miles a day*, as it now is for him to be *two, or three days* in travelling *one hundred miles*—through the mud. It will not then be thought more of, by the people of the interior, to visit the city of *New-York, Buffalo, Oswego, and Dunkirk, or Portland*, than it now is to visit the seat of justice, in the county where they reside; and what is of still greater, if possible, advantage to them, the improved facilities for business will in an equal ratio increase the value of property through the country.

In order, however, to realize these important advantages at the earliest possible period, information must be disseminated widely among the people. They must be made to feel and to realize the truth in relation to Railroads. They must be convinced, as they will be ere long, that, instead of being impassable in winter, they are more easily cleared, and kept clear, of snow than common roads. It must be recollected that they possess the most powerful apparatus for clearing the track, as has been abundantly proved by late experiments on the *Camden and Amboy Railroad*, according to the following extract from the "Courier and Enquirer" of the 13th, which says: "We were in error yesterday, in stating that the passengers by the Railroad line left Philadelphia on Sunday, at 12 o'clock, and did not arrive here until Monday evening at 8. It appears that they left Camden, opposite Philadelphia, at 2 o'clock on Monday, and were landed six hours afterwards in this city. We hasten to make the correction, with the remark, that nothing but the most indefatigable exertions on the

part of the proprietors, agents, and officers of this line, could have succeeded in clearing the track of such an immense body of snow, and keeping up an uninterrupted daily communication from city to city, as it has done, without the loss of a single trip, from the opening of the Road in 1832, to this day." It is indeed as much more powerful for that purpose, as it is for rapid travelling when the Road is clear. No one will pretend to deny that there has been, and probably will be again, days and storms so severe as to prevent travelling on Railroads, even as there are in the course of almost every winter, which prevent travel on any road; yet such days are few, and cannot be used as an argument against Railroads, any more than against common roads. It may therefore be assumed that prejudice will give, has already indeed given, way to a more correct state of feeling—and the day is near at hand, when the inhabitants on the route of this Road will be surprised that they have so long omitted, or delayed, a work of so much importance and convenience to them; and that they have so long waded, almost *wallowed*, through the mud of the "Indian woods."

This will be one of the most important among numerous other lateral Roads, which will connect the New-York and Erie Railroad with the Canal and the Lakes—this Road will undoubtedly be extended north from Syracuse into Jefferson and St. Lawrence counties, thereby making Syracuse the most central place in the State.

From Syracuse for about eighteen miles there is a gradual ascent of 10 to 20 feet per mile, to Tully. In this town there is an ascent, within the distance of 1 $\frac{1}{4}$ th mile, of about six hundred feet—which passes the ridge dividing the waters which flow into Lake Ontario, and into the Susquehanna River.

At this point there must be an inclined plane, with *stationary power*; and that nothing apparently should be wanting to render the route one of the most eligible in the country, this stationary power is supplied by never-failing springs of sufficient magnitude, which furnish several valuable mill seats—one of which might be used instead of a stationary engine. When the summit is attained, there is a gentle descent of from ten to twenty feet per mile to Binghamton, through a country every way eligible for the construction of a Railroad.

With such advantages, and the certainty of an early completion of the great New-York and Erie Road, and a fair prospect of a ready communication with the coal region of Pennsylvania, the inhabitants residing on, and near the route, will beyond all question press this work forward, so as to have it completed at least as early as to meet the New-York and Erie Road when it shall be completed to Binghamton.

SYRACUSE, COURTLAND, AND BINGHAMTON RAILROAD CONVENTION.

At a Convention of delegates from the several counties on and adjacent to the route of the proposed "Syracuse, Cortland and Binghamton Railroad," convened pursuant to public notice, at the Court House in Cortland village, on the 24th of December, the Hon. WILLIAM BARTLIT, was called to the Chair, pro tem., and HORATIO BALLARD appointed Secretary. On motion of H. S. Randall, of Cortland, Resolved, That a Committee of three be appointed to receive the credentials and collect the names of the delegates in attendance. The chair named the following Committee:—

Henry S. Randall, of Cortland,
Vincent Whitney, of Broome,
V. W. Smith, of Onondaga.

The names of over 300 delegates were taken, which it was believed were not the one half of those in attendance. It was however impossible to get them all in time, and the Convention proceeded to business as follows:—

On motion of Mr. Stephens, of Cortland,

Resolved, That a Committee of ten be appointed by the Chair to report the names of suitable officers to preside at the Convention.

Whereupon the following persons were named said Committee:—

George Park,	} of Binghamton.
Christopher Eldridge,	
Elam Lynds,	} of Syracuse.
Harvey Baldwin,	
Cadring Jackson,	of Lisle,
John H. Hooker,	" Truxton,
Jonathan L. Woods,	" Cortland,
Fredus Howard,	" Preble,
William Andrews,	" Homer,
Alva Jarvis,	" S'th Cortland.

Mr. Park from the Committee reported the names of the following officers, which on motion of Mr. Smith, of Onondaga, were unanimously adopted;—

ELAM LYND, of Onondaga, President.

John Miller, Cortland,	} Vice Presidents.
J. Southard, Tompkins,	
Horatio Collins, Tioga,	
Elihu Ely, Broome,	
S. S. Forinan, Onondaga,	} Secretaries.
Daniel S. Dickinson, Broome,	
Harvey Baldwin, Onondaga,	
Horace White, Cortland,	

On motion of Mr. Waterman, of Broome, Resolved, That a Committee of three be appointed to draft resolutions expressive of the views of the Convention, in relation to the objects for which it is assembled.

The following gentlemen were named said Committee:—

Thomas G. Waterman,
Henry S. Randall,
Jonathan L. Woods.

Mr. Waterman from the Committee reported the following resolutions:—

Resolved, That we regard the present condition, and anticipated progress of the great system of Internal Improvement, by Canals and Railways in the State of New-York, not only as justifying on the part of our citizens feelings of honorable pride and exultation, but as leading in its results to

the unexampled wealth and prosperity of the State.

Resolved, That the Erie and Champlain Canals on the north, and the New-York and Erie Railroad now in progress through the southern counties, are to be regarded only as the main arteries of internal communication between the great Western Lakes and the Atlantic, and that they afford vastly increased inducements through all the intervening sections of the State, to both public and private enterprise, to supply the minor and connecting veins in the general system.

Resolved, That among the works now in progress, or in contemplation, to unite these great commercial arteries, the one now proposed, and submitted to our consideration, that of a Railway from Syracuse to intersect the New-York and Erie Railroad, at or near Binghamton, is of commanding importance, whether regarded in reference to the profits of investment, or its convenience and utility to citizens on its route.

Resolved, That the friends of the grand system of internal improvement which has distinguished New-York, have abundant cause for congratulation in the commencement of the New-York and Erie Railroad, the great thoroughfare which is emphatically destined to give life, wealth and prosperity, to a section hitherto secluded, and virtually bring the fertile regions of the south and west to the confines of the great commercial emporium.

Resolved, That the Corresponding Committee prepare a petition to our Legislature for the required act of incorporation; that the petition be signed by the officers of the Convention, and be presented to the Legislature at the opening of the Session.

Resolved, That the name of the corporation to be so applied for, shall be "*The Syracuse, Cortland and Binghamton Railroad Company*," that the petition ask for a grant having Syracuse and Binghamton in view as points of termination, and that, as intermediate places to be named in the bill, as fixed points on the route, shall be both the villages of Homer and Cortland.

On motion, Resolved, That the sense of the Convention be taken on each of the resolutions separately. The 1st and 2d resolutions passed unanimously. On the reading of the 3d, Mr. Montgomery, of Tompkins, moved to amend the resolution, by striking out the words "to intersect the New-York and Erie Railroad at or near Binghamton," and substitute the following: "to strike the Susquehanna River by the most feasible route."

The Chair decided the motion was out of order.

Mr. Montgomery said he most earnestly desired that the amendment might be submitted to the decision of the Convention. There was another route than the one named in the resolution, which might be found to answer the same general objects, which he believed more feasible, viz: one passing through the south part of Virgil, Dryden, &c., and ending at Owego.

Mr. Guinnip, of Tompkins, concurred in the views of his colleague, and hoped the

amendment might be submitted to the Convention.

Mr. Whitney, of Broome, reminded the gentlemen from Tompkins that the motion had been pronounced out of order: if they were unwilling to acquiesce in the decision, their course was a plain one; they must appeal from it to the Convention.

Mr. Montgomery appealed from the decision of the Chair.

Messrs. Waterman, Dickinson and Whitney, of Broome; Messrs. Stephens and Canfield, of Cortland; Mr. Baldwin, of Onondaga, opposed, and Messrs. Montgomery and Guinnip supported the appeal.

The Chair explained; that having assembled under a call addressed to the friends of a specific object, and delegated, therefore, to act only in reference to that object, it was obviously beyond the powers of the Convention to entertain extraneous and adverse propositions to the original one, as the "friends" of which they had assembled.

The question on the appeal was then put, and the Chair sustained without a count. The question recurring on the passage of the resolution (3d), it was put and carried unanimously.

The 4th, 5th and 6th resolutions were read and passed unanimously. On the reading of the 6th, Mr. J. Miller, of Cortland, moved to amend, by striking out the word "Homer," and conforming the phraseology of the resolution to the omission.

Mr. Miller said he was willing to have Syracuse, Cortland and Binghamton as fixed points on the route of the proposed Road, but he lived on another branch of the Tioughnioga, the valley of which presented many perhaps equal facilities for the construction of such a Road, with that of the west branch, on which Homer stands. There was nothing, he contended, in the amendment adverse to the objects of the Convention.

Mr. Ross, of Cortland, opposed the amendment, and it being put, was lost, without a count: The original resolution (6th) then passed unanimously.

Messrs. Southard and Collins desired to be excused from acting further as officers of the Convention, which, on motion of Mr. Stephens, of Cortland, was unanimously agreed to. The Hon. SAMUEL G. HATHAWAY, and the Hon. WILLIAM BERRY, of Cortland, were nominated and appointed unanimously, to supply the vacancies.

On motion of Mr. Whitney, of Broome, it was

Resolved, That the Legislature be petitioned to cause the route of the proposed Road to be surveyed at the expense of the State.

On motion of Mr. Smith, of Onondaga, it was

Resolved, as the sense of this Convention, that the Legislature of this State may safely adopt the principle of granting Railroad charters to incorporated Companies upon liberal terms, whenever the citizens of different sections manifest a disposition to unite their means and efforts for effecting public improvements of that character.

On motion of Mr. Waterman, of Broome, it was

Resolved, That a Committee of three be appointed, to be known, and to act as the "Syracuse, Cortland and Binghamton Railroad Central Corresponding Committee."

On motion of Mr. Baldwin, of Onondaga, it was

Resolved, That the draft of a bill to incorporate the "Syracuse, Cortland and Binghamton Railroad Company," be referred to the Central Corresponding Committee, and that they be instructed to fill up blanks, &c.

The Chair announced the names of the following gentlemen to compose the

Central Corresponding Committee.

WILLIAM BARTLIT,
ADIN WEBB,
HENRY S. RANDALL, } *Cortland Village.*

On motion of Mr. Stephens, of Cortland, it was

Resolved, That a Corresponding Committee of three be named by the Chair in each of the places on and adjacent to the route of the proposed Road, as he may deem proper.

The Chair announced the following as such Committees:

Corresponding Committees.

Syracuse—V. W. Smith, Harry Raynor, James Manning.

Onondaga Hollow—Thaddeus Patchin, T. M. Dorwin, Samuel S. Forman.

Jamesville—I. W. Brewster, G. H. Richardson, G. W. Holbrook.

La Fayette—Ebenezer Colman, John Spencer.

Tully—H. F. King, Nichol Howell, Eli Earnham.

Preble—Fredus Howard, P. H. Burdick, Joseph Crofoot.

Homer—Horace White, E. C. Reed, A. Donnelly.

Cortland—C. Marsh, E. W. Edgecomb, Henry Stephens.

Truxton—D. Matthews, N. V. Allen, A. W. Otis.

Solon—S. G. Hathaway, D. Copeland, R. Rice.

Virgil—Wm. Woodward, R. Edwards, S. Roe.

Free-town Corners—C. Richardson, W. Birdsall, J. M. Roe.

Marathon—G. E. Peck, A. Carley, E. Perkins.

List—P. B. Brooks, J. Stoddard, jr., C. Salisbury.

Whitney's Point, (Triangle)—Thomas Whitney, G. Collins, J. D. Smith.

Binghamton—Tracy Robinson, J. S. Bosworth, Julius Paige.

On motion of Mr. Andrus, of Cortland, it was

Resolved, That the proceedings be signed by the officers of the Convention, and that the several newspapers on the route of the proposed Road, the Albany Argus, Evening Journal, N. Y. Times, American, and Courier & Enquirer, be requested to publish them.

On motion of Mr. H. S. Randall, of Cortland, it was

Resolved, That the thanks of the Convention be presented to its officers, for the able and dignified manner in which they have presided over its deliberations.

On motion of Mr. J. S. Bosworth, of Broome, the Convention then adjourned sine die.

ELAM LYND, President.

JOHN MILLER,

ELIHU ELY,

SAMUEL S. FORMAN,

SAMUEL G. HATHAWAY,

WILLIAM BERRY,

D. S. DICKINSON,

H. BALDWIN,

H. WHITE,

V. Pres'ts.

Secretaries.

OFFICE OF N. Y. & ERIE RAILROAD CO.
New York 14th Dec. 1835.

To His Excellency WILLIAM L. MARCY,
Governor of the State of New York:—

I have the honor, in behalf of the Directors of the New York and Erie Railroad Company, to transmit herewith, for the consideration of the Executive authority of this State, sundry documents, showing the situation of the enterprise in which they are engaged.

The interest which the progress of this work has excited in very extensive and important districts of the Commonwealth—the manifestations of public opinion, as exhibited by the proceedings of the Common Council of this city, and by the Convention of the southern and middle counties at Oswego, and the extent of the enterprise, embracing the whole territorial length of the State—(compared with the right reserved by law, to take the work for public use at a comparatively early period after its successful operation shall have provided its value)—seem all to concur in rendering it proper, that the Chief Magistrate should be kept apprised of the progress of an enterprise, affecting so permanently and deeply the general welfare.

The particular details in respect to the prosecution of the work, will be found in the First Annual Report made by the Directors to the Stockholders, a copy of which is herewith furnished. To the facts therein stated, the accuracy of which has been verified, in nearly every instance, by the personal examination of the Directors,—the attention of the Executive is respectfully requested. The Board deem it necessary, also to state, that the fifteen members of this body who reside in the city of New York, have no private or personal interests whatever, involved in the prosecution of this work, except so far as they may partake in the public prosperity of this city, and in the expectation that the ultimate success of the enterprise may return to them, in common with all the Stockholders, a revenue affording a fair and reasonable equivalent for the risk which they may encounter, in embarking their funds in the undertaking.

A copy of a Resolution passed by their Board, pledging its members to abstain wholly from any pecuniary speculations in any of the counties traversed by the route, is herewith furnished.

A review of the documents, it is believed, will show, that the Directors have labored assiduously to ascertain whether this work is feasible—whether it will be useful—and at what expense it can be constructed. The two first questions, as to its feasibility and usefulness, necessarily must be governed almost exclusively by the judgment of scientific and experienced Engineers. Although the members of this Board have satisfied themselves, by actual inspection of the route of the road, that the work presents no unusual or formidable difficulties, and that, with a single exception, its construction is singularly favored by the surface of the country, they have nevertheless deemed it their duty, to obtain evidence, from the most competent professional authority, of the ultimate utility of the work, before entering upon its construction. They have therefore submitted, during the present season, the whole plan of the road to the judgment of a Board of Engineers of the highest rank, and they are much gratified to be able now to lay before the Executive, the original Report of those gentlemen—establishing decisively the value of the road, and proving that it will afford the means of constant and rapid transmission of persons and property, at rates of speed, and in quantities, much exceeding previous expectations.

As to the expense of the work, the Board would remark, that the valuable experience acquired within this country during the last few years, has enabled Railroad Engineers to calculate at this

time, with very considerable precision, the cost of construction. Several instances might be adduced, if necessary, of public works in the neighboring States, (executed, too, under the direction of the distinguished Engineers who have been called upon for consultation upon the plan of this work,) which have been constructed within the sums originally estimated. The Board have never had any reason to doubt the accuracy of the survey, or the safety of the estimates, in respect to the New York and Erie Railroad, submitted at the last Legislature, and, nevertheless, when they regarded the unexampled extent of the work, they could not but await, with some anxiety, the result of their first attempt to obtain contracts for its actual execution. They have, therefore, felt it their duty, to use every means in their power, to detect any errors which might exist in the previous estimates, and for the purpose of subjecting them to a severe test, a section, unusually rugged in character, and sequestered in position, presenting far more than the average rate of expense, was selected as the portion first to be estimated. The result of that experiment is exhibited in the Report of the Executive Committee, presented to the Board during the last month, shewing that the graduation of 40 1-2 miles of the road, estimated by Judge Wright at \$366,286, has been actually taken by responsible contractors for \$313,551, being \$52,735 or 14 per cent less than the estimate.

The Board, therefore, have no hesitation in reporting to the Executive, that no reasonable doubt exists as to the ability of the Company to complete the whole of the road, from the tide water to the Lake, with all requisite vehicles, for the amount stated in their Report—and that the sum will not exceed, but will probably fall considerably short of, six millions of dollars. The sum of \$2,362,100 has been already subscribed to the stock of the Company, and will enable them to complete an extensive and profitable division of the work,—but they will be compelled, for the reasons set forth in their Report, to delay the completion of the residue, until the successful accomplishment of a portion shall demonstrate the value of the whole. It is obvious, however, that by the more tardy accomplishment of the work, the great public benefits to be afforded by its completion, from the tide water to Lake Erie, must be injuriously postponed, and that it therefore becomes the duty of the Board, to spare no effort to obtain additional funds with the least practicable delay.—They, therefore, deem it proper to communicate to the Executive authority of the State, their intention to apply to the next Legislature, for the requisite aid to enable them to hasten the completion of the work. They propose, however, in view of the heavy advances to which the public Treasury will be subjected in order to improve the Erie Canal, to ask only for a loan of the public credit, to be advanced in instalments, not exceeding in the aggregate three millions of dollars, and only as fast as the Company, with their own means, shall have previously completed continuous sections of the work, sufficiently extensive and valuable, to afford to the State a perfect security against any possible loss or inconvenience.

That such a measure of policy is supported by precedent, is abundantly manifested in the frequent instances referred to in the accompanying documents, in which the neighboring States have loaned their public credit to companies engaged in works of internal improvement within their territory, designed for the very purpose of diverting from this State, and its commercial metropolis, the lucrative trade heretofore enjoyed with the Western States. The liberal and energetic course of legislation thus pursued by those enlightened communities, in fostering those rival works, would seem to render it more peculiarly proper and necessary, that similar measures of protection should be speedily afforded to the citizens of our own State, by those who direct the public councils.

The importance of the New York and Erie Railroad, in connecting the navigable waters of the Hudson with Lake Erie and the Alleghany River and thereby securing to the city of New York the trade of the West, is fully set forth in the accompanying documents. The Directors charged with the execution of a work so important to the general welfare, therefore venture to express the hope, that its auspicious commencement and hitherto successful progress, may be regarded as a matter of public interest, properly falling within the retrospect usually submitted by the Executive to the representatives of the people, that the avenue of trade

and intercourse which it proposes to establish through the State, and with the rapidly increasing communities on our western borders, will be looked upon as an improvement calculated to augment the power and elevate the character of the Commonwealth,—and that such efficient measures of assistance, as may be deemed necessary to secure a speediest completion, and not inconsistent with the public interest, may be recommended to the favorable consideration of the Legislature.

I have the honor to be, with great respect, sir,

Your obedient servant,

JAMES G. KING,

President N. Y. & Erie Railroad Co.

CHAMPLAIN AND ST. LAWRENCE RAILROAD.—We find in the Montreal Courier, of December 17th, the proceedings of the half yearly meeting, of the stockholders of the above named railroad, accompanied by the Report of the Committee of Management, and the Chief Engineer. From the Report of the Committee, we make an extract, and publish the Report of the Engineer, Mr. Casey, with the proceedings of the meeting entire, together with some appropriate remarks of the Editor of the Courier.

The remarks of the Engineer and of the Editor, in relation to the benefit which the people will derive, from the expenditure of so much money amongst them, are equally applicable to most other works of the kind.

The plan of doing the work by days, and not by contract, is not common on such works. It may be, however, and we are inclined to think it is, where the people of the vicinity upon whom reliance can be placed, will engage in the work, a matter of economy.

By this report it will be seen that the spirit of improvement is spreading northward as well as southward—who can tell where it will stop?

CHAMPLAIN AND ST. LAWRENCE RAILROAD COMPANY.

At the half-yearly meeting of the Stockholders in this Company, held this day pursuant to public notice, J. E. Mills, Esq., Deputy Chairman of the Committee, opened the meeting with a few preliminary observations, and submitted the Report of the Committee of Management, which was, together with the Report of the Engineer, then read by the Secretary; after which, John Boston, Esq., was unanimously called to the chair, and the Reports were approved of and adopted by the meeting.

The election of a Committee for the ensuing year then proceeded, and Messrs. T. Follet and Charles Lindsey officiating as scrutineers, after examining the ballots, declared the following gentlemen:—

Messrs. Hon. P. McGill, J. C. Pierce, R. Jones, L. B. Ward, J. E. Mills, Jos. Shuter, B. Holmes, T. Bouthiller, and James Logan, re-elected by a large majority of votes.

The Chairman here took occasion, on behalf of the meeting, to convey to these gentlemen the high sense felt by the Stockholders of the value of their services, gratuitously rendered—a stronger expression of which could not be given than in the result of the ballot just declared.

EXTRACT FROM THE REPORT.

We, the Committee of Management of the Champlain and St. Lawrence Railroad

Company, in calling the attention of the Stockholders generally to this our Report of the operations for the past season, deem it expedient to revert to the peculiar circumstances attending the commencement of this undertaking—the very unfavorable season for such operations—the short space of time we have been occupied—and the freedom from litigation in all our engagements; which, taken together, when we reflect on the amount of work done, affords to all interested, ample grounds for congratulation, and will tend to show that, when unshackled by restraints or legal impediments so far from proving behind our neighbors in enterprise, we have, for promptitude and despatch, in this our *coup d'essai*, gone beyond any thing of a similar nature, even in the United States. Thus removing from among us that reproach to which we have hitherto so long, and of necessity, been obliged to submit.

When, in February 1832, when the Act was passed permitting the Petitioners to build a Railroad, it was apparently so cramped by restrictions, as, for a while, to become a dead letter, nor was it till November 1834, when Mr. Pierce, of St. John's, by his unwearied exertions, obtained a sufficient number of subscribers to preserve the Charter from falling through, that the provisions of the Act became fully understood. It is, therefore, to that gentleman and the Hon. R. Jones, that the country and community are chiefly indebted for the advantages already received, and likely to accrue.

We could not offer a more striking illustration of the change of public opinion regarding the value of the Railroad stock, as an investment, than by the facts, that, in December, 1834, after the number of subscribers required to preserve the Charter obtained, the balance of stock with difficulty found purchasers; whereas, in December, 1835, the stock is in great demand, and transfers have been made at 5*l*. per share premium; and we flatter ourselves that the activity and determination evinced in our operations may have, in some slight degree, contributed to this desirable state of things.

In the United States, to which, from its proximity, we naturally refer, we believe it to be the custom to spend considerable time in surveying, planning, preparing material, making specifications, and giving out contracts. We, on the contrary, have "taken time by the forelock"—done the work by day-labor, and have the pleasure of adding as so far advanced, that there is ample prospect of its ultimate completion in the course of July next.

To the Chairman and Committee of Directors of the Champlain and St. Lawrence Railroad, I submit the following Report on the progress made in the undertaking, of which I have the honor of being the Engineer:—

The time between my appointment and the commencement of field operations, was occupied in giving the information and specifications necessary to enable the Committee to contract, without loss of time, for the timber, iron, and materials for fencing. This being accomplished, the quantity of land required from each farmer was ascertained and purchased by the Commissioner. The quantity taken was merely enough for the road, as that officer caused to be inserted in the deeds a proviso, that the Company may at any time, take the full quantity of land allowed by the Act, on the same terms, thus reserving the outlay of a considerable sum till absolutely required, and preventing the possibility of the Company's being put to any unnecessary trouble or expense in

enlarging the work at any future period. The importance of this arrangement will be more evident hereafter.

In undertakings of this kind it is usual to spend some time before commencing operations, in staking out the line, and preparing plans and specifications of every part of the work in detail. The contracts are then given out in the fall, and, during the winter, the necessary materials are drawn on the spot where they will be required, and every arrangement made to do that, the nature and extent of which has been accurately ascertained. But here, in the autumn of 1834, only five days were spent on the ground without time to bestow a single thought on any thing except the general location within the limits prescribed by the Act, consequently the season in which the grading was to be completed, opened upon us without the possibility of our having those definite plans and previous arrangements determined on, which contribute so much to the economy and success of all public works.

Owing to the inclemency of the weather, the staking out was not commenced till May and early in June ground was broken on the summit level near St. John's, on the only piece fenced in. The tardiness with which the materials for fencing were delivered, and the impossibility of entering on the farms till completely enclosed, compelled us to abandon the St. John's end of the line, for upwards of a month, a loss of time which the subsequent heavy and nearly incessant rains, rendered it impossible for us to recover.

Ten miles of the grading, forming about one-eighth of the entire expense, was done to advantage in the wet weather, but the remaining seven-eighths were principally occasioned by carting, a large proportion of the earth having been carried from one-quarter to one half, and even three-quarters of a mile over the worst kind of clay, in one of the worst seasons ever experienced, and, but for about four weeks good weather in the months of September and October, I should not now have the satisfaction of announcing the completion of the fencing, graduation, masonry, bridges, the large wharf at Laprairie and the frames of the station-houses. With the exception of the woodwork of the wharf, all has been done by the day. This, though contrary to established custom, was rendered unavoidable from the want of time to make the necessary preparations for putting the work under contract, and still more so from the fact, that no forfeit on the part of a contractor, could have indemnified the company for the non-fulfillment of his contract, as it was of the last importance that the graduation should be completed this season; and, had not this plan been adopted, there can scarcely be a doubt that this indispensable object would not have been attained. The men were engaged, and all the materials and tools purchased by the Commissioner. The men were paid every Monday evening, and a degree of order and harmony prevailed throughout all departments seldom witnessed on public works, for which the Company are indebted to the unwearied assiduity and admirable management of the Commissioner, and the assistant Engineer, Mr. Livingston.

The bridges are built in the strongest manner, and may be crossed at high velocities without injury. The principal bridge is over the Little River, four hundred feet long and thirty feet above the water. The channel is crossed by a lattice bridge of sixty-seven feet span, the roadway passing on

the top. There are four other bridges, varying from one hundred and seventy to twenty feet in length.

The wharf at Laprairie is eleven hundred feet long, thirty-two feet wide, and one foot higher than the old wharf. It is built in the most substantial manner, and has elicited the praise of the hundreds who visited it during its construction, and is certainly not excelled by any similar work in the Province.

The frames of the station houses are raised, but they are not yet covered in.—The dimensions are one hundred by 40 feet. They are substantially built, and are intended to be finished without any unnecessary expense. Another will be required in a year or two at the Little River. Ground has been prepared for two turn-outs, one at the Battaille, the other at the Little River; and more may be added, as experience shows, where they will be most convenient.

The iron, and the various descriptions of timber for the road are delivered. The dressing of the latter has been placed under contract, and a considerable portion is already done. The drawing of the timber along the line has also been placed under contract on very advantageous terms.

Arrangements have also been made to procure a locomotive from England in the spring, four passengers' cars from the States, and the various castings for the road and the iron-work for the freight cars in this city; so that, with the different parts of the superstructure distributed along the line, and all requisite previous arrangements made, the Committee may confidently expect to open the road in July next, the exact time depending more on the season than on all other considerations united, as the settling of the ground varies at least three weeks in different years.

I now proceed to give a detailed account of the cost of the various parts hitherto executed, and an estimate of the amount required to complete the whole; remarking, that low as is the average cost of the graduation per mile, it has yet been much increased by the following circumstances:—Seventeen thousand cubic yards of slate-rock were encountered on the common of Laprairie: the carting, the grand item of expense, has been increased fifty per cent, by the rain, but little earth has been moved without the aid of the pickaxe; besides which, a large portion of the work was, from these various causes, crowded into the short days, in itself a very serious additional expense.

AMOUNT EXPENDED.

	£	s.	d.
Graduation, Masonry and Bridges,	8,514	19	9
Fencing,	855	4	11
Timber,	4,608	4	5
Iron,	73,338	15	9
Land,	1,470	16	3½
Station Houses,	446	18	10½
Wharves,	2,166	7	9½
Contingencies, including Engineering,	1,943	3	9½
	£23,339	11	7

AMOUNT REQUIRED.

Preparing Road Bed and dressing Banks,	620	0	0
58 Road and Farm Crossings, Blocks, Splicing Plates, and Nails,	235	0	0
Laying down Superstructure and Horse Track,	516	10	6
Wharf at St. John's and Station Houses,	4,010	0	0
	600	0	0

Contingencies, including Engineering,	1,200	2	10
Balances due for Timber and Iron,	1,488	15	1
	£8,670	8	5
1 Locomotive, £1,200			
4 Passenger Cars, 750			
20 Freight do. 840			
	2,790	0	0
	£31,800	0	0

Being at the rate of 569¢ for Graduation, Masonry, and Bridges per mile, and 2,335 per mile for the Road complete, with Engine and Cars, Station Houses and Wharves.

I have now given at length the account of our summer's work, the amount expended, and the amount yet required; and feel confident that, taking into consideration the impossibility of making the usual preparations, the absence of experienced workmen, the nature of the ground, and the novel mode of conducting the undertaking, the Committee and Stockholders generally will be satisfied that the most has been made of six months, in locating the line, in completing the fencing, graduation, bridges, masonry and wharf, besides making all the necessary arrangements for opening the road in the least possible time next year.

For my own part, in reviewing our operations, I do not see where any saving worthy of notice could have been effected.

In conclusion, I beg leave to mention a circumstance which can scarcely be a matter of indifference to the Committee—that this, the first public work undertaken by a private Company in this Province, has, from the manner in which it has been conducted, already proved a public benefit, by giving employment and regular pay to hundreds of laborers, who, at parting, warmly expressed their satisfaction at the manner in which they had been treated, mingled with regrets that their services were no longer required. The Canadians formed by far the greater portion of the laborers, and maintained their character for behaving with a degree of order and good nature, when working together in large numbers, unequalled by any other people. Many of them had become much reduced by the misfortunes of the last three years, and to such the railroad has proved a signal benefit—furnishing the poorest with the means of softening the hardships of winter, enabling others to clear their farms from ruinous encumbrances, and banishing want from the doors of all whose land it has touched.

Respectfully submitted.

WILLIAM R. CASEY,

Engineer Champlain & St. Lawrence Railroad.
To the Hon. P. M'Gill, }
Chairman of the Committee. }

The Reports of the Committee and Engineer of the Champlain and St. Lawrence Railroad Company, in another column, will, we are sure, be read with interest, as the undertaking to which they refer, is the first of the kind projected in this Province. We see in its favorable prosecution, so far, the earnest of a success, that will embolden other companies to enter upon similar means to improve our internal communication. We feel convinced that this railroad, when fairly in operation, will put to flight a host of prejudices—will expand the mind of the public, and give a stimulus to the enterprise of all classes.

The undertaking will doubtless prove of incalculable advantage to the community, and we are happy to say, that from the eagerness with which the railroad Stock is sought after, it is shrewdly expected that it

will be a profitable investment for capital. It is calculated that when this and the road between Whitehall and Saratoga are completed, that the journey from Montreal to New-York, may be accomplished in thirty-six hours, which will effect a material saving of time. For fuller details of the progress of the work, and of the future arrangements, we must refer to the reports themselves.—[Montreal Courier.]

We beg to call attention particularly to the concluding paragraph of Mr. CASEY's Report, which refers to the advantage which the country people have already derived from the railroad. They were, we understand, when dismissed, very anxious to know if any other work of the kind was likely to be undertaken in that quarter next summer, as they would gladly accept of another season's employment.

[From the Vermont Chronicle]

CONNECTICUT RIVER AND ST. LAWRENCE RAILROAD.—At a meeting of citizens of Windsor, 10th Dec. inst. it was resolved, in accordance with suggestions, from the North and the South, to call a general Convention, to take measures to construct the contemplated Railroad through the valley of the Connecticut to the St. Lawrence, connecting with New Haven and New York. The place designated was Windsor, Vt., and the time Jan. 20th, 1836.

Among the reasons for this movement are the following:

1. The Legislature of Vermont, at its late session, granted an act of incorporation for a Railroad, from the south line of the State, in Windham County, to the North line, in Orleans County.
2. It is understood that petitions are about to be presented to the Parliament of Lower Canada for the charter of Railroads from Lake Memphremagog in two directions, viz. to Montreal and Quebec, prospectively to connect with the Connecticut River Railroad. It is also understood that a lively interest is felt in Canada, in this enterprise, and that a convention of delegates from the towns on the respective routes in Canada, and in the valley of the Passumpsic, in Vermont, is appointed to be held at Derby Line on the 31st inst.
3. It is understood that a fresh interest is awakened among the friends of the enterprise on the southern part of the route.
4. The time has unquestionably arrived when a convention of citizens, from the towns on the whole route, can no longer be delayed, without manifest detriment to great and important interests.

The object of the measures to be taken at the Convention are these:

1. To obtain charters for those parts of the route not yet granted.
2. To procure a survey of the whole route, with estimates of the expense.
3. To collect and arrange facts concerning the amount of business that may be expected on the route.
4. By these and other means, to present to the public such a report as shall induce capitalists to make investments in the stock.

The great importance of this enterprise is obvious on a moment's reflection.

The agricultural susceptibilities of this whole route are very great—second to none in New England.

The water privileges and powers of manufacture are immense.

As a thoroughfare of business and pleasure, the route is unrivalled.

It will connect the great cities of New York and Canada, and bring them within twenty-four hours ride of each other.

The country is singularly adapted to the construction of a Railroad—no point, it is believed, will require a stationary engine.

The greatest activity prevails among the friends of other kindred enterprises in New England. The people on this route do not now put forth their best efforts in the accomplishment of this object, they will tamely give into the hands of others the advantages which nature has put into their own.

These considerations, it is confidently believed, will insure, at this Convention, a general attendance of delegates from all the towns on the route; and gentlemen into whose hands this Circular may fall, are earnestly requested to use their influence to cause the appointment of the same.

Gentlemen who may attend, are requested to bring with them as much statistical and other information, on the objects above specified, as possible.

THOMAS EMERSON,
ALLEN WARNER,
CARLOS COOLIDGE, } Committee.
JOHN RICHARDS,
I. W. HUBBARD.

Windsor, Vt., Dec. 21, 1835.

WABASH AND ILLINOIS RAILROAD.—A respectable meeting of the citizens of Pekin, Illinois, took place in that town on the 21st of November, for the purpose of taking into consideration the expediency of uniting with their fellow citizens of McLean, Champaign and Vermillion counties upon the necessary measures for the construction of a railroad from Pekin on the Illinois river to the point on the Wabash, where the projected Indiana canal is to terminate. Nathaniel Baley and Wm. H. Sandusky, Esquires, acted as President and Secretary of the meeting. The following preamble, adopted unanimously will shew the object of the meeting:

Whereas the cities on the Atlantic seaboard by the continually increasing emigration to the State of Illinois, are becoming of paramount consideration to all classes: and as the present existing facilities of communication between those cities and this State are very limited, and at certain seasons of the year of a very dangerous character—and as the people of Indiana have manifested their conviction of the importance of a more direct and safe communication with those cities by uniting the Wabash river with Lake Erie. And as the people of Illinois generally, as well as citizens of Vermillion, Champaign, McLean, and Tazewell counties are deeply interested in the construction of a Railroad from the Illinois river to the Wabash.

A committee consisting of five members was then appointed to confer with the citizens of the counties interested in the work, on the measures best calculated to carry it into effect, and five delegates were appointed to proceed to Vandalia for the purpose of co-operating with other delegations from these counties in relation to the subject matter.

The Secretary of the meeting who forwards us the proceedings—which it is quite out of our power to publish *in extenso*, asks us to request the papers of New York, Philadelphia, Boston and Providence, to copy them.—[Courier and Enquirer.]

From the Argus.

WESTERN RAILROAD.—(FROM WORCESTER, VIA SPRINGFIELD, TO WEST STOCKBRIDGE.)—At an adjourned meeting of the stockholders of this company, at Boston, the following gentlemen were chosen directors:

GEORGE BLISS, } Springfield,
JUSTICE WILLARD, }
T. B. WALES.
EDMUND DWIGHT,
HENRY RICE,
FRANCIS JACKSON,
WILLIAM LAWRENCE,
JOSIAH QINCY, jr.
JOHN HENSHAW.

The meeting of the stockholders is said to have been numerous attended, from the towns on the route, and from the city of Albany. It was announced, and statements

were read showing the fact, that the entire stock has been subscribed, with a sufficient excess to meet contingencies. This important work, which when constructed, will complete the direct railroad communication between this city and the city of Boston, will be commenced, we understand, at the earliest day practicable.

LOCOMOTIVE ENGINES.—We make the following extract from a letter dated Dec. 1, from a friend in Charleston, S. C., in order to show that improvements in Railroad Machinery is not confined to Baltimore, or any other one place, but wherever there is a Railroad, there also may be found improvements. It may well be asked, Who dared, *ten*, or even *five*, years ago, to predict that an Engine would be constructed, and especially in this country, capable of taking a load of 130 tons eighty miles in a day, and that too up inclinations of 37 feet per mile?

In relation to the comparison made with the Baltimore Engines, the statement is to indefinite to form an opinion—

Charleston, S. C. Dec. 4, 1835.

To the Editor of the Railroad Journal:

Sir—I take the liberty of giving you an account of the performance of the improved Six Wheeled Locomotive Engines, now at work on the Charleston and Hamburg Railroad, built after the plans and drawings of E. K. Dod, Chief Engineer of said Road.—These Engines perform a trip from Charleston to Aiken and back in three days, the distance is 240 miles, carrying a train equal in weight to 130 tons—with this load they surmount all the ascents, some of which are on a grade of 37 feet to a mile. You will perceive that this is more than double what the Engines on the Baltimore and Ohio Railroad are doing according to the accounts in your Journal. These same Engines are capable of travelling with our ordinary passenger train at a speed of 40 miles per hour, although the Engines are limited to run but 20 miles per hour, unless they are behind the regular time. The cylinders are 10½ inches in diameter and 16 in stroke, driving wheels 54 in. diameter, the cylinders being secured on the outside of the boiler, unable us to dispense with the Cranked Axle.

[We shall be gratified to hear further particulars from the writer of the above letter, in relation to the Charleston Railroad and its machinery.—[Ed. R. R. J.]

From the London Mechanics' Magazine.

PRINCIPLES OF RAILWAY LOCOMOTION.

Sir,—The writers on dynamics have demonstrated, that the force just necessary to prevent a heavy body from rolling down a smooth inclined plane (abstracting friction)

is $\frac{ah}{L}$, where a is the weight of the body, h the height of the plane, and L its length. This theorem is universally true, whether as respects our earth or any other of the celestial bodies. But in determining the space, time, velocity, &c., in and with which a body moves down an inclined plane, or when projected up a plane, it has hitherto been found absolutely necessary first to ascertain experimentally the value of the symbol g , which means the measure of the force of gravity or the velocity a body has acquired at the end of the first second, the motions commencing from a state of

rest, and the direction being in a vertical line; and from thousands of experiments, the value of g in our latitude has been found to be 32½ feet. I observe, however, in No. 618, your scientific correspondent, Mr. Herapath, has attempted, without the aid of g , to give us some very important formulæ on the principles of Railway Locomotion; I say important, if they shall turn out to be true; but on this point I must confess that I have some misgivings.

Mr. Herapath says, "that he has determined three rules as simple and correct as he believes it is possible, in the present state of our knowledge, to make them." Then follow the three formulæ (see p. 182, col. 2, and 183, col. 1). Mr. H. himself, however, seems a little puzzled at the result

of the expression $1 \pm \frac{h}{22}$, which represents the speed in miles per hour when the load is moving up or down the plane. For, as he truly observes, "we can hardly apply this formulæ to descents unless they be very small; for if the descent was 22 feet per mile, it would make the velocity appear to be infinite," &c. No doubt the formula produces such a result; and it is rather surprising that when Mr. H. found this was the result, he did not take it as a warning that there might peradventure be something wrong in his formula. An infinite velocity is no joke, and, perhaps, might be attended with some danger. Let us assume $h=21\frac{1}{2}$ feet (and on this supposition gravity will not do all the work); the velocity in this case will be 1,290 miles per hour (quick enough, no doubt, for any ordinary purpose). Again, by assuming $h=22\frac{1}{2}$, the velocity will turn out to be negative at the rate of 1,320 miles per hour. A negative speed, although perfectly understood by algebraists, may, to some of our readers, who do not rank as such, require some kind of explanation. For their benefit, here it is. The carriage and load, instead of moving down the plane, as might be expected (as gravity in this case does something more than the whole work), will, to the utter surprise of every one, roll up the plane at the rate of 1,320 miles per hour!

Perhaps, however, Mr. A. meant that when h is greater than 22, the formula assumes the form $\frac{h}{22}$. But upon trial, this change will not much mend the matter. I am afraid the formula will not be exactly true, except in the case when $h=0$. Mr. H., it is true, may say that the resistance of the air will prevent any thing like a velocity of 1,290 miles per hour. No doubt, if we had 30 square feet of opposing surface, and when the resistance of the air approaches "nearly to 344 horses' power," it would certainly be a very great check upon the velocity. Again, Mr. H. may state that he has premised that the value of h must be very small; I know he has said so, but in answer to this I beg to state, that he has not given the greatest limit to h , so that we may know when his formula presents a true or a false result. With respect to this formula, as it regards ascending planes, although it does not present such seeming absurdities, still, being derived from the same suspicious source, no faith can be placed in its accuracy.

I am well aware, Mr. Editor, that Mr. H. is considered by many to be both a mathematician and a philosopher of the first order; I well recollect the challenge he gave to the Royal Society on some physical questions, backed by a wager of 1000*l.*; still, notwithstanding all this, I maintain that his algebraical formulæ on Railway locomotion, are not founded upon true principles.

I am, sir, yours, &c.

IVER MACIVER.

June 20, 1835.

P. S.—I am much obliged to Kinclaven for the correction he has made in my last article; the only recompense I promise him will be, if he should ever fall into a like mistake, I shall endeavor to set him right.

I. M.

From the Journal of the Franklin Institute

MR. HERRON'S IMPROVEMENTS IN RAILROAD CARS.

(Extracted from the List of American Patents which issued in March, 1835.)

54. For improvements in Railroad Cars; James Herron, Civil Engineer, Richmond, Henrico county, Virginia, March 25.

There are several distinct improvements claimed by this patentee, all of which are described in a very full and clear manner, and illustrated by drawings, which leave nothing to desire on this point; it will appear, however, upon examining into the originality of the things claimed, that they are generally old, and have been fully described in this journal, or elsewhere in public works. The following are the claims.

"Specification 1st.—In this I claim as being the original inventor of carriages adapted to run alike on the edge railway, and on turnpike roads, as hereinbefore described.

"Specification 2nd.—In this I claim as being the original inventor of the roller flanches for retaining and guiding carriages on rail-roads, as hereinbefore described.

"Specification 3rd.—In this I claim as being the original inventor of the plans hereinbefore described for making the carriages conform to the curves on the railway.

"Specification 4th.—In this I claim as being the original inventor of the friction head, for reducing the friction of axles, as hereinbefore described.

"Specification 5th.—In this I claim as being the original inventor of the friction band, for reducing the friction of axles, as hereinbefore described.

"And I distinctly claim the right to apply my improvements, or inventions, herein specified and described, in whole or in part, as the nature of the case may require, to all carriages, cars, wagons, locomotive engines, and other machines."

The thing claimed in the first specification, which is for adapting the wheels to run on common roads, was the subject of a patent obtained by Samuel T. Jones, of Philadelphia, on the 22d of February, 1830; see vol. v., page 151; and also of one obtained by Mr. John pollock, on the first of October of the same year. The present patentee uses wheels of five feet in diameter, with a flat tread, and without the usual flanch, instead of which "there is placed alongside of each wheel a flat disk of iron, which I term a roller flanch, as it is at liberty to revolve on its own axis, entirely independent of the burthen wheel;" "when the carriages are used for streets, the roll-

er flanches are raised up to the position represented by the dotted circle." Mr. Jones, in his specification, above referred to, says, "I sometimes make my wheels without flanches, and, instead thereof, use friction rollers, fixed upon, or adapted to, suitable arms, or bearings, extending down to the rail, so that the rollers may bear against its side, and perform the office of a flanch." "I construct them so that they may slide up, when the car, or carriage, is about to pass off the railroad."

The plans claimed for making the carriages conform to the curvature of the railway are two, both of which require that the axles of the fore and the hind wheels should have their bearings on separate rectangular frames, which allow the axles to move from their parallel position, like those of common carriages, by means of the hounds; but in the case before us both frames turn, they being "connected by means of the coupling bar at a point intermediate between the axles, to which bars are attached toothed segments, adapting each pair of wheels equally to the curvature of the road."

By turning to vol. iii. p. 66, it will be seen that the late Dr. Win. Howard obtained a patent, dated Nov. 22d, 1828, for the application of this principle, which he states in the following words: "The connexion of the two beds of the axles at a point equidistant from each; and in the same manner the connexion between the hind bed of one wagon, and the fore bed of that following it, or the fore bed of the leading wagon with any system of guide wheels, so that the wheels not only of one wagon, but of a train, will follow one another in the same curve, without more lateral friction than when on a straight line." This description is accompanied with plates, to which the reader may turn, and see a full exemplification of the principle.

Under this same head, Mr. Herron refers to a method of using jointed crossbars, instead of the circular segments, by which "the same object will be more simply effected," by turning to the patent of Mr. John Pollock, obtained October 1st, 1830, this coupling by jointed crossbars will be found represented in a drawing, together with several other things which the present patentee deems to be new, and among them the making the wheels without flanches, that they may run upon common roads; see vol. vii. p. 17.

The "friction bands," mentioned by the patentee as claimed under his fourth specification, are hoops, or rings, of iron, by means of which the carriage frames are suspended below the axles of the burthen wheels; the hoops pass over the prolonged ends of the axles, and under friction rollers upon the frame of the carriage, and are to roll around by the friction of the axle upon them, in the manner, though not for the purpose, of Winan's friction wheels. It will be found in practice that these hoops will frequently stand still, and allow the axle to turn within them, as has often been the case with Winan's wheels, which have in several instances been cut through by this means. Besides this, the idea of suspending the load upon revolving rings is

not new; N. Finlay, of Baltimore, suspended the load in this way; see the notice of his patent, dated October 27th, 1829; at p. 36, vol. v.

The cranked axle mentioned in the fifth specification is intended to allow the load to extend below the axis of the load wheel. This has been effected by Samuel T. Jones, in a car patented by him, and described, vol. v., page 149; it has also been effected by others. We could have cited other authorities, also in most of the cases above noticed, with some of which we opine that it would be well for civil engineers to make themselves acquainted.

BACHMANN'S FRAME FOR RAILROAD CARS, AND OTHER CARRIAGES.

(From the List of American Patents which issued in May, 1835.)

4. For an improved *Frame for Railroad Cars, and other Carriages*; Heinrich Bachmann, Lancaster, Pennsylvania; an alien who has resided two years in the United States; May 2.

We are informed that by the plan here proposed, Railroad Cars may turn the small curves necessary in leaving the track for a warehouse, a yard, &c.; and that the lateral friction on the rails will be no greater upon any curve than on a straight line. We wish that this was true, but, unfortunately, the theory of the patentee is incorrect, and the plan by which he proposes to produce this useful effect is without novelty, its essential principle being well known, and repeatedly patented. The plan for causing the fore and hind wheels to adapt themselves to a curve, simultaneously, is the same with that upon which we remarked at p. 249, when speaking of Mr. Herron's patent, and to which, in order to avoid needless repetition, we must refer the reader. As regards the correctness of the theory, let it be remembered that when the fore wheels of a car pass from a straight road on to a curve, the hind wheels are still upon the former, and that by the plan proposed they are adapted to a curve at which they have not yet arrived, and will, therefore, have to grind their way to it. The patentee proposes to place the hind and fore wheels ten feet apart, which will greatly augment the evil that he imagines he has removed.

As in turning curves the opposite wheels must move with different velocities, the patentee uses a separate axle to each wheel, thus admitting of this difference of motion; there is no more novelty in this than in the other parts of the plan. Separate axles have been repeatedly used; and the same effect was produced, many years since, by leaving one wheel on each axle loose, so that, when necessary, it could turn upon it in the ordinary way.

34. For *Increasing the adhesion of the hind wheels of Locomotive Engines*; Chas. and Geo. Escal Sellers, city of Philadelphia, May 22.

A patent was obtained by Mr. E. L. Miller, on the 19th June, 1834, for a method of obtaining a similar end, by throwing the weight of a car, or tender, on to the hind part of a locomotive engine.

The present patentees effect the object by "so coupling, or connecting the cars containing the load to be drawn, to the body of the locomotive engine, as that the load by its action upon a lever, or standard, shall tend to raise the fore end of the locomotive, in any desired degree, and thus to lessen the pressure upon the fore, and transfer the same to the hind wheels."

The patentees say that they "do not mean to limit themselves to any particular form or manner of constructing the parts concerned in producing the intended effect, but claim as their invention the connecting to a Locomotive Engine, the load which is to be drawn by it, in such a manner as to throw a larger portion of the weight of the locomotive upon its hind wheels than they are ordinarily intended to sustain, in the manner, or upon the principle herein before set forth."

It will be readily seen that the coupling bar, or jointed rod, by which the car is attached to a locomotive, if attached to it at a point considerably above that by which it is attached to the car, will tend to lift the latter, and to draw down the former, and thus to increase the adhesion of its hind wheels.

35. For an improvement in *Mills for Sawing Stone*; Joseph L. Dutton, city of Philadelphia, May 22.

This patent is taken for the particular construction of the building in which the sawing is to be effected. In the first place, the floor of the mill is to be raised to such a height from the ground "as to be on a line with the bed of the log or marble teams, by which means most of the expense incurred by unloading, and reloading, is saved." On this elevated floor are placed several short transverse railways, upon which run cars to which the blocks of stone are transferred, immediately from the common teams, and by which they are supported during the operation of sawing.

Above the before mentioned railways, the framework of the building supports other railways, upon which also there is a car furnished with a screw, by means of a chain dependent from which, a block of marble may be suspended and transferred to any part of the mill where it may be wanted. A crane is likewise constructed, which sustains a car similar to that last described, for aiding in the transfer of the stone from one part of the building to another. The arm of this crane is supported upon friction wheels, running upon a suitable curved way, erected for that purpose.

"I claim an exclusive right to the raising of the mill floor, as above described. The traversing car. The application of the upper car to saw mills. The crane, whether applied to saw mills, or for any other purpose; and the regulating spring of the saw slides."

We think that the foregoing claim is very susceptible of improvement. The mere raising of the floor, for the purpose pointed out, we do not think new in saw mills, for we err greatly if we have not seen, in Philadelphia itself, a mill, for sawing mahogany, with the floor so raised

"as to be on a line with the bed of the log" carriage. Nothing is said about any novelty in the traversing car which is to receive the stone, nor do the upper cars differ from such as have been used for raising and transferring loads, for other purposes. The crane is claimed, "whether applied to saw mills, or for other purposes;" now this assuredly does not mean a crane generally, yet we are not told in what particular this crane differs from others; a thing that should not be left to be inferred, but which ought to have been particularly specified. The fact is, that the novelty and utility of the structure consist not so much in the formation of its individual parts, as in the general arrangement and combination of the whole, by which it is adapted to the attainment of the object proposed, and upon this the claim to invention must mainly rest.

San Felipe de Austin, Oct. 26, 1835.

To Dr. John Sibley,

MUCH ESTEEMED SIR:—The very friendly declarations contained in the Resolutions adopted by the citizens of your place at a public meeting over which you presided, have come to us, and we are now under the necessity of calling upon you for the aid so freely and nobly offered. We send you two circulars, containing the last important information, which of themselves ought to be sufficient to excite our friends. We will also inform you that from information received the enemy still expects considerable reinforcements, and have therefore to tender our thanks through you to the meeting, and urge them to use their united influence to hasten the assistance which the destinies of Texas so loudly call for. A few men now may save Texas from sword and fire.—The accompanying please cause to be printed in your paper, requesting all editors friendly to our cause to do the same.

You will be good enough to inform those who will embark in our cause that provision will be made to receive companies at the mouth of Brazos (Velasco) and their passage from N. Orleans paid; those who come by land will form themselves into companies, and the commander will draw on this council for payment of supplies and all other expenses necessary to a general outfit. Respectfully,

R. R. ROYALL, President
Of the General Council of Texas.

A. HOUSTON, Secretary.

San Felipe de Austin, Oct. 26, 1835.

On Motion of D. PARKER of Nacogdoches, it was Resolved,

That the General Council address the people of the United States, making an appeal to their philanthropy in behalf of the people of Texas, whereupon the following address was unanimously adopted, and ordered to be printed and circulated.

R. R. ROYALL, President of the Council.
A. HOUSTON, Secretary.

TO THE CITIZENS OF THE UNITED STATES OF THE NORTH.

The General Council of all Texas, by resolution unanimously adopted, have de-

termined to address you in behalf of suffering Texas, and to invoke your assistance.

A few plain facts will suffice to explain to you the political condition in which we are placed, and to satisfy you that we are engaged in a contest just and honorable, and one which should command universal admiration and sympathy.

Our citizens were invited to settle Texas by a government of a republican federal character, having for its model that of the government of the United States of the North. Under that invitation, and the promise of protection to our lives, persons, and property, thousands emigrated here, and have subdued a vast extended wilderness to the purposes of agriculture; and in place of the solitary region inhabited hitherto only by the savage and beast, now present a country prosperous in the highest degree, with a population varying between sixty and one hundred thousand inhabitants, and having on its whole face inscribed one universal assurance of its future greatness and prosperity.

Under this form of government, and this invitation, thousands have brought their property to this country, and invested thousands upon thousands of dollars in lands. They have expatriated themselves from their native country, torn themselves from connections dear, given up the conveniences and luxuries of life, and encountered for years back toils and dangers and privations of every sort.

They have given security to the Mexican frontiers from Indian depredations, and made the mountains the boundary of the savage. And now, when we had accomplished all this, when we had just fairly established ourselves in peace and plenty, just brought around us our families and friends, the form of government under which we had been born and educated, and the only one to which we would ever have sworn allegiance, is destroyed by the usurper, Santa Anna, and a military central government about to be established in its stead.

To this new form of government the people of Texas have refused to submit.—They ground their opposition upon the facts that they have sworn to support the Republican Federative Government of Mexico, and that their duty requires them now to stand out in opposition.

Texas was one of the units that composed the government, by the national constituent congress of 1834. She was acknowledged a sovereign and independent member of the confederacy. As a sovereign member, she voluntarily united in the confederacy that forms the government, and upon the breaking up of that government she has unquestionably the right to accede or to reject the new one that may be proposed.

The one now proposed is in opposition to her wishes, interests, and the education of the people. It protects only the interests of the military and clergy, securing privileges to the one, and intolerance of religion to the other. Such being its character, and our right undoubted, the people of Texas, with one united voice, have rejected the new form of government, and have resolved to abide by their oaths to sustain

the constitution. Public sentiment has already declared that Texas should be organized as a state government under the constitution of 1824, or such other form of government as circumstances may require.

Members to a convention have already been elected, and were to have met on the 15th of the present month. The invasion of the country by General Cos, has however, thus far prevented their meeting, as nearly every member is now in the field of war. At this time our army is besieging General Cos in San Antonio, but he is hourly expecting a large reinforcement, and the people of Texas want aid of their once fellow citizens, friends and relations of the United States of the North.

What number of mercenary soldiers will invade our country we know not, but this much we do know, that the whole force of the nation that can possibly be spared, will be sent to Texas, and we believe that we have to fight superior numbers. But we believe victory in the end will be ours. But one sentiment animates every bosom, and all, every one, is determined on "Victory or death."

Citizens of the United States of the North, we are but one people! Our fathers, side by side, fought the battles of the revolution. We, side by side, fought the battles of the war of 1812 and 1815. We were born under the same government—taught the same political creed, and we have wandered where danger and tyranny threaten us! You are united to us by all the sacred ties that can bind one people to another. You are, many of you, our fathers and brothers—among you dwell our sisters and mothers—we are aliens to you only in our country,—our principals, both moral and political, are the same—our interest is one, and we require and ask your aid, and we earnestly appeal to your patriotism and generosity. We invite you to our country—we have land in abundance, and it shall liberally be bestowed upon you. We have the finest country on the face of the globe. We invite you to enjoy it with us, and we pledge to you as we are authorized to do, the lands of Texas, and the honor and faith of the people, that every volunteer in our cause shall not only justly but generously be rewarded.

The cause of Texas is plainly marked out. She will drive every Mexican soldier beyond her limits, or the people of Texas will leave before San Antonio the bones of their bodies. We will secure on a firm and solid basis our constitutional rights and privileges, or we will leave Texas a howling wilderness.

We know that right is on our side, and we are now marching on the field of battle, reiterating our father's motto, "to live free or die." And to the people of the United States of the North, we send this assurance, that though numbers may overwhelm us, no other feeling than that of the genuine American glowed in our bosoms, and though danger and destruction awaits us, no friend of theirs prove recreant to his country.

Done in the Council Hall on the 26th day of Oct., 1835.

(Signed) R. R. ROYALL, President.
A. HOUSTON, Secretary.

METEOROLOGICAL RECORD,

For the months of August and September, 1835, kept at Avoylle Ferry, Red River, La., (Lat. 31° 10' N., Long. 91° 59' W., nearly,) by P. G. VOORHIES [Communicated for the American Railroad Journal.]

AUGUST.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	REMARKS.
1	74	88	84	calm	clear	wind in the after'n s. e.
2	75	81	79	..	cloudy	and showers all day
3	75	80	77	..	..	rain at noon and evening
4	71	85	82	..	..	clear at noon
5	75	80	78	..	clear	{ thunder and rain—wind
6	74	84	80	..	cloudy	{ n. w. at noon
7	74	83	80	..	..	clear at noon—thunder
8	72	80	74	calm	cloudy	{ wind s. w. in the ev'g
9	72	82	78	..	..	foggymorning and cloudy evening
10	74	80	76	..	..	light showers
11	72	85	82	..	..	{ rain in the evening—
12	71	82	80	s	cloudy	{ heavy and thunder
13	74	88	82	sw	clear	{ at noon a gale from w.
14	76	86	81	calm	cloudy	{ and heavy rain and th'r
15	78	87	84	s	clear	heavy rain in the morn'g
16	78	89	84	calm	..	Red river falling
17	73	87	85	..	..	..
18	76	88	82	w	..	cloudy evening
19	75	88	83	calm	..	all day
20	76	89	75	..	..	{ heavy thunder storm
21	74	82	78	..	cloudy	{ and rain from n. w.
22	70	81	79	..	clear	..
23	72	82	75	..	cloudy	rain in ev'ng—wind s. w.
24	74	82	77	..	..	{ close and sultry morn-
25	74	84	75	s	..	{ ing—at noon wind s.
26	72	80	72	calm	..	{ thunder and rain in the
27	67	68	72	w	..	{ evening—wind s. w.
28	71	78	77	calm	..	{ at 11 o'clock a m. a se-
29	70	82	80	..	clear	{ vere gale from n. w.
30	71	84	82	..	..	{ rain, with heavy thun-
31	72	84	72	..	cloudy	{ der and rain

Red river fell this month 1 foot 9 inches—below high water mark 7 feet 9 inches.

SEPTEMBER.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	REMARKS.
1	70	76	75	calm	cloudy	clear in the morning
2	67	80	76	..	..	{ thunder and rain—high
3	73	81	76	..	..	{ wind from e.
4	71	86	79	..	clear	clear in the evening
5	71	85	82	..	..	wind in the ev'g from s. e.
6	72	86	83	..	..	Red river rising
7	76	78	75	..	cloudy	..
8	70	74	72	..	..	..
9	68	81	79	..	clear	..
10	71	81	77	NE	..	cloudy evening
11	69	81	76	calm	..	..
12	66	81	78	w	..	..
13	66	82	79	calm	..	..
14	67	82	78	..	..	..
15	63	82	76	..	..	..
16	67	82	74	..	..	{ heavy showers rain and
17	72	76	72	E	cloudy	{ wind from e. in even'g
18	68	74	72	NW	..	all day
19	70	76	69	w	clear	cloudy in the evening
20	61	80	75	NW	..	..
21	60	79	73	calm	..	..
22	64	78	75	..	..	..
23	64	77	71	NE	..	foggy in the morning
24	60	73	70	NW	..	..
25	53	71	65	N	..	..
26	54	72	66	N	..	..
27	56	70	64	NW	..	..
28	54	75	71	calm	..	..
29	62	79	75	..	..	..
30	62	91	76	..	..	..

Red river rose this month 7 feet 31 inches—below high water mark 51 inches.

AGRICULTURE, &c.

HORTICULTURAL SOCIETIES AND AGRICULTURAL FAIRS.—We take the following account of the meeting of the Ontario and Wayne counties Horticultural Society, from the Geneva Courier. The meeting was held at Blossom's Hotel, in Canandaigua, on the 30th of September. We omit the list of premiums, giving merely that part of the proceedings which may be of service to others; and we would call especial attention to the statement made by Mr. Samuel M. Hopkins, in relation to the "nature and cause of Mildew" of the Grape—it will at least be found interesting, and we hope valuable to our wine growing friends.

The fruits, vegetables, and flowers were arranged for exhibition, on tables in the dining-room of the hotel, the walls and ceiling of which had been dressed and decked in a very tasteful way, by the excellent gardeners in the employ of Messrs. Greig, Duncan, and Blossom, with a drapery gathered from forest, orchard, and garden, beautifully appropriate, and variegated with the rich dyes of autumn, among which, hung up at various intervals, were seen double pears, twin plums, apples in great clusters, and other anomalies of vegetation.

The committee were engaged in their examinations and in adjudging premiums, from about 12 till a little after 1 o'clock, and the premiums were announced after dinner.

After this report, Mr. Hopkins gave an exceedingly interesting statement of various experiments, which he had made during the past season, on the management of grape vines, with a special reference to the ascertainment of the nature and cause of Mildew. The statement was wholly oral, and it is impossible to give a full and exact report of it here; though the general conclusion, which Mr. H. drew from his experiments, was that the mildew of grapes was analogous to the rust of wheat; that is, an exudation, or oozing out, of the juice of the young grape through its tender skin, bursts in the very early stages of its growth, by excessive stimulation by too high manuring, and then acted on by the intense heat of our American summer sun. Mr. H. had examined the grapes, in all stages of their progress, with a microscope, and was entirely convinced that he was right, as to the nature of mildew, and believed that he had ascertained one of its causes, if not its only one. He exhibited samples of clusters taken from different parts of his vines, to illustrate his positions and exemplify the effects of his different modes of management. He considered that the treatment, indicated by his experiments, was to avoid high manuring, and to prune little, or none, so as to leave to the clusters the shelter of all the shade the vine can furnish, and even to train the vines on trees for the sake of additional umbrage, as the custom has always been in Italy. On this point, Mr. H. referred to the natural habits of the grape, and to the methods of culture pursued in the more sunny regions of sunny Europe, and thought that our modes of treatment should be drawn from those climates, as being more like our own, rather than from countries many degrees north of us, as England and Scotland, where the humid, chill, and unsunned atmosphere about the vines, render

ed much stimulation and pruning necessary.

Such is a very succinct, but, it is believed correct, outline of the views presented by Mr. H. Before the society adjourned a resolution was passed, requesting Mr. H. to furnish a detailed and full statement of his experiments and views on this subject for the press.

The following are the officers for the ensuing year:

John Greig, President; Samuel M. Hopkins, Wm. H. Adams, Oliver Phelps, Wm. S. De Zeng, Alexander Duncan, Abraham L. Beaumont, Vice Presidents; Joseph Fellows, Treasurer; O. L. Holley, Corresponding Secretary; Z. Barton Stout, Recording Secretary.

The Corresponding Secretary was directed to prepare a circular on behalf of the Society, and have 300 copies printed, for distribution in the counties of Ontario and Wayne, in the hope of enlarging the numbers of the Society and extending its usefulness.

It was resolved that the next June meeting be held at Lyons, and that Wm. H. Adams be Chairman of the Committee of Arrangements for said meeting, the day and place of which to be seasonably advertised in the newspapers.

Z. BARTON STOUT, Rec. Sec'y.

AGRICULTURAL CONVENTION.

Believing that important benefits may result from the deliberations of a State Agricultural Convention—that a moderate appropriation of public money, to induce emulation, to reward merit, and to diffuse useful knowledge in the arts of productive labor, would tend essentially to advance our prosperity, and to improve and elevate the character of our State; and knowing that the concert of many can alone insure success in the most laudable undertaking,—the subscribers respectfully invite a convention of gentlemen, desirous of giving a new impetus to agricultural improvement, either individually, or as delegates from towns and counties, at the City Hall, in Albany, on the second Monday in February next.

J. H. Bronson,	O. Wiswall,
Calvin M'Knight,	Joab Centre,
Alpheus Green,	W. R. Ludlow,
M. Sterling,	Carroll Livingston,
Wm. Smith,	Peter Livingston,
Eli Fairwell,	Sherman Griswold,
Olney Peirce,	Erastus Pratt,
Egbert Ten Eyck,	Geo. M'Kinstry,
Hart Masscy,	Abm. Jordan,
Of Jefferson Co.	James Flenning,
Thos. L. Davis,	Henry Smith,
Thos. Taber,	Seymour Smith,
Henry Swift,	John Sanders,
Barton White,	Walter Patterson,
Egbert Carey,	Robert Denniston,
Benjn Haxtun,	Of Columbia Co.
Ob. Titus,	Erastus Corning,
Joseph J. Jackson,	J. K. Paige,
Stephen Thorne,	Wm. Campbell,
Henry A. Livingston,	Aaron Thorp,
John Wilkinson,	Samuel Chreever,
Of Dutchess Co.	Of Albany Co.
P. Beckman,	G. Robinson,
L. Van Buren,	Wm. Main,
J. S. Vashburgh,	M. Whiting,
P. J. Hoes,	C. Mardock,
W. Hawley,	Earl Stenson,
Thos. G. Waterman,	John H. Steele,
Of Broome Co.	Of Saratoga Co.
G. Corning,	Dan. Bradley,
Philip Vile,	Of Onondaga Co.
A. Walsh,	G. D. Burrall,
Of Rensselaer Co.	Of Ontario Co.
L. F. Allen,	J. B. Yates, of Madison.

P. B. Porter,
Aug. Porter,
Of Erie Co.

T. H. Hubbard,
J. W. Brewster,
Of Oneida Co.

AGRICULTURAL CONVENTION.

It will be seen, by the notice inserted in to-day's Cultivator, that an Agricultural Convention is proposed to be held in Albany, on the second Monday in Feb. next.—The notice has appended to it the names of many highly respectable citizens, to whom the proposition was submitted—enough to give to it all the weight and consequence which is desirable in a preliminary measure. This is the era of conventions; and when their object is praiseworthy, they are seldom otherwise than beneficial. They tend to bring about a concert of action, and to concentrate the energies of many for the accomplishment of a common good. And if the agricultural community can in this way do any thing to advance their interests, we may rest assured that the State will be benefitted, so intimately is the prosperity of the first identified with that of the latter. The discreet farmer must graduate the extent of his purchases from the merchant, manufacturer, &c., by the net profits of his farm. If he can double these profits, as we feel assured may be done, the other classes of society will be correspondingly benefitted.

There are many topics which present themselves as worthy the consideration of an Agricultural Convention, and in which the whole community have a deep interest. We will endeavor to point out some of the more prominent ones.

1. *The establishment of a School of Agriculture.* "It remains to us," says Chaptal, "to improve agriculture by the application of physical science. All the phenomena which it presents, are the consequences necessarily resulting from those eternal laws by which matter is governed; and all the operations which the agriculturist performs, serve only to develop or modify these causes. It is, then, to the acquisition of a knowledge of these laws, in order to calculate their effects, and modify their action, that we ought to direct our researches." These laws relate not only to the organic and ponderable matters with which we have to do, as animals and vegetables, earths and manures, but to light, heat, and moisture, which exercise a controlling influence over animal and vegetable life. "Discoveries made in the cultivation of the earth," it is well remarked by Davy, "are not merely for the time and country in which they are developed, but they may be considered as extending to future ages, and as ultimately tending to benefit the whole human race; as affording subsistence for generations yet to come; as multiplying life, and not only multiplying life, but likewise providing for its enjoyment." And if the sciences, as is often asserted, are worthy of our ardent pursuit, merely on account of the intellectual pleasures they afford—"by enlarging our views of nature, and enabling us to think more correctly with respect to the beings and objects around us,"—how much more worthy are they of our regard, when employed to multiply the products and profits of human labor—to increase the comforts and happiness of the human family.

But it is not desired to make mere scientific farmers, but intimately to blend the practice, and the best practice, in all the departments of rural labor, with the theory, and to test and correct the one by the other. In the plan of a school which has been partially promulgated, it is set down as an indispensable rule, that during the seven farm-

ing months, both teachers and students shall devote at least one half of the time to the practical labors of the field, the garden, or the mechanic's shop. The plan has been objected to on the ground, that few, comparatively, can become its inmates. The same objection exists to all our higher literary schools; not one individual in five thousand receives instruction in our colleges; and yet it would subject one to ridicule to contend, that these colleges do not exercise a highly salutary influence, indirectly, upon the best interests of the community. So of our canals and public improvements; they do not directly benefit property where ample facilities of commercial intercourse previously existed—they have in fact comparatively and seriously diminished the value of real estate in some districts; yet no one doubts their utility to the community at large. Besides, should the predictions of the usefulness of agricultural schools be verified, schools of the kind can be readily multiplied.

The pupils of an agricultural school would not only carry with them into business life, those principles of science, and that general knowledge, which would be calculated to improve our husbandry, and to add to the stock of general knowledge—but they would carry with them, and disseminate, practical knowledge, in all the departments of agricultural labor. They would carry with them a knowledge of the various breeds of farm stock, of their relative value—of the diseases to which they are incident, and the methods of treating them, when well or sick—a knowledge of the nature and proper management of different manures—of the principles and methods of draining and irrigation—of the principles and value of alternating crops—of the best varieties of fruits and culinary vegetables, and the modes of propagating, cultivating and preserving them—a knowledge of all new plants, profitable in our rural culture, method of treatment, the soils to which they are adapted, and mode of preparing for market—of the leading principles of mechanical science, highly essential in the construction and management of farm implements. They would carry with them, also, habits of application and reflection—hands inured to labor, and minds imbued with light and truth, and animated with an ardent desire to obtain distinction for usefulness. The example of a good farmer exerts a magic and benign influence upon all around him. His light is not hid under a bushel; but shines forth to illuminate and instruct all who are within its influence. Who will set bounds to the benefits which would result from annually locating one or two hundred such pupils in various parts of the State?

2. *The standard of instruction in our common schools should be rated, to fit the pupils for the high duties and responsibilities of freemen, and to aid them in their future business of life.* This is required, as well by political and moral considerations, as by a desire to keep pace, in the arts of labor, with the improvements of the age. The preservation of our civil rights depends upon the intelligence and independence of the middle class of society—the pecuniary prosperity of our State upon their habits of profitable industry. It is in our common schools that we are to lay the foundation of this intelligence and independence, and to inculcate principles and habits of useful industry.

The reports from our penitentiaries furnish us with two remarkable facts, viz., that of 180 convicts, in the Connecticut state-prison, "there is no one who, before his con-

viction, could read and write, and who was of temperate habits, and followed a regular trade"—and that "there never has been, in that prison, a convict who had received either a collegiate or classical education." Volumes could not enforce more strongly the propriety of adopting a high standard of common school instruction, nor urge stronger considerations for multiplying incentives to honest labor. These matters come within the special province of the agricultural class, who must, from their numbers and influence, give the impress to our character, so long as our freedom shall survive. How little is now done in our common schools to instruct the boy in his future business of life, or in his civil rights and responsibilities!

The importance of the middle class of a population, under a free government, is forcibly shown in the following extract, which we make from Sismondi's History of the Fall of the Roman Empire.

"But one effect," says this historian, "of the long duration of states, and of their extended power, is to separate the inhabitants into two classes, between whom the distance is constantly widening, and gradually to destroy the intermediate class, together with which all the social virtues are gradually uprooted and annihilated. From the time that this gulf is once opened between the two extremes of society, every successive revolution does but continue to widen it; the progress of wealth had been favorable to the rich, the progress of distress favors them still more. The middle class had been unable to stand the competition with them during prosperity; in adverse times it is crushed under those calamities which only the wealthy can stand against. The corruption of Rome had begun from the time of the republic, from the time that the middle class ceased to impress its own peculiar character on the whole nation; this corruption increased in proportion as the intermediate ranks disappeared; it was carried to the highest pitch when the whole empire consisted of men of enormous wealth, and populace.

"It is, in fact, in the middle classes that the domestic virtues,—economy, forethought and the spirit of association,—mainly reside. It is in them that a certain degree of energy is incessantly called into operation, either as a means of rising, or of keeping the position already acquired. It is in them that alone the sentiment of social equality, on which all justice is based, can be kept alive. We must see our equals, live with them, and meet them daily and hourly, encounter their interests and their passions, before we can get the habit of seeking our own advantage in the common weal alone. Grandeur isolates a man; vast opulence accustoms each individual to look upon himself as a distinct power. He feels that he can exist independently of his country; that his elevation or his fall may be distant; and, ere long, the servile dependents, by whom a man who spends as much as a petty state is sure to be surrounded, succeed in persuading him that his pleasures, his pains, nay, his slightest caprices, are more important than the welfare of the thousands of families whose means of subsistence he engrosses.

"The morality of a nation is preserved by associating its sentiments with all that is stable and permanent; it is destroyed by whatever tends to concentrate them on the present moment. So long as our recollections are dear to us, we shall take care that our hopes be worthy of them; but a people who sacrifice the memory of their ancestors, or the welfare of their children, to

the pleasure of a day, are but sojourners on a country—they are not citizens."

3. *A portion of public money may be usefully applied in aid of county agricultural societies, to call forth talent and to excite industry.* Of the salutary effects of premium rewards, for skill and enterprise in agricultural improvement, we have testimony enough in the experiment which our State made in 1817, and which is yet exerting a beneficial influence among us. We see it confirmed also in the States which surround us, some of which have for a long time been liberal of their funds to this object, while others, yet in their infancy, have recently begun to copy the provident example. There is no country which has made greater advances in improved husbandry, during the last fifty years, than Scotland, and there is none perhaps which now excels her. Her Agricultural Society has been in existence about fifty-one years, and in that time has distributed, to the tillers of the soil, premiums to the value of about half a million of dollars. The value of her agricultural products has been augmented, in the mean time, several millions annually. Who will deny, that her premiums have contributed largely to bring about this wonderful improvement in Scotch husbandry? The remarks of Chapin upon this subject, inserted in our October number, are so pertinent and forcible, that we beg leave to refer to them, as further illustration upon this head.

4. *We want better Common Roads.*—The existing laws are defective, or they are not faithfully executed. Nothing tends so rapidly to improve and enrich a district, as good roads. The profits of agricultural labor, as well as the stimulants to industry, are increased by every new facility for transporting its products to market. The attention of our legislatures has been so much engrossed by party politics, private claims and monied incorporations, as to leave little time to deliberate upon the matter, and to digest a better system. In truth, a goodly portion have been strictly political or professional gentlemen, whose study has been more to improve the road to office, and the road to preferment, than the common roads of the farmer. Plans of improvement have been suggested, and we are advised that some of these will probably be submitted.

5. We have a formidable enemy in the *Canada Thistle*, which it requires the united efforts of all landholders to put down, aided by legal penalties. Lastly,

6. The serious depredations of the *Grain-worm* upon the wheat crop of some districts, and the apprehended danger that it will extend itself over the State, is a matter highly worthy the consideration of an Agricultural Convention.

We have thus suggested some prominent subjects which may engage the attention of an Agricultural Convention, of manifest importance to the farmer and the public. Whether all or any of them will be discussed, it is not our province to say. And we will close our already too protracted remarks, by calling upon the agricultural interest in the several counties to weigh the matter with all deliberation, and if they concur with us in the belief, that much good may result from the proposed meeting, to give it their cordial and efficient support. We would in particular address those who are just entering upon the stage of business life—who are anxious not only to acquire fortunes, but reputations for public usefulness, and who are to give a character to our agriculture in coming years. "Nothing," said an ancient sage, "can be more despi-

cable than an old man, who has no other proof of having lived long in the world than his age." "It should be the object of our ambition that we should all signalize the period of life allotted to us, by some exertion, either mentally or bodily, which may be useful to mankind, and give us a claim to their remembrance, to their respect, and to their gratitude."—[Cultivator.]

The following short treatise on the Management of a Kitchen Garden is from the pen of Charles F. Crosman, a member of the Society of Shakers. In it will be found much that is useful, at least to some of our readers.

MANAGEMENT OF A KITCHEN GARDEN.

Previous to commencing the work of the garden, a few matters essential to success should be particularly attended to. In laying out a garden on an oblong form, it will generally be found most convenient to have the rows of vegetables run lengthwise of the garden, so that the plough or cultivator may run through freely, without interruption, allowing an alley at each end for the horse and plough to turn round upon: The ground should be ploughed or dug to a good depth, especially for long rooted plants, and be well incorporated with rotten manure or rich compost. The essential advantage of deep ploughing is not only best calculated to give room for the roots to expand freely, but the crops on a deep ploughed soil will be much less liable to injury from the extremes of wet and dry weather. Every garden should have a good supply of well rotted manure or old compost, ready for use when wanted; also a portion of soot, tobacco dust, ashes and lime, for the purpose of scattering over seed beds and hills of plants in dry weather, to destroy insects, which often cut off the young plants as fast as they come up.

The next matter of importance is, to work the ground and put in the seed when it is in proper order to receive it. A light, sandy soil will be benefitted by working it when moist, as this will have a tendency to make it more compact, and better adapted to retain its moisture; but if a clay soil be worked when too wet, it will become hard and stiff, and not only prevent the seeds from rising freely, but materially injure the plants in their subsequent growth. Rolling or pressing the earth over the seeds, will tend greatly to promote their vegetation, especially when the soil is loose and dry; but when moist and heavy, if done at all, it should be done very lightly.

If the ground be very dry at the time of sowing, let the seed be soaked a few hours in water strongly impregnated with sulphur or soot, and keep the ground moist by frequent watering: This will have a great tendency to forward the vegetation and prevent the ravages of insects.

Transplanting is generally attended with the best success when performed immediately after the ground has been newly ploughed or dug; as it will then work light, and the moisture arising from newly stirred ground is highly beneficial to the growth of young plants. If the soil of the bed be dry when the plants are to be taken out of it, let it be watered freely, and then raise the plants carefully with a trowel or a flat-pointed stick; and before setting them out, dip the roots into a mixture of rich mould or rotten manure and water, with the addition of a little lime or ashes, and reduced to the consistence of thick whitewash. This preparation is found highly beneficial to the

young plants of cabbage, turnips and others when transplanted, by promoting their growth and preventing their roots from being injured by destructive insects. In setting young plants, the earth should be pressed a little over the roots, and raised around the stem, sufficient to support the plant, and prevent it from falling or leaning aside. The ground should be stirred often, and kept loose and light by frequent hoeing through the season.

A good garden, well supplied with useful vegetables, in a healthy, thriving state, kept neat and clean from weeds, affords a striking evidence that the cultivator possesses a good portion of wisdom and economy, and is attentive to his business; but when I see a garden containing a small quantity of such as are evidently from good seed, promiscuously planted, without order or regularity, faintly struggling among the weeds for existence, I readily conclude that the proprietor's mind needs cultivation, and that some noxious weeds of domestic or foreign growth have taken deep root there, which will require the strong hand of an industrious and persevering cultivator to eradicate.

The numerous benefits afforded to a family from a well cultivated garden are too little considered by many of our country farmers, for their own interest and the health and prosperity of their families. The cheap and healthy varieties which may be furnished, (much less expensive, and far more healthy than the same quantity of meat without vegetables,) the pleasing and healthy exercise and enjoyment attending their cultivation is beyond description: indeed the cultivation and produce of a good garden are the life and health of a family, upon every principle of rational enjoyment and temporal economy.

1. *Asparagus. F. Asperge. S. Esparago.**—This is a very delicious vegetable, and easily cultivated, after the first operation of preparing the ground. It requires some of the deepest soil in the garden: a rich, sandy loam is the best. The ground should be trenched or spaded up, and a plenty of rotten manure well mixed into the soil to the depth of one foot and a half. Then mark out your beds six feet wide, forming two feet alleys around them, by throwing up six inches top soil on the beds. Next use the rake and hoe, till the ground is well pulverized and made level and smooth. Then mark out your drills one foot apart and two inches deep. Soak the seed twelve hours in warm water; drop it about one inch apart in the row; rake it in, and press the soil over the seed with a board or garden roller. When the young plants are up, hoe them carefully, and keep them clear of weeds through the season. After the second hoeing, pull out the weakest plants, leaving them about four inches apart.

A bed of asparagus, well managed, will produce buds fit for cutting the third spring after sowing. The buds should be cut one inch or more below the surface of the ground. The cutting may be continued until the first of July; then let it grow up, but hoe it frequently till it covers the ground.

Spring dressing. As soon as the ground is dry, so as to work light, separate the stalks from the ground with a hoe, cutting them, off beneath the surface, and loosen the surface of the ground all over the beds. Some dry straw, little or fine brush may be added to these stalks when dry, and the

* The French and Spanish names of the various vegetables are added to our common English name, and marked with the letters F. and S., for the information of foreigners who purchase our seeds.

whole burnt together on the ground. This will promote the growth of the asparagus, and destroy many insects' eggs, seeds of weeds, &c. The ground should then be covered one inch or more with rotten manure or compost, well incorporated with the soil above the roots; then rake the beds smooth and level. An application of swamp earth, salt or brine spread on the beds, has been found to promote the growth of asparagus.

Though this vegetable grows naturally in a poor, sandy soil, yet the sweetness and tenderness of the buds depend much on the rapidity of their growth, which is greatly promoted by richness of soil and good attendance. Beds of asparagus may be formed by preparing the ground, as before stated, and transplanting the root of two or three years' growth, setting them with the crown upwards, four inches below the surface.

A good bed of asparagus, if well attended to, will flourish many years; ours occupies one-eighth of an acre of land, the greater part of which has been planted more than forty years, and is now as good as ever.

Directions for cooking asparagus. Cut the buds when from three to six inches high; clean them well in cold water, cutting off most of the white part, as that which grows beneath the surface of the ground is apt to be tough and bitter. Take water enough to cover the stalks, and put in salt sufficient to season them well; boil and skim the water, then put in the asparagus. Be careful to take them up as soon as they become tender, so as to preserve their true flavor and green color; for boiling a little too long will destroy both. Serve up with melted butter or cream.

2. Beans. F. Feve. S. Haba.—A dry, warm soil, tolerably rich, is the best for beans. The ground should be worked fine and mellow. Plant, for early use, from the 20th of April to the 1st of May. The early kinds may be planted in drills two and a half feet apart, and at the distance of three inches in the row, or in hills a foot apart.

The **Early Purple** is the earliest bean, and consequently preferred for early use. The **Early China** and **Early White** are excellent, either for stringing or shelling: they will be fit for use, if the season is favorable, in about six weeks for planting. The **Royal White** is a large, rich bean, excellent for shelling. This kind should be planted in rows three feet apart, and if in hills, two feet from each other, with four beans in a hill; if in drills, six inches apart in the row. The **Running** or **Polé Beans** should be planted in hills, three and a half feet distant each way. They should be planted as early as possible, in a rich, mellow soil. We prefer setting the poles before planting. For this purpose we stretch a line, and set the poles by it; then dig and loosen the earth, and drop five or six beans in a circle round the pole, about three inches from it, and cover with mellow dirt one inch or one and a half in depth. When the plants are well up, stir the earth around them, and pull out the weakest plants, leaving three to each hill. This should be done when they are perfectly dry; for beans never should be hoed when wet, nor when any dew is on them.

The green pods of beans may be kept and preserved fresh by laying them down in a jar or tub, with a layer of salt between each layer of beans.

3. Beet. F. Betterave. S. Betarraga.—Prepare your ground as early in the spring as it will work light and mellow, by ploughing or digging to the depth of eighteen inches. A deep rich soil produces the finest roots. If a small bed of the earliest kinds

is sown as early as the season will admit they will be fit for use in June. After making your beds fine and smooth, mark out the drills eighteen inches apart, and one inch deep; drop the seeds along the drills, two inches apart; cover them, and press the soil a little over the seeds. When the plants are up and sufficiently strong, thin them to the distance of six inches apart in the rows. The ground should be often hoed round the plants, and kept free from weeds. Beets for early use, should be sowed about the first of May; for winter use, two or three weeks later, the beds kept clean through the summer, and the roots taken up before hard frosts in the fall. Care should be taken in cutting off the tops, not to injure the crown.

A good method of preserving beets fresh through the winter is, to lay them in a circular form on the bottom of the cellar, with the roots in the centre and heads outward; cover the first course of roots with moist sand; then lay another course upon them, and cover with sand as before, and so on till all are packed and covered.

The **Mangel Wurtzel** and **Scarcity Beet**, also the **Yellow Svedish** or **Ruta бага** turnip, are often raised to great perfection by field culture, for which we give the following directions:

Field culture. Select a deep mellow soil; if not sufficiently rich, make it so with well rotted manure, thoroughly mixed with the soil to the depth of a foot or more. This should be done by ploughing and harrowing when the ground is in good order to work light and fine. You may then throw up moderate ridges with the plough, about the distance of three feet apart. Pulverize and level the top of the ridges with a rake. Then, with a dibble or with the fingers, make holes on the centre of the ridge, two inches deep, and eight inches apart; and for beets, drop two seeds in each hole, and cover with fine dirt, pressing it a little over the seed. For the Swedish or Ruta бага turnip, we generally prefer sowing the seed in a bed of light, mellow soil, from the 1st to the 10th of July. After having attained a sufficient size for transplanting, the ground being prepared as above directed for beets, set the plants about ten inches apart in the row; while the plants are young, the ground should be often stirred around them, and kept clean from weeds through the season. The horse plough should be often used between the rows, especially in dry, hot weather.

The average crop of these roots, on good land, with proper management, is about fifteen tons to the acre. The quantity of seed required for the mangel wurtzel or scarcity beet, is about four pounds to the acre: for the Ruta бага or Swedish turnip, about one pound and a half. To quicken vegetation, the beet seed in particular, should be soaked twenty-four hours in the water.

There are various methods of field culture recommended and practised by different people. Some sow the seed broadcast: others in rows on level ground, from ten inches to four feet apart: some sow or transplant on moderate ridges, and others on very high ridges. But those who have had most experience in this branch of agriculture, will doubtless find their own experience and judgment the most successful guide; and those who have not, may follow the directions we have given, with such deviations as the nature, situation and circumstances of their soil, according to their best judgment, may require; and experience will doubtless prove the best teacher in the end.

These roots are highly and justly recommended for feeding milch cows in the fall and winter, & especially in the spring, if well preserved; also for fattening beef and pork. If fed in the raw state, they should be cut fine; if boiled, a little Indian meal or bran may be mixed with them.

4. Cabbage. F. Chou. S. Col.—This vegetable requires a light, rich, and rather moist soil. The seed may be sown about the middle of May, either in a bed for transplanting, or where they are intended to grow. The transplanting should be done when the ground is light, just before a shower, or in cloudy, moist weather, but never when the ground is wet and heavy. Before transplanting, dip the roots into a mixture made of rich mould and water. They should be hoed often while young, at least twice a week; the best time for hoeing is when the dew is on. If lice should appear on the plants, wet them with a strong decoction of tobacco, put on with a small brush, or rubbed on with the hand.

Cabbage should be secured before very cold weather, and their roots buried in the dirt; but never let them rot in a cellar under your dwelling house, unless you wish to destroy the health of your family.

5. Cauliflower. F. Chou fleur. S. Cauliflor.—This requires the best of rich, light soil. The early kind is most suitable for this climate. It should be sown about the 20th of September, for spring use; and it requires much care to keep them during the winter. For fall use, they may be sown in a hot bed in March, or in the open ground about the 20th of May. They should be protected from the northwest winds by walls or hedges, and great pains must be taken in every stage of their growth, as the extremes of heat and cold operate very unfavorably upon them.

To cook Cauliflower. Cut it when close and white, and of a middling size; cut the stem so as to separate the flower from the leaves below it; let it lie in salt and water a while; then put it into boiling water, with a handful of salt. Keep the boiler uncovered, and skim the water well. A small flower will require fifteen minutes boiling—a large one, about twenty. Take it up as soon as a fork will easily enter the stem: a little longer boiling will spoil it. Serve it up with gravy or melted butter.

5. Carrot. F. Carotte. S. Zinahoria.—The long orange or red is generally preferred, both for garden and field culture: the short orange is the earliest and deepest color.

Soil. Carrots require a light, mellow soil, with a mixture of sand. The ground should be dug or trenched deep, and well broken up, in order to give plenty of room for the roots to penetrate into the soil; it should also be made fine, smooth and level.

Sowing. As the seeds have a fine, hairy furze on the borders or edges, by which they are apt to cling together, they should be well rubbed between the hands in order to separate them. To forward vegetation, they should be soaked in warm water about twenty-four hours, and then mixed with dry sand, so as to separate them as much as possible in sowing. They should be sown in a calm time, and scattered as equally as possible.

The seed should be sown in drills about an inch in depth; the rows from eighteen to twenty inches apart, so as to give plenty of room to hoe between them. Some recommend from nine to twelve inches, and others from eight to ten: this may answer in small family gardens, where the land is scarce; but where there is a sufficiency of ground, the carrots are more easily cultiva-

ted, and will thrive better and grow larger at a greater distance.

Field Culture.—The best soil for field carrots is a deep, rich, sandy loam. To obtain a good crop, the soil should be a foot deep at least, and well prepared by very deep ploughing and thorough harrowing, so as to make the ground perfectly mellow, smooth and level. It is a matter of importance to wet the seed and cause it to swell, so as to hasten vegetation; because the weeds are apt to start very quick after sowing, and if the seed is not quickened, the weeds will get up and overpower the carrots, before they get large enough to hoe. The seed may be sown in drills, as directed for garden culture or on moderate ridges, from two to three feet apart, and cultivated between the rows with a horse plough. In hoeing, they should be thinned to three or four inches apart in the rows. Two pounds of seed is considered sufficient to sow an acre of ground in drills two feet apart.

Carrots are excellent for fattening beef, and for milch cows, horses are remarkably fond of them. When cut up small, and mixed with cut straw and given them, with a little hay, it is said they may be kept in excellent condition for any kind of ordinary labor, without any grain.

7. Celery. F. Celeri. S. Apio.—The *White Solid* is considered the best kind of celery. We have had the best crops by sowing the seed the latter part of March, in a hot bed. After the plants have attained the height of about six inches, they may be transplanted into trenches. Select for this purpose, a piece of rich ground, in an open exposure; lay out your trenches about eighteen inches wide, allowing six feet space between each trench; plough or spade out the earth from the trenches to the depth of sixteen or eighteen inches, if the depth of soil will admit; put about three inches of very rotten manure into the trench; then throw in upon this manure about five inches of the best soil; mix and stir the manure and soil well together; then set your plants by a line in the centre of the trench, leaving a space of four inches between each plant. If the weather be dry, water the plants freely. They should be shaded till the roots strike and the plants begin to grow; the covering should be taken off at night.

When they have attained the height of ten inches, you may commence earthing them up; but never do it while the plants are wet. In performing this, care should be taken to gather all the leaves up with the hand while drawing the earth up equally on each side of the row, being careful to leave the hearts of the plants open. Repeat the earthing once a week or oftener, till about the last week in October; then bury the whole with dirt, to remain till time of digging.

Celery may also be raised by sowing the seed in a rich, moist soil, and removing it into trenches as before directed; or by sowing it in the trenches where it is to grow. As the seed vegetates very slowly, it should be soaked, in warm water for twenty-four hours before sowing. To preserve it through the winter, dig it before the ground freezes deep, and pack it away in casks or tubs with dry sand, and keep it in the cellar. Some recommend to cover the ridges with boards, and dig the celery as it is wanted for use. This may answer in a dry, sandy soil; but in a wet or moist soil it is apt to rot and spoil.

8. Corn. F. Mais. S. Maiz.—The *Early Canada* is the earliest kind of corn we raise, and is preferred only for being several weeks earlier than the common field corn. The *sweet* or *sugar* corn is the best

for cooking in its green state, as it remains much longer in the milk, and is richer and sweeter than other kind. It is rather later than the common field corn, and is therefore fit for the table when the field corn has become too hard. Alluvial, or any gravelly or sandy soil, if made sufficiently rich and properly cultivated, will produce a rich crop. It should not be planted till the weather becomes settled and warm, and the soil sufficiently dry. It may be planted in hills, like the common field corn, or in a garden in drills, like broom corn; as in this way a larger crop may be produced from the same quantity of ground. Care should be taken that no other kind of corn be planted near it, as by intermixing, it will soon become adulterated and injure the crop. This corn may be preserved for winter use, by parboiling it when green, and cutting it from the cob and drying it in the sun. It then affords a wholesome and agreeable dish when cooked like bean porridge, or what is called *succotash*.

9. Cucumber. F. Concomber. S. Cochambro.—The early kinds are most suitable for early planting. For the purpose of obtaining them very early, some plant the seed in a hot bed, or in elevated hills, well manured with rotten horse-dung, and covered with glazed frames. But in order to grow fair, handsome cucumbers, the soil should be rich, light and warm, and well mixed with rotten manure; or a good shovel full may be put into each hill, and thoroughly mixed with the soil in the hill. We generally plant the early kinds about the first of May, in hills about four feet apart each way, elevating the hills a little above the level of the ground. Put in six or eight seeds into each hill, and cover them half an inch deep with fine dirt, and, as in all other planting, press the earth a little over the seeds with the back of the hoe.

When the plants are up, examine them closely, as they are frequently attacked by the yellow bug or fly. To prevent this, take rye flour, sifted ashes and ground plaster, equal parts of each, well mixed together, and dust the plants all over with it. If the plants are dry, sprinkle them with water before you dust them. Snuff, tobacco dust, or the stalks boiled in water, soot, or a decoction of elder and walnut leaves, are all very good to prevent small bugs and insects from injuring any young plants. Keep the ground loose and clear of weeds, and in dry weather, water your plants freely. After they have attained a vigorous growth, and the danger from insects is over, they may be thinned out, leaving two of the most thrifty in a hill.

Those intended for pickling may be planted from the 10th to the 20th of June. If the soil is rich and warm, the 20th is preferred. The long kinds are preferred by some for pickles. The cultivation and management of these is the same as the others excepting that the hills should be at least five feet apart each way. Some gardeners recommend nipping off the first runner bud of cucumbers and melons, from an idea that they will become more stocky and fruitful.

10. Lettuce. F. Laitue. S. Lachuga.—Lettuce requires a mellow soil. It should be sown as early in the spring as possible: to insure a very early supply, it may be sown late in the fall—it will then start early in the spring; but to obtain a constant and regular supply through the season, it should be sown broad-cast, moderately thin, or in rows from twelve to eighteen inches distant, according to the usual size of the different kinds. Rake in the seed lightly, with a fine tooth garden rake. When the plants are up, stir the ground lightly while

it is dry, and clear out the weeds: thin the plants where they crowd each other. Those intended for large heads should stand eight or ten inches apart: the hardy kinds, such as the *early green*, *early curled*, and *ice coss*, may be sown in September, and covered with straw at the approach of severe weather. Or any kind may be sown in a hot bed in March, and transplanted in the open ground at the proper season.

11. Melon. F. and S. the same.—This plant requires a warm gravelly or sandy soil, made very rich with well rotted manure from the hog-pen, or rich old compost, well mixed with the soil. The hills may be formed after the manner recommended for cucumbers. But if the natural soil is not sufficiently warm for melons, then dig a hole of sufficient size, and put in a large shovel full of rotten horse dung; upon this put the compost or rotten hog dung, with a quart of slacked lime: then add some good mellow soil, and mix it up well on the surface without disturbing the horse dung at the bottom. The hills may be made from six to eight feet apart: for water melons, on rich, warm land, where they grow most thrifty, nine feet is near enough.

Plant about the middle of May, if the weather be warm and the ground in good order. The seed should be soaked a few hours in warm milk and water, with a little soot in it. Put six or eight seeds in a hill, and cover half an inch deep. When the plants become strong and thrifty, so as to be out of danger, pull out the weakest, leaving only two in each hill; indeed one would always be sufficient, if secure from all accidents. The ground should be often hoed round the hills, and kept loose and light. If you would raise good melons, you must plant them remote from any other vines; for in the vicinity of cucumbers, squashes, pumpkins, gourds and the like, they will infallibly degenerate. In this respect, therefore, they require great care and attention. To secure them from the ravages of insects, pursue the directions given for cucumbers.—[See cucumber]

(To be continued.)

The most remarkable result of barometrical measurement was recently obtained, by Baron Von Humboldt, showing that about 18,000 square leagues of the north-west of Asia, including the Caspian Sea and the Lake of Aral, are more than 320 feet below the level of the surface of the ocean in a state of mean equilibrium. This enormous basin is similar to some of those large cavities on the surface of the moon, and is attributed by Humboldt to the upheaving of the surrounding mountain chains of the Himalaya, of Khen-Lun, of Thion Chan, to those of Armenia, of Etzerum, and of Caucasus, which, by the undermining of the country to so great an extent, caused it to settle below the usual level of the sea. The very contemplation of the destruction which would ensue from the bursting of any of those barriers which now shut out the sea, is fearful.—[Mrs. Somerville.]

Mexico.—According to the New Orleans Bee of 24th ult., the closing of the Mexican ports, heretofore alluded to, was only a partial and not a general measure, and had not been sanctioned by the Central Government. The Bee adds, "the ports of Mexico are now open to our trade, and greater tranquillity prevails in that country, than we had anticipated."

SUMMARY.

From the New-York American.

COMMERCE OF FRANCE.—In the Journal des Debats of 27th Nov., we find an examination of the official Custom House returns of the commerce of France for 1834, the results of which are presented in the annexed tabular form.

Table of the Imports and Exports of France.

Countries whence imports, and to which exports, are made.	Value of merchandise imported in France.	Value of merchandise exported from France.
	fr.	fr.
Russia	17,600,028	6,910,547
Norway	10,617,136	1,328,792
Prussia	12,511,543	7,025,988
Hanseatic Cities	4,307,259	10,447,933
Holland	7,271,321	13,743,508
Belgium	51,559,586	37,681,317
England, including Gibraltar, Malta and the Ionian Isles	27,093,068	62,431,386
Spain and Canaries	21,251,133	33,130,331
Sardinia	82,816,232	30,331,634
Scotly	11,038,348	5,933,629
Switzerland	12,713,348	29,331,960
Germany	21,493,123	26,079,117
Turkey & the Archipelago	10,853,093	10,591,614
British India and S. Wales	16,133,001	4,392,508
United States	76,363,796	78,136,275
Brazil	6,212,958	18,937,103

Annexed to this table, are the following observations, which we translate, of the writer in the Journal des Debats. "What will first attract notice in this table, are the columns which indicate the importance of our commerce with the United States. We were prompted to look into the returns for 1833, to ascertain our then relations, and we found that the importations thence into France amounted to seventy-three millions eight hundred and eighty-five thousand francs—not varying much from those of 1834; but our exportations thither reached one hundred and seven millions, nine hundred and eighty-four thousand francs. It is reasonable to suppose that the apprehensions of war between the two countries, have had their full influence in bringing about so striking a reduction of our exports: but even in the actual amounts stated in the above table, enough exists to show to each, how much they would lose by a bloody controversy: and this consideration alone will keep them at peace. At least it is fair to assume this ground, until it shall be demonstrated, that of two alternatives, the most absurd one is that, which two great nations must necessarily embrace."

Copy of General Rule adopted by the Supreme Court, 5th January, 1838.

"When a writ shall be brought, pursuant to 2 R. St., 457, §1, by a foreign corporation, security shall be given by Bond, executed by two persons, in the penalty of \$500, conditioned to pay all costs which may be awarded to the defendant, which bond shall be filed with the writ or declaration, by which the suit shall be commenced. The defendant may except to such securities, and they shall justify according to the practice. 2 R. St., 620."

Gov'r. Ritner, of Pennsylvania, has vetoed a resolution passed by both houses, for the purchase of certain locomotive engines for the Columbia and Portage Rail Ways. This proceedings appears to have produced considerable excitement at Harrisburg, and upon a motion to print an extra number of copies of his Excellency's message on the subject, considerable debate ensued; the motion, however, was carried by a vote of 41 to 25.—(N. Y. Amer.)

IMPORTANT DISCOVERY.—Peter Ritner, Esq., of Kirtland Clearfield co., P., has succeeded in making iron with mineral coal. This iron has been tried, and pronounced by iron masters to be of an excellent quality.—[lb.]

It is stated in the Boston papers, that the Independence 74, in Charlestown Navy Yard, is about being raised into a frigate of the larger class, to mount 64 guns. The sloop of war Boston, of 24 guns, is nearly ready for sea, at the same yard.

The Philadelphia papers announce with every manifestation of regard and regret, the death, after a very short illness, of Robert Vaux, one of the Justices of the Common Pleas of that city, but better known here, and elsewhere, as the intelligent and indefatigable friend, and promoter, of every plan designed to improve education, restrain crime, and augment individual and national happiness.

Two men, Russell and Crockett, convicted of arson in Boston, have been sentenced to be hung.

BANK OF THE UNITED STATES.—At an election, on the 5th instant, the following gentlemen were

chosen Directors of the Bank of the United States for the ensuing year:

Nicholas Biddle, Thomas Cadwalder, Daniel W. Cox, Manuel Eyre, John Bolden, Ambrose White, John R. Neff, Caleb Cope, William Platt, Robert Ralston, Jr., Alexander Henry, Charles A. Davis, of N. Y., Matthew L. Bevan, Roswell L. Colt, of N. Y., Richard Willing, James Swan, of Maryland, Joshua Lippencott, John McKim, Jr. of Maryland, Henry Pratt, Wm. Drayton, of S. C.

And at a meeting of Directors, held the 6th, N. Biddle, Esq., was unanimously re-elected President.

MAIL ROBBERIES.—Some weeks ago, it was discovered that a depredation had been committed on the great mail between Maysville, Ky., and Zanesville, Ohio. A prompt investigation was made, and we learn with pleasure has resulted successfully.

A driver of the name of Reynolds and his confederate Wickerham, a storekeeper, it is said, at Sinking Spring, Ohio, have been arrested. Reynolds has confessed, and delivered up money and drafts. They were immediately taken to Columbus, where the Court of the United States being in session, they have been indicted.

At the same Court, Smith, a mail robber heretofore indicted, was convicted.—[Wash'n Globe.]

EXPERIMENT ON A DRUNKARD.—Ignition of human blood.—An experiment was recently made in Berwick, (Maine) by a student of medicine, on the blood of a common drunkard. The student had probably swallowed two gallons of rum during the previous five days, during which time he had taken little or no food. The student remarked to him that he was in danger of perishing by spontaneous combustion, and stated that his blood was so much enumbered by alcohol that it could be ignited. The drunkard asked to be bled. A pint of blood was taken from him. A bowl containing this blood was handed to one of the spectators, who ignited a match, and on bringing it in contact with the contents of the bowl, a conflagration ensued, burning with a blue flame for the space of twenty-five or thirty seconds.

[From the Albany Argus.]

ONONDAGA SALT SPRINGS.—The annual report of the superintendent of the Onondaga salt springs, and the inspector of salt in Onondaga county, made to the Senate on Saturday, exhibits the following results: Quantity of salt manufactured and inspected during the year 1835, bu 2,209,867 38-56. Amount of duty collected, \$132,792. Amount paid into the treasury, 121,856 28. Expenses of pumps, &c., 6,130 60. Collected for pumping, 4,445 67.

LOWER CANADA.—To judge by the newspapers this province of the British Empire is on the eve of a revolution. The line of demarcation, which has for some time been rapidly manifesting itself, between the British settlers and the native French population, is now so distinct, that the British settlers are called upon by ardent writers in the newspapers, both of Montreal and Quebec, to refuse the payment of taxes, "because they are not represented," the Canadians having elected a great majority of their own countrymen to the Legislature.

Lord Gosford, the new Governor General, is charged with partiality for the Canadians and every thing that is French.

We infer, however—looking on as a spectator merely—that strict impartiality on his part is construed, by those who have heretofore been the peated party, into partiality for their opponents.—At any rate the Governor General does not apprehend any difficulties, and thus cavalierly decline the aid of a volunteer rifle corps, raised "to preserve the constitutional rights of British subjects in Canada."

{ Castle of St. Lewis,
Quebec, Dec. 28, 1835.

Gentlemen,—I have received and laid before the Governor in Chief your memorial dated the 23rd instant, in which, on behalf of yourselves and others, you pray the sanction of His Excellency to the organization of eight hundred effective men, in Montreal, under the appellation of the "British Rifle Corps," for the purpose of assisting, as far as may be in your power, to preserve inviolate the connexion which exists between Great Britain and Lower Canada, and to maintain unimpaired the rights and privileges conferred to you by the Constitution.

I am desirous to acquaint you in reply, that the

connexion on and the rights which you mention, are not considered by His Excellency to be in danger; and that, if they were, their safety would be best provided for by the authority of the Government, and not by the formation, in a time of entire peace, of an armed corps at the instance of private individuals. Such a measure is calculated not to promote the good purpose you state you have in view, but on the contrary to endanger the public tranquillity, which, His Excellency desires me to assure you, he is resolved to maintain against all attempts, from whatever quarter proceeding, to the full extent of the powers vested in him by law.

I have the honor to be, Gentlemen, your most obedient humble servant,

S. WILCOTT, Civil Secretary.

Francis C. T. Arnold, M. D., Francis Hunter, Robert Weir, Jr., Aaron Philip Hart, Robert Mackay, Esquires.

This reply was submitted to a large meeting of the corps. Several addresses were made, and it was ultimately resolved that an answer should be transmitted to His Excellency, setting forth at length the numerous grounds which, in the opinion of the inhabitants of Montreal, call for the establishment of an armed body, for the maintenance of British supremacy. The corps still continues to advance in numbers, and ere long will be composed of a thousand instead of eight hundred, as was originally contemplated.

MEXICO.—The unsuccessful attack by Mejia, aided by an American force, which he took with him from N. Orleans, upon Tampico, has led to the military execution of twenty eight prisoners, taken by the Mexicans on that occasion.

Abhorrent as such cruelty is to every feeling of humanity, it was a fate which those who left their own country to take part in a predatory attack upon a nation with which we are at peace, must have foreseen as possible—and have resolved to risk: there can, at any rate, be no ground for the interposition on the subject of the United States.

List of persons shot at Tampico at 8 o'clock in the morning of the 14th December, 1835.

Arthur H. Clement, of Phila., aged 40 no parents.	
Thomas Whitaker, do	30
Wm. C. Barclay, N. Y.	20
Jacob Morrison, do	21
Edward Mount, do	23
Charles Gress, Penn.	23
Isaac F. Leeds, N. J.	30
Mordecai Girt, Md.	53
David Long, Ohio,	25
Wm. H. Makay, Virginin,	20
Jonas K. Stuart, Vermont,	33
Daniel Holt, Canada,	18
James Cramp, England,	22
Lewis Jacob, do	21
John Martin Ires, do	35
Thomas H. Rogers, Ireland,	23
Daniel Donelly, do	20
James Farrall, do	23
Auguste Sausseur, France,	22
Demeussent, do	25
Fred. Dubois, Dantzic,	24
Fred. Wm. Marier, Germany,	23
Henry Wagner, do	24
John Irish, do	24
Andrews Helm, do	50
George Iselin, do	27
L. M. Bellepoint, H.mover,	26
Wm. H. Morris, N. Pro.	28

EXECUTIVE APPOINTMENTS.—Among many of those recently made to, and confirmed by, the Senate, the following are of general interest:

Powhatan Ellis, to be Chargé d'Affaires to the United Mexican States.

R. M. Patterson, to be Director of the Mint.

J. C. Pickett, to be Fourth Auditor.

Franklin Peale, to be Melter and Refiner of the Mint at Philadelphia.

Edward D. Ingraham, Henry Toland, Cheney Ickman, James Rogers, David Henshaw, to be Directors of the Bank of the United States.

In our State and vicinity:

Hiram Perry, Surveyor and Inspector at Albany, vice J. T. Vernon resigned.

J. R. Hardenberg, Surveyor of Perth Amboy, and Inspector of revenue for the port of New Brunswick, vice H. V. Low resigned.

The New York Stock and Exchange Board have appropriated to the Relief Committee \$1000.

Fire Department \$250.

A CARD.

TO THE SUBSCRIBERS AND FRIENDS OF THE
RAILROAD JOURNAL, MECHANICS' MAGAZINE, NEW-YORK
FARMER, AND APPRENTICE'S COMPANION;

All of which publications have been delayed nearly a month, in consequence of the destruction by the late conflagration of the press and materials with which they were printed. The Editor and Proprietor desires to say, that they will all be again regularly issued in a few days, and forwarded with care and punctuality.

In consequence of the heavy loss sustained by the fire, including not only nearly all my printing materials, but also nearly all my stock of back volumes, sheets, and numbers of the different publications, and all of my stereotype plates of five volumes of the Mechanics' Magazine, I am compelled to ask the indulgence of their patrons for a few days, until I can get a new office arranged, so as to present the works to them improved both in appearance and in matter—and as I have relinquished the management of the business department of the New-York American, for the purpose of devoting myself exclusively, hereafter, to my publications, I hope to render them more interesting and more useful than I have heretofore been able.

I am also induced by my losses, which amount to over eight thousand dollars, to request each friend of my publications to aid in extending their circulation, and of each present subscriber the favor to remit the balance due, if any there be, and in advance for the year EIGHTEEN HUNDRED AND THIRTY-SIX, that I may be able to make the works worthy of increased patronage, and useful to community.

D. K. MINOR, EDITOR AND PROPRIETOR.

New-York, January 15, 1836.

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